

Examining the Determinants of Consumers' Purchase Behaviour: Green Packaging Products

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Abstract

The disposal of plastic packaging has caused an increase in the amount of waste. The non-biodegradable plastic packaging will pollute the environment, and its toxic chemical will have adverse effects on our health. One of the ways to minimise plastic waste is to use green packaging. Green packaging is eco-friendly packaging, harmless to human health, and, more importantly, it is biodegradable. Many businesses have switched to going green concepts by providing green products and services. Therefore, the objective of this study is to examine the determinants of consumers' purchase behaviour from the perspective of green packaging products. This study has recruited 200 respondents from Melaka using convenience sampling. The survey was used for data collection with a set of self-administered questionnaires that covered respondents' demographic backgrounds and all the variables in the research model. PLS-SEM was used to examine the validity and relationships of the constructs. Both convergent validity and discriminant validity were deemed satisfactory. 0.444 of R² was obtained from the data analysis. This means that the model explained 44.4% of the total variation in purchase behaviour. Environmental concern and environmental attitude were found to positively affect consumers' purchase behaviour towards green packaging products. Environmental knowledge and social influence, however, were found to not affect purchase behaviour. This study will be able to provide valuable information to the marketers to focus not only on their products but the packaging of their products as well. This study also provides insight into the consumers' purchase behaviour towards green packaging products. It is recommended for future research to recruit more respondents with more diversified backgrounds and includes other variables.

Keywords: *Consumers' Purchase Behaviour; Environmental Knowledge; Environmental Concern; Environmental Attitude; Social Influence.*



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INTRODUCTION

There is a huge quantity of waste generated daily. The majority of this waste is plastics. Plastic waste is one of the most urgent global environmental issues. In the study by Parker (2018), 40% of packaging is produced by plastic. Plastic is one of the most common packaging that we can see in our daily life. Examples of goods made of plastic are utensils, bottles, straws, and plastic bags. Most of these plastic items are single-use, and people would throw them after use, which in turn greatly enlarged the stream of plastic waste. Plastic packaging is non-recyclable and will take a very long time to degrade biologically. Nowadays, most of the solid waste in Malaysia are ended up in landfills (Zaini 2011). Plastic waste also contains toxic chemicals that hurt human health. The

disposal of plastic packaging not only increases the amount of waste but also destroys nature's ecosystem.

According to Goh (2019), plastic waste pollution in Malaysia is among the top 10 countries in the world. According to the Consumer's Association of Penang (2021), there were 148,000 metric tons of plastic food packaging used in the year 2020. The yearly usage of plastic packaging per capita is 16.78 kilograms. Despite the fact that the No Plastic Campaign Day was launched in 2011, plastic usage is still on the rise. This shows that Malaysian are still using a huge amount of plastic packaging. Besides, it also indicates that environmental awareness and concern among the public are still lacking. The current COVID-19 pandemic has even worsened the situation as more plastic packaging is used for the purchase of food and goods online.

The acting president of the Consumer Association of Penang, Mr. Mohideen Abdul Kader (New Straits Times, 2019), highlighted that an alternative to solve plastic pollution is to redesign products, packaging, and shipment systems as well as to avoid consuming single-use plastic products and packaging. Hence, using green packaging is one of the essential methods to combat the plastic pollution problem. Green packaging can also be called eco-friendly packaging and sustainable packaging. Green packaging can be achieved by using less packaging for products or using recyclable and biodegradable materials when producing the packaging. In addition, Malaysia launched a program called "Roadmap Towards Zero Single-Use Plastic" in the year 2018. This program aims to reduce plastic waste to have a cleaner and healthier environment in 2030. Meanwhile, it also intends to educate the local business to switch their business to eco-friendly businesses. For instance, plastic manufacturers or the food and beverage industry can switch to the use of more eco-friendly packaging or tableware, such as substituting plastic bags with paper bags or replacing straws with bamboo sticks.

In recent years, many businesses have switched to going green concepts. It is also one of the marketing strategies to gain more shares in the market. Going green concepts include providing eco-friendly products and services to the customers. Green packaging is also one of the strategies that are in line with going green concepts. Franchise Help (2019) reported that 55% of customers in 60 nations are willing to pay extra for purchasing environmentally friendly products. In addition, 71% of Americans will take environmental factors as their considerations during their purchase. The results also show that businesses that take advantage of the green business movement can attract customers who are aware of and concerned about environmental issues. According to Nielsen (2015), consumers who are more environmentally concerned will have a higher intention to pay extra money for green products or services. Therefore, it is vital to understand the purchase behaviour of consumers towards green packaging products.

There were extensive previous studies on green purchase behaviour (Kumar et al., 2017; Lee & Benjamin, 2020; Mishal et al., 2017; Rahman et al., 2019; Zheng et al., 2020) which focused on eco-friendly products (Vinay & Rohit, 2017) or green products (Indriani et al., 2019; Sethi, 2018). These studies, however, did not examine the purchase behaviour toward green packaging products. In other words, studies on green packaging products are still lacking (Moorthy et al., 2021; Prakash & Pathak, 2017; Rajendran & Wahab, 2017). Moorthy et al. (2021) have also highlighted that there is a dearth study on green packaging products from Malaysian perspectives. Hence, this study aims to fill the research gaps addressed above to examine the effects of the factors affecting the purchase behaviour of consumers towards green packaging products.

LITERATURE REVIEW

A. Green Purchase Behaviour

According to Kamath & Saurav (2016), green packaging or sustainable packaging utilizes environmentally friendly processes of manufacture, recyclables, and biodegradables for product packaging to make it environmentally-friendly and minimal energy consumption through the packaging method. Besides that, green packaging is defined as a package that causes low damage to the environment and less pollution to the living creature, normally manufactured by using environmentally friendly materials (Aleenajitpong, 2013).

The purchase behaviour of a consumer refers to his or her way of purchasing and disposing of goods and services to fulfil his or her needs or wants (Kotler & Keller, 2011). According to Egen (2007), understanding consumer buying behaviour will help the company to increase the competitiveness of the products and services. Pickett-Baker & Ozaki (2008) stated that trust and caring attributions related to keeping the environment protected and nurtured would impact consumers' green purchasing behaviour.

Green purchase means the consumption of environmentally-friendly, recyclable, conservative, or ecologically responsive goods (Lee, 2008). Consumers buy green products to reduce adverse environmental effects through natural resources protection, power consumption, and waste reduction, as well as health and security improvement (Elham & Nabsiah, 2010). There were several previous studies on green purchase behaviour. Rahman et al. (2019) examined the purchase behaviour toward energy-saving light among users in Bangladesh. Kumar et al. (2017) applied the Theory of Planned Behaviour (TPB) in their study to examine the direct effect, mediating effect, and moderating effect among the variables within the model on environmentally sustainable products. Moorthy et al. (2021) studied green packaging behaviour in Malaysian consumers had also applied TPB in their study. They have integrated two additional variables, namely environmental concern and environmental knowledge, into the model. Rajendran and Wahab (2017) examined the effect of price, knowledge, design, and quality on consumers' purchase intention toward green packaging products. Prakash & Pathak (2017) applied the Theory of Reasoned Action (TRA) in their study to examine the purchase intention of young consumers toward green packaging products in India.

B. Environmental Knowledge

Conraud-Koellner and Arturo (2009) defined environmental knowledge as concepts, philosophies, facts, and interconnected relationships that are related to the environment. Vinay and Rohit (2017), in their study, revealed that environmental knowledge has a significant role in forming consumers' positive environmental attitudes. This positive attitude is, in turn affecting the consumption pattern of the consumers. According to Solekah et al. (2020), the environmental knowledge of consumers that helped to increase the efficiency of green marketing strategies is generally focused on the cognitive aspects.

Chan and Lau (2000) have revealed that environmental knowledge and green purchase behaviour were positively associated. They have highlighted that consumers with more knowledge of the environment are more intent on buying green products. Elham and Nabsiah (2010) opined that knowledge of the environment could encourage a positive approach to green products.

Furthermore, Rahman et al. (2019), in their study on energy-saving light users in Bangladesh, have shown that environmental knowledge was a predictor of green purchase behaviour.

C. Environmental Concern

Lasuin and Ng (2014) described environmental concern as the emotional aspect of consumers towards the environmental issues with which they are concerned. Lee (2008) referred to environmental concern as the involvement level of environmental issues from the emotional aspect. Alibeli and Johnson (2009), however, refer to it as the environmental issues awareness and the willingness to solve them.

Seyrek and Gül (2017) have found that environmental concern has the most influential power on green purchase behaviour, and it will impact green purchase behaviour effectively. Other studies (Aman et al., 2012; Albayrak et al., 2013; Maichum et al., 2017) have also shown that environmental concern affects green purchase behaviour positively.

D. Environmental Attitude

Davies et al. (2002) defined attitudes as “the correspond to mental processes or states, which account for the consistency of an individual’s framework favourable-unfavourable and cross-situational responses towards an object”. In the Theory of Planned Behaviour, attitude influences behaviour indirectly.

In the environmental context, Cheung and To (2019) stated that consumers who have a positive attitude are more concerned about the environment and will focus on products that are less harmful to the environment. On the other hand, Maichum et al. (2017) revealed that a positive environmental attitude will encourage the consumer to buy more. Similar findings were also shown by Anvar and Venter (2014). The authors pointed out that marketers can motivate positive attitudes among consumers by understanding their needs and expectation of the products and services.

Mostafa (2009) and Lee (2008) revealed that environmental attitude plays an important role in explaining green purchase behaviour. A study by Prakash and Pathak (2017) have provided evidence that consumers who view green packaged product positively are likely to pay extra for them. Other studies have also proven the environmental attitude effect on green purchase behaviour (Vinay & Rohit, 2017; Solekah et al.,2020).

E. Social Influence

Social influence is described as a shift in the thinking, emotions, attitudes, or behaviours of a person that results from communication with another person or group (Rashotte, 2007). According to Ryan (2001), the social dynamic in which a person has comparable characteristics with others is recognised as homophile. This group of people shares their thoughts, feelings, attitudes, or beliefs whenever they interact with each other. Coulter et al. (2003) opined that social networks and product involvement are interrelated. A social network that consumer is closely related such as family, friends, or peers who will give their suggestion or opinion and, ultimately, change their choice of a brand during the decision-making process.

A study conducted by Pickett-Baker and Ozaki (2008) revealed that social influence affects green purchase behavior positively. A similar finding was confirmed by the study of Tan et al.

(2014). Moreover, Lee (2008), in his study, revealed that social influence was the main indicator of consumers' purchase behaviour among teenagers in Hong Kong.

The following hypotheses were proposed for this study.

H1: Environmental knowledge has a positive impact on consumers' purchase behaviour towards green packaging products.

H2: Environmental concern has a positive impact on consumers' purchase behaviour towards green packaging products.

H3: Environmental attitude has a positive impact on consumers' purchase behaviour towards green packaging products.

H4: Social influence has a positive impact on consumers' purchase behaviour towards green packaging products

RESEARCH METHOD

This study used convenience sampling in recruiting 200 respondents from Melaka. Convenience sampling was used due to insufficient information for the sampling frame ((Hulland et al., 2017). The survey was conducted to collect the data from December 2019 to January 2020. A set of self-administered questionnaires which covered demographic information and all the variables, namely purchase behaviour, environmental knowledge, environmental concern, environmental attitude, and social influence, was used. All the measurements of the variables were adapted from previous studies (Liebenberg, 2015; Mohhiuddin et al., 2018; Ooi et al., 2012; Pickett-Baker & Ozaki, 2011; Sinnappan & Rahman, 2011; Seyrek & Gul, 2017). All the independent variables were measured using a 5-point Likert scale with the range of 1 representing strongly disagree to 5 representing strongly agree. Purchase behaviour was measured using a 7-point Likert scale with the range of 1 representing strongly disagree to 7 representing strongly agree. The different scale used is to reduce the problem of common method variance, as suggested by Podsakoff et al. (2003) and Tehseen et al. (2017). Structural Equation Modeling Partial Least Square was performed using SmartPLS for the data analysis. Convergent validity and discriminant validity of the constructs were examined via a measurement model. The relationships among the variables were, in turn, examined in the structural model.

FINDINGS AND DISCUSSION

There were 200 respondents involved in this study. Of these, 55.5% of them were male, and 44.5% were female. 53% of the respondents were from the age group of 25-35, 35% were between 36-45, and the remaining were above 46 years old. For ethnicity, Chinese and Indian both contributed 37.5%, respectively, and Malay was 22.5%. 33.5% of the respondents hold diploma certificates, and 29.5% are degree holders.

The PLS algorithm was used to assess the convergent validity and discriminant validity via SmartPLS. The results for factor loadings, composite reliability (CR), and average variance extracted (AVE) were presented in Table Factor loadings obtained ranged from 0.595 to 0.835, CR was from 0.817 to 0.898, and AVE was from 0.531 to 0.594. All the factor loading for all the items was greater than 0.5 (Byrne, 2016), composite reliability was greater than 0.7, and the average variance extracted was greater than 0.5 (Hair et al., 2017). This means the convergent validity of all the constructs was satisfactory.

Discriminant validity was examined using Heterotrait-Monotrait Ratio (HTMT) (Henseler et al., 2015) by comparing the HTMT value from the analysis with the threshold value of HTMT0.85 (Franke & Sarsterd, 2019). The HTMT value, as presented in Table 2 for all the constructs, was from 0.530 to 0.770, which was below the suggested threshold value. This has thus confirmed that the discriminant validity was adequate.

Table 1. Measurement Model

Construct	Item	Factor Loading	Composite Reliability	Average Variance Extracted
Environmental Attitude	EA1	0.800	0.817	0.531
	EA2	0.779		
	EA3	0.595		
	EA5	0.725		
Environmental Concern	EC1	0.747	0.858	0.548
	EC2	0.714		
	EC3	0.718		
	EC4	0.770		
	EC5	0.749		
Environmental Knowledge	EK1	0.781	0.853	0.538
	EK2	0.749		
	EK3	0.769		
	EK4	0.736		
	EK5	0.622		
Purchase Behaviour	PB1	0.774	0.898	0.594
	PB2	0.835		
	PB3	0.762		
	PB4	0.724		
	PB5	0.775		
	PB6	0.750		
Social Influence	SI1	0.784	0.867	0.567
	SI2	0.802		
	SI3	0.77		
	SI4	0.721		
	SI5	0.679		

Table 2. Discriminant Validity Using HTMT Criterion

	1	2	3	4	5
1. Environmental Attitude					
2. Environmental Concern	0.635				
3. Environmental Knowledge	0.642	0.762			
4. Purchase Behaviour	0.580	0.754	0.530		
5. Social Influence	0.622	0.770	0.676	0.568	

Table 3. Result of Partial Least Square

Hypothesis	Relationship	Std Beta	Std Error	t- Value	Decision	R2	Q2	f2	VIF
H1	Environmental Knowledge → Purchase Behaviour	0.027	0.082	0.326	Not Supported	0.444	0.235	0.001	1.754
H2	Environmental Concern → Purchase Behaviour	0.479	0.1	4.792	Supported			0.205	2.017
H3	Environmental Attitude → Purchase Behaviour	0.189	0.078	2.422	Supported			0.045	1.43
H4	Social Influence → Purchase Behaviour	0.08	0.083	0.974	Not Supported			0.006	1.859

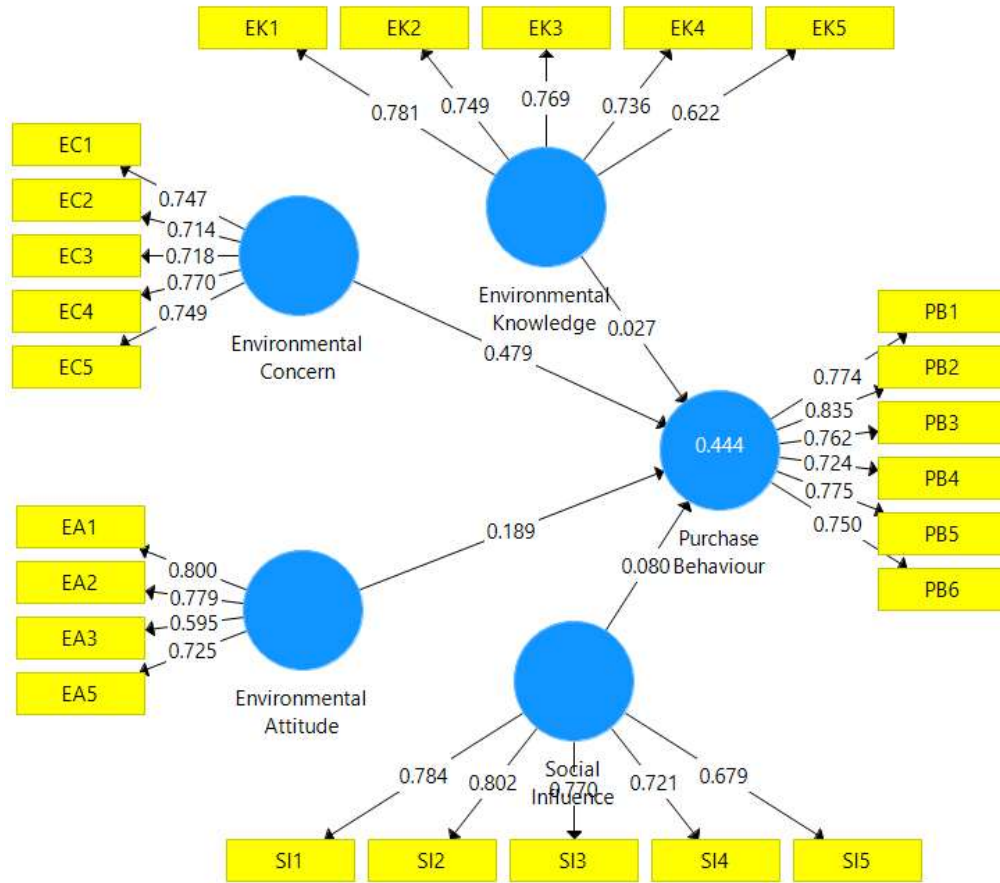


Figure 1: Structural Model

Bootstrapping with a resample of 5000, as suggested by Hair et al. (2017), was used in the structural model to examine the relationships between all the variables. The results of the

structural model as presented in Table 3. Environmental attitude ($\beta=0.189$) and environmental concern ($\beta=0.479$) were found to have a positive effect on the purchase behaviour of consumers towards green packaging products. However, Environmental knowledge ($\beta=0.027$) and social influence ($\beta=0.08$) were found to not affect the consumers' purchase behaviour. Hence, H2 and H3 were supported, and H1 and H4 were not supported.

The R2 value acquired for purchase behaviour towards green packaging products was 0.444. According to Cohen (1988), the R2 value of 0.26, 0.13, and 0.02 can be classified as substantial, moderate, and weak, respectively. This means the R2 value of this study was substantial. The effect size, as suggested by Cohen (1988), 0.02, 0.15, and 0.35 refer to small, medium, and large effects, respectively. The effect size for both environmental concern and environmental attitude were greater than the minimum value of 0.02, whereas environmental knowledge and social influence were less than 0.02. This is because these two factors were found to not influence purchase behaviour.

A blindfolding procedure was performed to assess the predictive relevance of this model. The model was deemed to have predictive relevance for a certain endogenous construct if the Q2 is greater than 0 (Hair et al., 2017). The Q2 value obtained was 0.235. This indicates that the model of this study had adequate predictive relevance. The VIF value of the variables was less than 5, indicating multicollinearity issue among variables does not exist (Hair et al., 2017).

The findings of this study showed that environmental knowledge was not related to the purchase behaviour of consumers towards green packaging products. This was not consistent with the study by Rahman et al. (2019) and Elham & Nabsiah (2010), where environmental knowledge was found to impact positively on green purchase behaviour. The phenomenon could be because the consumers in this study are conscious of the adverse effect of plastic packaging on the environment despite having little environmental knowledge. Nevertheless, the failure of environmental knowledge to be a significant factor was somewhat unexpected.

Environmental concern was found to have a positive impact on consumers' purchase behaviour towards green packaging products in this study. This was in line with the findings of previous studies (Maichum et al., 2017; Seyrek & Gül, 2017). Environmental concern was revealed to have the highest impact on green purchase behaviour. A similar finding was found by Seyrek and Gül (2017) in which environmental concern is effective in influencing green purchase behaviour. This implies that consumers' emotional feelings and thoughts towards the environment will impact them to be more environmentally friendly.

In this study, the environmental attitude was also found to have a positive influence on purchase behaviour towards green packaging products. This result was in accordance with some previous studies (Vinay & Rohit, 2017; Solekah et al., 2020). These studies confirmed that environmental attitude has a positive relationship with green purchase behaviour. The respondents in this study perceived that it is essential for them to promote green living and is their responsibility to protect the environment. Hence, environmental attitude plays a significant role in determining the consumers' green purchase behaviour. Social influence, however, was shown not to be related to the purchase behaviour of consumers toward green packaged products. This result contradicted the study by Tan et al. (2014). In their study, social influence was found to be the second important predictor after environmental concern of green purchase behaviour among

young consumers. This indicates that friends or people surrounding the respondents in this study do not play many roles in affecting them to purchase green packaged products.

CONCLUSION

The findings of this study have provided evidence that environmental concern and environmental attitude are determinants of consumers' purchase behaviour towards green packaging products. Nonetheless, environmental knowledge and social influence were perceived as not significant. Therefore, marketers should consider environmental concerns and environmental attitudes when designing their products' packaging.

The strongest effect of environmental concern on the consumers' purchase behaviour towards green packaging products indicates green packaging will be able to attract more consumers who are concerned about environmental issues. Hence, marketers can try to create awareness among consumers through publicity to cultivate a positive attitude towards the environment among consumers. This will thus encourage them to increase their purchase of green packaging products.

This study would be able to provide valuable information to the marketers to focus not only on their products but the packaging of their products as well. This study also provides insight into the consumers' purchase behaviour towards green packaging products from the Malaysian perspective.

There are several limitations addressed in this study. First, it is the diversity of the background of the respondents. The majority of them are Chinese and Indian, which did not follow the ethnicity distribution in Malaysia. Second, this study only recruited respondents from Melaka. These may lead to issues of generalisation and representativeness to the entire population. Lastly, there are some other variables such as environmental, social responsibility (Lee & Benjamin, 2020), self-image (Lasuin & Ng, 2014), and so on. It has thus been recommended to recruit more Malay respondents and respondents from other states in future research, as well as to include other variables.

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