The Relationship between Green Purchase and Purchase Intention among Generation Z in Malaysia

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Abstract

Green products are specifically crafted to safeguard or enhance the environment through actions such as conserving energy and resources, as well as minimizing or eliminating the generation of toxic waste, pollution, and the utilization of harmful substances. In Malaysia, major companies have launched their green programs to demonstrate their commitment to environmental sustainability. The individual consuming ability has substantially increased as the economy and industrial development have grown rapidly, leading to greater damage to the environment. There is still a knowledge gap between environmental concerns and Malaysians. The majority of educated young consumers still have a lack of understanding of green products. Therefore, the objective of this study is to identify the level of green purchase intention and to investigate the relationship between environmental knowledge, environmental concern, and perceived consumer effectiveness on green purchase intention among Generation Z in Malaysia. This study adopts quantitative research, and the data was collected using a non-probability sampling approach. A sample of 350 respondents was used to answer the questionnaire and all the data were analyzed through SPSS software. The researcher adopted descriptive analysis and inferential analysis in the process of data analysis. The outcome indicated that most factors attained a moderate mean score based on the central tendency level. The results of the correlation analysis showed that all the independent variables were positively correlated with green purchase intention. The research findings conclude that environmental concern had the strongest relationship with green purchase intention among the three factors.

1. Introduction

Green products are those that prioritize the safety of both humans and the environment. They are designed to minimize resource consumption, reduce waste generation, and avoid any form of animal cruelty (Nia *et al.*, 2018). A crucial aspect of green products is their consideration of the entire product life cycle, aiming to minimize any negative impacts on nature (Nia *et al.*, 2018). These efforts encourage collective participation in technology development toward green products (Nia *et al.*, 2018). In the production sector, numerous approaches can be adopted to ensure the creation of environmentally friendly products, one of which is the implementation of sustainable green product concepts (Nia *et al.*, 2018). By embracing such concepts, manufacturers can contribute to the preservation of the environment and encourage sustainable practices.

In Malaysia, major companies have launched their own green programs to demonstrate their commitment to environmental sustainability. One of the hypermarkets in Malaysia that promotes green products is Aeon. Aeon has implemented various initiatives to promote sustainability and minimize environmental impact. They have introduced practices such as "No Plastic Bag Day Every Saturday" to minimize the usage of plastic and encourage shoppers to bring their own reusable bags. Aeon was fostering increased environmental consciousness and further promoting the significance of safeguarding the environment to both customers and the ecosystem. Besides that, Aeon also offers a range of eco-friendly products in its stores, including organic food, environmentally friendly cleaning products, and sustainable household items. Their aim is to offer customers choices that are in line with their environmentally conscious values and contribute to a sustainable future. According to the information of Aeon Co. (M) BHD, there are almost 28 Aeon shopping centres located in Malaysia.

1.1 Research Background

The issue of the environment has become more and more serious in this globalization. The rapid growth of the economy has led to significant environmental degradation due to human activities, including the excessive consumption of natural resources and extensive industrial practices (Chuah *et al.*, 2021). Malaysia meets enormous obstacles in getting long-term development. Due to the issue of irresponsible consumption, Malaysia suffers from a variety of environmental problems, including increasing sea levels, water and land pollution, climate change, and acid rain (Chuah *et al.*, 2021). The occurrence of environmental disasters, the destruction caused by global warming, and the impacts of climate change have raised public awareness regarding the environment. As a result, there is a growing global recognition of the significance of environmental sustainability.

Previous studies have indicated that there is a direct correlation between the increased demand for consumer products and services and the potential negative consequences on the environment (Sun *et al.*, 2020). Individual consumption habits have a negative impact on the natural environment (Sun *et al.*, 2020). The individual consuming ability has substantially increased as the economy and industrial development have grown rapidly, leading to greater damage to the environment (Sun *et al.*, 2020). According to the YBhg. Dato' Seri Ir. Dr. Zaini Ujang (2021), sustainable consumption, and production patterns are critical for reducing the natural resource utilization and depletion of the environment, which leads to environmental wellness. Consequently, numerous companies have introduced green products to the market as a means of promoting environmental conservation (Ghazali *et al.*, 2021).

According to the current conditions, there is still a knowledge gap between environmental concerns and Malaysians (Yahya, 2019). As a result, it is critical to solve the problem by the relevance of the government's role, policies, and laws in developing sustainable consumption. Besides that, education must be one of the approaches used to raise environmental concerns among the general public, particularly among young Malaysian adults, who account for approximately 30% of the population and use them as change agents (Yahya, 2019). They have a part in developing the next generation's current lifestyle, which will promote sustainable practices of consumption to make certain that sustainable consumption practices activity (Yahya, 2019). Therefore, fostering behavior of green consumption among young consumers proves to be an effective strategy for promoting and preserving environmental sustainability.

1.2 Problem Statements

According to the Global Green Economy Index (GGEI) findings, Malaysia does not appear in the top-ranked countries when it comes to climate change, environmental factors, and overall efficiency (Rusli *et al.*, 2022). The production of solid trash has increased over time, particularly in cities as a result of population expansion, fast urbanization, an advanced economy, and growing living standards (Mejia, 2020). According to the research, Malaysians generate at least 1.17 kilograms (kg) of garbage per person each day, or roughly 37,890 tonnes each day (Noor *et al.*, 2023). The effects on the environment worsen as consumption increases. Additionally, the environmental sustainability of Malaysia has become a pressing concern (Zakaria *et al.*, 2023). There is a clear knowledge deficit among Malaysians concerning environmental issues (Zakaria *et al.*, 2023).

In Malaysia, the majority of educated young consumers still have a lack of understanding of green products (Rusli *et al.*, 2022). It highlights that, despite their awareness of environmental concerns, young consumers do not often decide on green products while purchasing (Rusli *et al.*, 2022). As a result, the reaction of young consumers to green products is unreliable. Nevertheless, the shift in consumer interest toward embracing green purchasing intentions has not been fully established (Ahmed *et al.*, 2022). Many consumers still possess an attitude of ignorance when it comes to green products (Ahmed *et al.*, 2022). Hence, it can be inferred that there is a lack of awareness regarding green product purchasing behavior among young consumers in Malaysia, and there is insufficient information and research on purchase intention towards sustainable consumption or green

products. Creating awareness among the youth about green practices is crucial in promoting green and sustainable behavior among the younger generation (Rusli *et al.*, 2022).

However, according to a past study, the Z Generation is seen as the person who has greater concern for the environment and is more environmentally conscious and prepared to spend more on green products (Ham *et al.*, 2022). This effect could be seen at the micro-level, where individuals have improved their aptitude for green production and consumption in their daily routine, as reflected in the daily news, website, and other media channel surveys (Xia *et al.* 2022). Malaysian Generation Z is concerned the issues about social and environmental (Tjiptono *et al.*, 2020). Therefore, further research is necessary to gain a deeper understanding of the environmental concerns of Generation Z. This understanding will help marketers identify the areas in which to allocate their marketing resources and aid in the creation of tailored products for different generations (Abdelkader *et al.* 2021).

Therefore, to achieve the research objectives the level of green purchase intention among Generation Z in Malaysia is determined. Furthermore, the relationship between environmental knowledge on green purchase intention and the relationship between environmental concern on green purchase intention among Generation Z in Malaysia are also determined. Consequently, the the relationship between perceived consumer effectiveness on green purchase intention among Generation Z in Malaysia is identified.

1.3 Scope of the Study

The scope of this research was focused on the young consumers in Malaysia, which is Generation Z who was born in the year 1997 until 2012 and are willing to purchase the green products (Lee, 2022). Pew Research categorizes individuals between the ages of 11 and 26 in 2023 as members of Generation Z (Mohd Johan et al, 2022). Due to the consideration of the consumption capacity and income of minors, the research was adjusted to include Generation Z between the ages of 15 and 26. Thus, there may be a few differences in the purchasing intention of green products since students and consumers with regular jobs. This research target Generation Z as the respondent because the younger generation is important since it indicates the community's future customers.

1.4 Significance of the Study

This research identified the level of green purchase intention among Generation Z in Malaysia. This research also investigates the relationship between factors affecting green purchase intention. This research can provide a better reference for future researchers or related authorities on the factor affecting green purchase intention among the young generation. This research provides a better understanding to the industries, sellers, and suppliers to lead them to know about the current trend and intention level of the young consumer in the marketing of green products. Besides that, the industries can have more understanding of the inner opinions of young consumers and manufacture some environmentally friendly products that conform to the requirements of the young generation. Thus, this situation can attract more and more young consumers to buy green products and improve their awareness of green products.

2. Literature Review

This chapter focuses on the literature review of the relationship between green purchase and purchase intention among Generation Z in Malaysia.

2.1 Green Product

Green products are specifically crafted to safeguard or enhance the environment through actions such as conserving energy and resources, as well as minimizing or eliminating the generation of toxic waste, pollution, and the utilization of harmful substances (Zhuang *et al.*, 2021). These products are commonly referred to as environmentally friendly or ecological, as they aim to protect and enhance the environment while minimizing negative impacts on both the environment and human health. In contrast to conventional products, green products often possess characteristics such as biodegradability, renewability, reusability, and/or recyclability, resulting in minimal environmental impact (Zhuang *et al.*, 2021). Not only do green products mitigate environmental risks, but they also contribute to an elevated quality of life for consumers and society at large (Zhuang *et al.*, 2021).

In Malaysia, initiatives like the Green Technology Master Plan (GTMP) and organizations supporting green campaigns play a role in educating Malaysians about the significance of consuming green products (Surianshah, 2021). However, their impact on environmental awareness remains uncertain, especially in Sabah (Surianshah, 2021). Green or sustainable products are renowned for their environmentally, socially, and economically friendly attributes. According to Belz and Peattie (2012), these products should meet customer satisfaction, focus on ecological and social relevance, demonstrate environmental friendliness, contribute to socio-ecological

advancement, showcase ongoing improvement, and effectively compete with other products. These factors could potentially contribute to fostering an individual's intention to consume green products (Surianshah, 2021).

2.2 Purchase Intention

Consumers' level of intention, such as considering, desiring, and possibly making a purchase is described as purchase intention according to Zeithaml (1988). The term "green purchasing intention" (GPI) has become a keyword nowadays and referring to the inclination to buy products or services that are less harmful to both environment and human. Consumers who are interested in purchasing green products that are environmentally friendly are regarded as having "green purchase intentions." The willingness of consumers drives the purchasing of environmentally friendly products (Paul *et al.*, 2016). The earlier research discovered that the purchasing intentions of Malaysian customers for green and environmentally friendly products are influenced by their awareness of environmental issues (Mei *et al.*, 2012).

Ahmad and Zhang (2020) revealed that the intention to make environmentally conscious purchases includes obtaining, using, and disposing of products and services with reduced risks to society in general (Ahmad et al,2020). This concept manifests as an internal inclination of consumers to opt for eco-friendly products, minimizing harm to the environment (Dutta *et al.*, 2022). The most comprehensive and authoritative theory elucidating green purchase intentions is the Theory of Planned Behavior (TPB), developed by Fishbein, Jaccard, Davidson, Ajzen, and Loken in 1980. According to TPB, the behavioral intention of consumers is the ultimate result of their attitude, subjective norms, and perceived behavioral control, collectively explaining their purchasing intentions. Social researchers widely employ TPB in their studies to elucidate the relationship between behavioral intentions and purchase patterns, contributing to the understanding of consumers' green purchase intentions (Marwat et al, 2022). The previous study uncovered that green purchase intention signifies a preference for ecologically friendly products, driven by a broader concern for the well-being of both society and the environment (Dutta et al, 2022). This inclination reflects an inherent human desire to choose more sustainable avenues for consuming products and services. Summing up the discussion, it becomes evident that green purchase intention arises from consumers' inclination towards acquiring and consuming environmentally friendly products (Mazhar *et al.*, 2022).

2.2.1 Theory of Planned Behaviour (TPB)

The Theory of Planned Behavior (Ajzen, 1991), derived from the concept of reasoned action (Ajzen, 1991), establishes a connection between individuals' beliefs and their actions in the context of potential consumers. According to these theories, individuals make informed and rational decisions regarding their engagement in specific behaviors based on the information available to them (Thu *et al.*, 2022). Ajzen's Theory of Planned Behavior (TPB) identifies three factors that influence an individual's intention to engage in a behavior: their attitude toward purchasing environmentally friendly products, the perceived social pressure to purchase such products (subjective norm), and the perceived behavioral control over performing the behavior. In the enhanced iteration of the Theory of Planned Behavior (TPB), environmental concern is integrated as a crucial factor in green marketing literature, aiming to attain a triple bottom line (TBL) approach (Thu *et al.*, 2022). For instance, the study conducted by Chen and Tung (2010) demonstrated the efficacy of the Theory of Planned Behavior (TPB) model in elucidating consumers' intentions to recycle. The identification of overall predictor interactions further strengthens the rationale behind using the Theory of Planned Behavior to predict consumers' intentions to purchase green products (Thu *et al.*, 2022).

2.2.2 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA), developed by Ajzen and Fishbein, was established to explain consumer behavioral intentions. The Theory of Reasoned Action (TRA) is a theoretical framework used to examine how consumers form their attitudes and how their behavior can be influenced by others (Siyal *et al.*, 2021). Furthermore, TRA explores the cognitive mechanisms that influence behavior (Kershaw *et al.*, 2007). It encompasses non-routine thinking behaviors and considers actions that require substantial evaluation (Siyal *et al.*, 2021). Within the context of environmental issues, TRA model is utilized to explore the influence of consumers' environmental attitudes on their behavior and choices when it comes to environmentally friendly purchases. Numerous researchers, such as Baker and Ozaki (2008), Gupta and Ogden (2009), and Kalafatis *et al.* (1999), had utilized this theory in various fields to analyze human behavior. Additionally, the TRA has been extensively used to explore consumers' purchasing intentions and purchasing behavior (Cheah, 2009). Ajzen (2005) also emphasized that an individual's intention includes behavioral features, indicating that after deciding to partake in a specific behavior, the intention transforms into action when a fitting opportunity presents itself.

2.3 Factors of Green Purchase

2.3.1 Environmental Knowledge

Environmental knowledge can be described as an understanding individuals have regarding environmental issues (Fabiola et al, 2020). Environmental knowledge pertains to the fundamental comprehension of information, concepts, and interrelationships associated with the natural environment and its key ecosystems. In studies focusing on environmental knowledge, researchers commonly employ various categories such as general environmental knowledge, as well as subjective and objective environmental knowledge, to predict individual behaviors aligned with environmental consciousness (Lee, 2017). To put it another way, environmental knowledge includes the knowledge of the environment, important relationships that affect environmental consequences, and individual environmental responsibility that results in sustainable growth (Fryxell *et al.*, 2003).

Existing literature suggests that heightened environmental knowledge correlates with an augmented inclination among consumers to choose environmentally sustainable products (Zhuang *et al.*, 2021). Consequently, environmental knowledge significantly and positively influences consumers' intentions to purchase eco-friendly products (Zhuang *et al.*, 2021). The intention of consumers to purchase green products will rise when they gain more environmental knowledge. Therefore, increased environmental knowledge results in significantly assisting in improved pro-environmental behavior. Jusoh (2023) found a positive association between environmental knowledge and green product purchasing behavior. However, Larsson and Khan (2012) report that the correlation between knowledge and green product purchasing behavior is statistically insignificant. They argue that even when consumers have comprehensive information about a product, they might abstain from making a purchase due to factors such as financial constraints, personal preferences, or a lack of trust (Larsson et al, 2012).

2.3.2 Environmental Concern

Environmental concern refers to the level of concern for environmental issues and is a degree of effort to solve these issues (Dunlap *et al.*, 2002). Environmental concern plays a importance role in shaping consumer decisions (Rashid et al, 2022). It reflects the intensity of emotions and commitment towards environmental issues (Rashid et al, 2022). This essential characteristic serves as an expression of an individual's compassion and dedication to environmental concerns (Rashid et al, 2022). The level of consumer awareness regarding environmental issues significantly impacts their purchasing decisions, especially when it comes to environmentally friendly products. Consumers who demonstrate higher levels of environmental concern are more inclined to choose green products, leading to the adoption of a healthier and environmentally friendly lifestyle (Paul *et al.*, 2016).

Green purchasing intentions are positively influenced by environmental concern, consistent with the findings of Li et al (2019). The study underscores the significance of environmental concerns, asserting that when consumers encounter issues or express concerns about the usage of products, it heightens their inclination to make environmentally responsible purchase decisions (Li et al, 2019). A finding corroborated by Naalchi during previous research revealed a noteworthy impact of environmental concern on intention (Naalchi Kashi, 2020). In addition, consumers with a heightened environmental concern tend to exhibit a robust intention to purchase eco-labeled products (Heo & Muradhilaran, 2019). People with heightened levels of environmental concern find it easier to select and obtain products that are environmentally friendly (Sharma & Foropon, 2019).

2.3.3 Perceived Consumer Effectiveness

Perceived consumer effectiveness refers to an individual's belief in their ability to contribute to solutions and mitigate negative environmental consequences. It encompasses their perception of personal efficacy in making a positive impact on the environment (Tan, 2011). Understanding customer behaviour has focused on perceived consumer effectiveness (Dagher *et al.*, 2014). Many researchers have found that perceived consumer effectiveness has a major impact on consumers' eco-friendly behaviour (Vermeir *et al.*, 2008). When consumers discover that they can contribute to environmental protection, they will be more willing and have a high intention to purchase green products.

For instance, the previous study indicated that Sharma and Dayal discovered that perceived customer efficacy had a positive influence on green purchasing intention (Dayal *et al.*, 2017). According to Sharma and Foropon, this factor has been discovered to be a strong predictor of purchase intention and to be strongly associated with consumer attitudes toward green products (Sharma *et al.*, 2019). It has been observed that demographic characteristics may play a role in determining the perceived effectiveness, with younger generations seeking greater efficacy in their contributions towards sustainability (Kovacs, 2022). Past research has indicated variations in PCE across demographic groups (Torres, 2020), with results suggesting a more pronounced impact in younger age groups (Kovacs, 2020).

2.4 Conceptual Research Framework

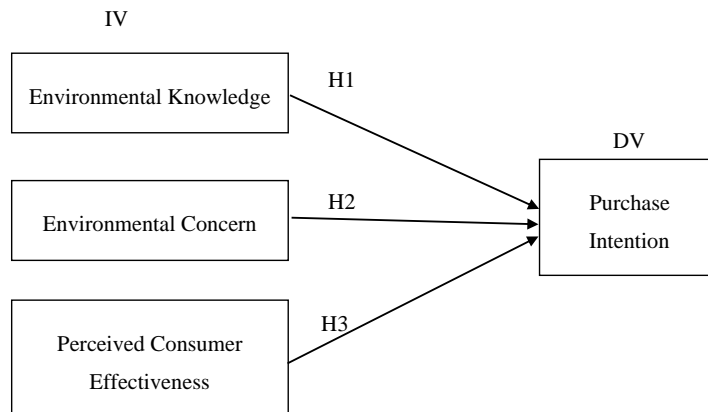Based on the literature review, this study is conducted to develop a research framework as Fig. 1.

Fig. 1 *Conceptual framework of relationships between green purchase and purchase intention among Generation Z in Malaysia*

After that, the following hypotheses are aimed to be tested:
H1: There is a relationship between environmental knowledge and purchase intention.
H2: There is a relationship between environmental concern and purchase intention.
H3: There is a relationship between perceived consumer effectiveness and purchase intention.

3. Research Methodology

3.1 Research Process

The initial process in this study involves identifying the research problem, which serves as the foundation for addressing the problems in this research. Secondly, an extensive review of relevant literature is conducted to gain a comprehensive understanding of the terms and concepts to be explored in this study. Next, developing the conceptual framework and hypothesis to examine the relationship between the e and independent variables. The following step was to design research for this research. Then, developing the questionnaires as a research methodology for gathering data from the targeted respondents. Subsequently, the collected data from the questionnaires were analyzed to derive meaningful insights and draw conclusions.

3.2 Research Design

This study adopts quantitative research, and it is used to collect a large number of respondents' alternatives using structured questions. The aim of quantitative research is to identify and manipulate the independent variable in order to observe its impact on the dependent variable. The quantitative techniques were used to analyse the relationship between the green purchase intention and its factor. The Google Form has been prepared as an online survey distributed to the respondent through the interruption of the Aeon Mall in Malaysia. The respondents are invited to answer the questionnaire to analyse their intention to green purchase. Furthermore, online platforms including WhatsApp, Facebook, and WeChat were utilized to distribute questionnaires to potential respondents.

3.3 Target Population

The population of the study which is consisted of the young consumer who has the intention to purchase green products in the Aeon Mall in Malaysia. Generation Z aged between 15 until 26 years old has been selected as the target respondents in Malaysia. The self-administered questionnaires were distributed randomly, primarily in the Aeon shopping mall, where the population is denser and more accessible. The selection of the age range is intentionally done to ensure a thorough understanding of the level of intention on green products among young consumers in Malaysia. This deliberate choice enables the researcher to gain comprehensive insights into the opinions and perspectives of this specific demographic group in the region.

3.4 Sampling Size

The sample size in the research refers to the number of individuals selected to represent a population. It is crucial to determine an appropriate sample size as it affects the validity and representativeness of the study. According to Roscoe (1975), it is recommended to have a sample size between 30 and 500, as a larger sample size can yield more precise and accurate data (Malhotra *et al.*, 2006). In this research, the researcher selected a sample size of 350 respondents as adopted from the previous study (Aigbe, 2020) and (Bestari and Butarbutar, 2021) to answer the questionnaire. Employing the snowball sampling method aims to capture diverse perspectives on consumers' intention to purchase green products.

3.5 Sampling Technique

This study utilizes a non-probability sampling approach gather its samples, where individuals are not uniformly selected and do not have an equal likelihood of being chosen. For this study, a snowball sampling technique is employed as the research approach, which is acknowledged as a sampling method suitable for qualitative research involving a rare population. Snowball sampling employs a few initial cases to encourage the participation of other cases in the study, effectively augmenting the sample size (Taherdoost, 2020). The selection of this method was prompted by the challenges researchers encountered in securing the necessary number of respondents, given the limited size and dispersed geographical distribution of the population under scrutiny (Cam, 2023).

3.6 Research Instrument

This research has conducted with a quantitative survey method by using a self-administered questionnaire to collect the data from the respondents. This questionnaire has been designed in both English and Malay versions. The questionnaire was separated into three sections which is Section A, Section B, and Section C. Section A was consists of respondent demographic and general information. Section B has investigated the level of green purchase intention among generation z. Section C aimed to assess the environmental knowledge, environmental concern, and perceived consumer effectiveness on green purchase intention. Section A incorporated both dichotomous and multiple-choice questions. Dichotomous questions are designed to provide survey participants with only two possible responses, commonly presented in the format of either "Yes" or "No", while multiple-choice questions offer respondents multiple options to choose from. In Section B and Section C, the researcher utilized a structured questionnaire comprising multiple-choice questions and 5-point Likert scale questions. The Likert scale comprises a series of statements that enable respondents to express their level of agreement or disagreement with the respective questions, ranging from 1 for strongly disagree to 5 for strongly agree.

3.7 Pilot Study

For this pilot test, a total of 30 respondents were selected by the researcher and they were invited to participate in the questionnaire analysis aimed at assessing their green purchase intentions. To reach potential participants, online platforms like WhatsApp, Telegram, and WeChat were employed for questionnaire distribution. After analysing the questionnaire using SPSS, it was found that the reliability value, measured by Cronbach's Alpha, indicated a favourable level of consistency for all the variables.

3.8 Data Collection

In this research, the researcher selected the survey method and used it in descriptive research to collect primary data. Thus, a self-administered survey was employed for the collection of primary data. Quantitative method developed in this data collection for obtain the primary data. The researcher only employs primary collection methods to gather the necessary information for this study. A set of questionnaires have been approached as an online survey by using Google Forms and distributed to the consumer via WhatsApp, Telegram, and WeChat or distribute physically in the Aeon shopping mall. The period of data collection for the pilot study was conducted in two months while the actual study was conducted for three months which took longer time than the pilot study due to a large number of respondents.

3.9 Data Analysis

The researcher adopted descriptive analysis and inferential analysis to carry out the process of data analysis. The first research objective should use descriptive analysis to evaluate the level of green purchase intention among Generation Z in Malaysia. Inferential analysis, including correlation and regression analysis, can be applied to identify the second research objective which is the relationships between environmental knowledge, environmental concern, and perceived consumer effectiveness on green purchase intention. These analyses assist in simplifying the analysis process and effectively communicating the results. All the statistical analyses

such as descriptive analysis, reliability testing, normality testing, and inferential analysis were performed by using the Statistical Package for the Social Sciences (SPSS), a widely used software program in the field of social sciences for data analysis.

4. Data Analysis and Result

Researchers distributed 350 questionnaires to consumers whether as an online survey or in the Aeon Shopping Mall. Overall, a total of 350 sets of questionnaires were successfully received back to the researcher. Based on that, the response rate of this study is 100% and the number of sets distributed aligns with the number of sets returned.

4.1 Reliability Analysis

4.1.1 Pilot Study

In this research, a pilot study was undertaken to assess the questionnaire by using SPSS. Firstly, Cronbach's alpha for environmental knowledge with five items is 0.858 and the result was considered good. Next, the Cronbach's alpha for five items of environmental concern was 0.852 and the result was considered good. Besides that, Cronbach's alpha for perceived consumer effectiveness was 0.834 with five items and it can be interpreted as a good result with high reliability. Regarding the dependent variable of green purchase intention, there are six items with Cronbach's alpha value of 0.853. The result of this variable displays that all the items are good.

Table 1 *Reliability for pilot study result*

Variables	No. of Items	Cronbach's Alpha	Interpretation
Independent Variable:			
Environmental Knowledge	5	0.858	Good
Environmental Concern	5	0.852	Good
Perceived Consumer Effectiveness	5	0.834	Good
Dependent Variable:			
Green Purchase Intention	6	0.853	Good

4.1.2 Actual Study

The actual study took place following the pilot study, which confirmed the reliability and validity of the questionnaires. Cronbach's alpha for the first variable, which is environmental knowledge was 0.889. The result indicates that these five items for this variable were considered good. Besides that, Cronbach's alpha for environmental concern with five items was 0.896, and it can be interpreted as a good result with high reliability. In addition, Cronbach's alpha for perceived consumer effectiveness was 0.897 consisting of five items, which ranged in a good result. Lastly, Cronbach's alpha for green purchase intention with six items was 0.895. The result for the dependent variable which is green purchase intention was considered as good.

Table 2 *Reliability for pilot study result*

Variables	No. of Items	Cronbach's Alpha	Interpretation
Independent Variable:			
Environmental Knowledge	5	0.889	Good
Environmental Concern	5	0.896	Good
Perceived Consumer Effectiveness	5	0.897	Good
Dependent Variable:			
Green Purchase Intention	6	0.895	Good

4.2 Demographic Analysis

Based on the result that shows all 350 respondents are consumers of green products in Malaysia. The number of respondents based on gender with a total of 210 female (60%) and 140 male (40%) out of 350 respondents. Besides, the age range between 15 to 17 years old was the lowest number and percentage with a total number of 48 respondents (13.7%). The age range between 18 to 20 years old was recorded as 107 respondents (30.6%). The age range between 21 to 23 years old was recorded as the highest among these age ranges which is 120 respondents (34.3%). The age range of 24 to 26 years old involved 75 respondents (21.4%). From result of ethnicity, the number and percentage of Malay respondents a total of 109 respondents (31.1%) while the total of Chinese respondents was 151 out of 350 (43.1%). The Indian respondents have the lowest number and percentage of respondents which is 90 respondents (25.7%).

From the result of education level, the majority of respondents are SPM holders which are 149 respondents (42.6%). The following respondents are from STPM and Matriculation backgrounds which are 51 respondents (14.6%) and 40 respondents (11.4%) respectively. The respondents with a diploma certificate are 37 respondents (10.6%). There are 60 respondents (17.1%) are degree holders. The respondents who have a Master's and PhD background are 9 respondents (2.6%) and 4 respondents (1.1%) respectively. For occupation, there are 85 out of 350 respondents (24.3%) work in the private sector while 90 respondents (25.7%) as workers in the government sector. The majority of respondents were students, and it has the highest number and percentage which was 161 respondents (46.0%). The number of unemployed respondents was 14 respondents (4.0%) which was the lowest number of respondents. Through result of monthly income, the majority of respondents have an income of less than RM1000 which was 115 respondents (32.9%). There are 101 respondents had a monthly income between RM1000 to RM1999 (28.9%). The monthly income between RM2000 to RM2999 involves 98 respondents (28.0%). The respondents who have a monthly income between RM3000 to RM3999 included 28 respondents (8.0%). Lastly, the respondents who have more than RM4000 were 8 respondents (2.3%).

Based on the result, there are 197 respondents (56.3%) have prior experience in purchasing green products while there are 153 respondents (43.7%) do not have prior experience in purchasing green products. It indicates that there are majority of the respondents who were Generation Z have prior experiences with purchasing green products. Besides, there are 238 respondents (68%) believe that green products are important for the environmental meanwhile there are 112 respondents (32%) do not believe that green products are important for environmental. The result of the research displays the majority of the respondents who were Generation Z believe that green products are important for environmental. Furthermore, there are 223 respondents (63.7%) agree that green products are more expensive than non-green alternatives. While there are 127 respondents (36.3%) disagree with this statement. The result of the research illustrates the majority of the respondents who were Generation Z believe and agree that green products are more expensive than non-green alternatives. The table for a summary of the demographic and general information of the respondents is listed in Appendix A.

4.3 Descriptive Analysis

Based on the table, perceived consumer effectiveness has the highest average mean value, recording M = 3.7394 with the standard deviation of SD = 0.92380. Conversely, environmental knowledge exhibits the lowest average mean value M = 3.6383 with a standard deviation of SD = 0.92480. Environmental Concern has the average mean value M = 3.6766 with a standard deviation of SD = 0.93470. Through these results, the perceived consumer effectiveness was the key factor that has positively influenced green purchase intention among Generation Z due to it has the highest mean among these factors.

Table 3 *Overall mean and standard deviation score of factors*

Item	Mean	Standard Deviation	Interpretation
Environmental Knowledge	3.6383	.92480	Moderate
Environmental Concern	3.6766	.93470	Moderate
Perceived Consumer Effectiveness	3.7394	.92380	High

4.4 Normality Test

Kolmogorov-Smirnov was used in this study since the sample size of this study was 350 respondents which represents more than the sample size of 50. Based on Table 4, the p-value for the dependent variable which is green purchase intention was 0.000 which indicates p < 0.05. Since the significant value of p = 0.000 (p < 0.05), therefore the data of this research is not normally distributed. As a result, a non-parametric test of Spearman correlation test was conducted in this study to test the research hypothesis.

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Table 4 *Test of normality for green purchase intention*

Dependent Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Green Purchase Intention	.161	350	.000	.911	350	.000

4.5 Correlation Analysis

In this research, Spearman correlation analysis was employed due to the data not normally distributed. Based on the table of coefficient correlation test, it shows the value of Spearman's Correlation Coefficient, r was 0.774 which shows that there is a strong positive relationship between environmental knowledge and green purchase intention. Besides that, the result shows the value of Spearman's Correlation Coefficient, r was 0.803 which shows that there is a strong positive relationship between environmental concern and green purchase intention. Furthermore, the result shows the value of Spearman's Correlation Coefficient, r was 0.792 which shows that there is a strong positive relationship between perceived consumer effectiveness and green purchase intention. Thus, all independent variables have a strong positive relationship with green purchase intention representing all hypotheses that are acceptable in this study. As a result, the finding shows that all the factors have a significant positive influence on green purchase intention among Generation Z.

Table 5 *Result for correlation analysis*

			Green Purchase Intention
Spearman's rho	Environmental knowledge	Correlation Coefficient	.774
		Sig. (2-tailed)	.000
	Environmental Concern	Correlation Coefficient	.803
		Sig. (2-tailed)	.000
	Perceived Consumer Effectiveness	Correlation Coefficient	.792
		Sig. (2-tailed)	.000

5. Conclusion

5.1 Overview of the study

The objective of this study is to identify the level of green purchase intention among Generation Z in Malaysia. Besides that, this study aims to investigate the relationship between environmental knowledge, environmental concern, and perceived consumer effectiveness on green purchase intention Generation Z in Malaysia. The researcher has adopted quantitative research for this study. Generation Z have been targeted as the research respondents. A total of 350 respondents were used as a sample size and 350 questionnaires were distributed to Gen Z in Aeon Mall and online platform. All the collected data were analyzed by using Statistic Package for Social Science (SPSS) and Microsoft Excel to develop the quantitative reports presented in the form of frequency, percentage, mean and standard deviation. Correlation analysis revealed that all variables have a positive relationship with green purchase intention.

5.2 Discussion

5.2.1 Level of green purchase intention among Generation Z in Malaysia

Based on the results, three items indicate a high level of mean agreement while three items show a moderate level of agreement. The highest mean value was 3.6914, which I would consider switching to environmentally friendly brands for ecological reasons. Regarding the mean value, it shows most of Generation Z has chosen to switch to environmentally friendly brands indicating a proactive approach to addressing ecological concerns. According to Topić and Mitchell (2018), Millennials and Generation Z actively seek alternatives to plastic packaging, opting for single-use products that minimize waste, and express robust attitudes toward recycling. Besides that, I definitely want to purchase green products in the near future was the second highest with the mean value of 3.6886. Most of Generation Z agree with the statement of purchasing green products in the near future because they have a high environmental awareness, a focus on social responsibility, and easy access to information through online platforms nowadays. According to the study of Nguyen (2022), it proves that the people with high environmental awareness and responsibility, the greater their intention to make environmentally conscious purchases. Furthermore, I intend to pay more for green products was the third highest mean value of 3.6857. It can be said that Generation Z has a strong sense of social responsibility, and they believe their purchasing power is a tool to influence positive change for environmental sustainability. The

study results of Lavuri *et al.* (2021) indicate that young consumers are environmentally aware and deeply concerned about sustainability and have a heightened dedication to environmental preservation.

In addition, I am willing to buy gremaien products for personal use has a mean value of 3.6743. The result showed moderate because some individuals may be hesitant to switch to green products if they perceive them as less effective than conventional alternatives. However, consumers are willing to spend more on green products than alternatives due to the significant benefits these products offer to both the environment and individual health (Anwar, 2023). Moreover, the mean value of I am willing to buy green products even if they are more expensive than normal products scored as 3.5657 and the result show moderate. The perceived higher cost of green products may be a deterrent for some of generation z who are facing financial constraints such as student loans and entry-level job salaries. If individuals in Generation Z are facing financial constraints or prioritize budget considerations, they might opt for more economical options, even if they are not environmentally friendly (Anwar, 2023). Lastly, I would consider buying green products because they are less polluting was the lowest mean value which is 3.4886. This is because if green products are not effectively marketed to highlight their reduced pollution impact or if marketing strategies fail to resonate with the values and interests of Generation Z, these products may not be considered attractive options. When green products demonstrate a high level of reliability, and companies effectively convey their initiatives to minimize adverse environmental effects, individuals are more inclined to invest in them (Neu, 2021).

5.2.2 Relationship between environmental knowledge on green purchase intention Generation Z in Malaysia

With regrad to environmental knowledge, it had a strong positive relationship with green purchase intention which was r = 0.774. Thus, H_1 was accepted. The results shows that environmental knowledge was one of the main factors of green purchase intention. Environmental knowledge significantly and positively influences consumers' intentions to purchase eco-friendly products (Zhuang *et al.*, 2021). This suggests that customers with a higher level of environmental knowledge are more likely to support green purchases (Hariyanto, 2019). It can be argued that in the present era, where youth access robust environmental knowledge through Information and Communication Technology (ICT) advancements, the influence of perceived environmental knowledge on green purchase intention becomes significant (Ho *et al.*, 2022). Utilizing social media and communication networks is effective for raising awareness about eco-friendly products and enhancing environmental knowledge (Hussain et al, 2020). Additionally, online advertising campaigns can be valuable in furthering the promotion of green purchase intentions and eco-friendly products (Hussain et al, 2020).

5.2.3 Relationship between environmental concern on green purchase intention Generation Z in Malaysia

The relationship between environmental concern and green purchase intention was found to be a strong positive relationship consisting of Spearmen correlation coefficient of r = 0.803. Therefore, H_2 was accepted. The results indicate that environmental concern was one of the main factors of green purchase intention (Maichum *et al.*, 2017). The heightened environmental awareness among the youth is associated with an increased intention to purchase green products (Ho *et al.*, 2022). Hence, the results of environmental concern and green purchase intention indicate that the present young adult and educated generations are deeply committed to fostering environmental sustainability (Jaiswal *et al.*, 2018). They demonstrate a strong sense of personal responsibility, actively choosing to protect the environment by avoiding products that pose ecological harm in their purchasing decisions (Jaiswal *et al.*, 2018). Nguyen (2022) indicates that Generation Z, born after 1997 and coming of age during a period of heightened environmental awareness, is particularly conscientious about ecological issues. This is because educational institutions at every tier revise their curricula to tackle environmental concerns and advocate for environmentally friendly attitudes. Initiating educational programs at the primary and secondary levels is essential to instill positive environmental concern in the younger generation to lead improved lives (Hussain et al, 2020). The young generation in primary and secondary school gains environmental concern through the provision of adequate environmental knowledge (Minchekar, 2020). Environmental education must be mandated in schools, ensuring that students are informed about and actively contribute to environmental protection (Minchekar, 2020).

5.2.4 Relationship between perceived consumer effectiveness on green purchase intention Generation Z in Malaysia

Perceived consumer effectiveness was discovered to have a strong positive relationship with green purchase intention with the value of correlation coefficient, r = 0.792. Hence, H_3 was accepted. The results indicate that perceived consumer effectiveness was one of the main factors of green purchase intention (Hariyanto, 2019). The substantial influence of perceived consumer effectiveness on green purchase attitudes among Malaysian

millennials (Chuah *et al.*, 2019). This supports the notion that when consumers hold the belief that buying eco-friendly products can positively impact the environment, their high perception of consumer effectiveness manifests in positive behaviors toward green products (Chuah *et al.*, 2019). Participants in the study perceived their ability to contribute to environmental protection through the conscious effort to purchase eco-friendly products (Achchuthan *et al.*, 2016). Local governments and businesses have the potential to enhance the Green Purchase Intention among the youth by fostering a heightened perception of effectiveness in their consumption of environmentally friendly products (Ho *et al.*, 2022). When individuals believe that their choices can positively impact the environment, they are more inclined towards eco-friendly behaviors. Consequently, policymakers and environmentally conscious marketers can implement marketing communication strategies to decrease the use of plastic bags and promote the adoption of eco-friendly alternatives, thus contributing to environmental sustainability (Ho *et al.*, 2022).

5.3 Limitation of the Study

There are several limitations associated with this research have been identified. Despite the successful attainment of research objectives, unavoidable limitations persisted throughout the research period. The main limitation was the selection of respondents as the study exclusively focused on Generation Z in Malaysia, excluding representation from other generations. Consequently, the findings regarding green purchase intention among Generation Z cannot be sufficiently generalized as an indicator of the purchasing intentions of all generations in Malaysia.

Furthermore, the limitation of this research was influenced by its cross-sectional research. Cross-sectional research entails data collection at one point in time, thus it is unable to comprehensively determine green purchase intention among consumers, which may change from time to time due to various changeable influences. Consequently, the findings from this research only give an overview of consumer purchase intention at one point in time.

In addition, the quantitative method restricts respondents from providing detailed feedback on the topic, as the respondents were required to choose the answer based on a set of questionnaires distributed by the researcher. Consequently, respondents are constrained to choose from the options prepared by the researcher, limiting the range and depth of their responses.

5.4 Recommendation of the Study

In this research, there are several recommendations that can be made to further improve the findings and to solve the limitation that occurred in the study. Firstly, future research should aim for a more inclusive approach by incorporating participants from a broader range of age groups and generations. This would involve diversifying the sample to include representatives from different demographics, such as Millennials, Generation X, and Baby Boomers, ensuring a more comprehensive understanding of green purchase intention across various age cohorts in the Malaysian context. By expanding the participant pool, researchers can enhance the generalizability of findings and provide insights that better represent the diverse perspectives within the population.

Moreover, the findings of this study could become invalid in the future due to the dynamic changes in green purchasing intentions. It is recommended that future research adopt a longitudinal approach. Longitudinal studies involve data collection at multiple points in time, allowing for a more comprehensive understanding of changes and trends in green purchase intention among consumers over an extended period. This is crucial as it enables the identification of changes in consumers' green purchase intention over multiple points in time. This approach enhances the depth of insights and provides a more comprehensive understanding of the trends and factors of green purchase intention over an extended period.

Furthermore, future researchers are recommended to use both research method which is quantitative and qualitative methods when conducting research in this field of study. The integration of these two research methods can offer a more comprehensive perspective, providing a deep understanding of the subject matter. By combining quantitative data for statistical analysis and qualitative insights for a deeper exploration of underlying factors, researchers can achieve a more well-rounded interpretation of the phenomena under investigation. This methodological diversity enhances the validity of findings and contributes to a better comprehension of the complexities inherent in the research area.

5.5 Conclusion

In a nutshell, the objectives of the research have been achieved with positive outcomes. The first research objective was to identify the level of green purchase intention among Generation Z in Malaysia. The results indicated that the level of green purchase intention was high although several factors influenced the intention of Generation Z to purchase green products. The following research objectives was to investigate the relationship between environmental knowledge, environmental concern and perceived consumer effectiveness on the green

purchase intention of Generation Z in Malaysia. The result of correlation analysis showed that all the independent variables have a strong positive relationship with green purchase intention. The research's findings concluded that environmental concern has the strongest positive relationship with green purchase intention among Generation Z in Malaysia. In short, the study successfully attained its objectives.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** Y.X.Y., and N.M.N.; **data collection:** Yiaw Xin Yue; **analysis and interpretation of results:** Y.X.Y., and N.M.N.; **draft manuscript preparation:** Y.X.Y., and N.M.N. All authors reviewed the results and approved the final version of the manuscript.*

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