
IMPACTS OF GREEN MARKETING MIX
ON
CONSUMER PURCHASING BEHAVIOUR
AND THE MODERATION OF
CONSUMER ADAPTIVE-INNOVATIVE
CHARACTERISTICS

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DEDICATION

To my wonderful wife, I dedicate this report to you. Thank you for putting up with my sleep deprivation for the past two years. I cherish you, always and forever.

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LIST OF ABBREVIATIONS

4 Green Ps	Green Product, Green Price, Green Promotion, and Green Place
4Ps	Product, Price, Promotion, and Place
Adap	Code for Dummy Variable for Adaptor in SPSS
AdapInno	Code for Moderator Variable (Adaptor or Innovator) in SPSS
AI-W	Adaption Innovation in the Workplace Scale
ANOVA	Analysis of Variance
CPB	Consumer Purchasing Behaviour
df	Degrees of Freedom
F	F-statistic
Inno	Code for Dummy Variable for Innovator in SPSS
KAI	Kirton Adaption-Innovation
KAIT	Kirton's Adaption-Innovation Theory
KL/KV	Kuala Lumpur and Klang Valley
N	Number
P-P	Probability-Probability
PLA	Green Place
PRD	Green Product
PRI	Green Price
PRM	Green Promotion
PLA_c_x_adap	Code for Interaction Term between Mean Centred Green Place and Dummy Variable for Adaptor in SPSS

PRD_c_x_adap	Code for Interaction Term between Mean Centred Green Product and Dummy Variable for Adaptor in SPSS
PRI_c_x_adap	Code for Interaction Term between Mean Centred Green Price and Dummy Variable for Adaptor in SPSS
PRM_c_x_adap	Code for Interaction Term between Mean Centred Green Promotion and Dummy Variable for Adaptor in SPSS
PLA_c_x_inno	Code for Interaction Term between Mean Centred Green Place and Dummy Variable for Innovator in SPSS
PRD_c_x_inno	Code for Interaction Term between Mean Centred Green Product and Dummy Variable for Innovator in SPSS
PRI_c_x_inno	Code for Interaction Term between Mean Centred Green Price and Dummy Variable for Innovator in SPSS
PRM_c_x_inno	Code for Interaction Term between Mean Centred Green Promotion and Dummy Variable for Innovator in SPSS
Q-Q	Quantile-Quantile
QR	Quick-Response
RM	Ringgit Malaysia
SPSS	Statistical Package for Social Sciences
t	t-statistic
URL	Uniform Resource Locator
VIF	Variance Inflation Factor
VIFs	Variance Inflation Factors

ABSTRACT

Environmental concern is at the forefront of social, political, and academic conversation. However, the exponential increase in awareness on the topic is not reflected in the purchasing of environmentally friendly products over the conventional alternative. This study investigates the relationship between the green marketing mix, i.e. Green Product, Green Price, Green Promotion, and Green Place, and consumer purchasing behaviour as well as evaluates the moderating effects of consumer adaptive-innovative characteristics on said dynamic.

The study used a quantitative research design including a structured questionnaire with 136 respondents and quota sampling in the Greater Kuala Lumpur and Klang Valley region. Multiple linear regression was utilized to analyse the green marketing mix and consumer purchasing behaviour relationship whereas hierarchical multiple regression was utilized to analyse the moderating effects of consumer adaptive-innovative characteristics. Besides Green Product, the analysis showed a significant positive relationship between the green marketing mix and consumer purchasing behaviour. Green Promotion had the largest impact on consumer purchasing behaviour, followed by Green Price and Green Place. The analysis further showed that consumer adaptive-innovative characteristics had no moderating effects on the green marketing mix-consumer purchasing behaviour dynamic. This study challenges the notion that there is a correlation between environmentally friendly product purchasing behaviour and innovativeness.

CHAPTER 1

INTRODUCTION

1.1 Background

As the negative effects of climate change are exponentially rising, the conversation regarding environmental concerns has been thrust to the forefront of social and political agendas. With this intensifying exposure, consumer awareness on the subject has greatly increased leading to shifts in consumer expectations and purchasing behaviours towards offerings that are in line with this environmental awareness. This phenomenon has presented businesses with an opportunity to enhance their value propositions by integrating ‘eco-friendly’ or ‘environmentally sustainable’ aspects into their respective marketing strategies. Companies that are successful in deploying this ‘green’ marketing strategy have increased chances of a sustainable competitive advantage. Thus, it is crucial to determine which tactics of the green marketing strategy impacts consumer purchasing behaviour and to identify potential moderators to the relationship.

Before delving deeper into this complex relationship, it was key from a comprehension standpoint to understand the definition of green marketing. As a concept, green marketing first appeared in the late 1980s (Peattie & Crane, 2005). It was referring to the design, promotion, price, and distribution of products that would not have a negative effect on the environment (Pride & Ferrell, 1993). Recent definitions of green marketing built on this fundamental concept by considering consumer expectations as well. Welford (2000) defined green marketing as “the management process responsible for recognizing, anticipating, and meeting the requirements of customers and society in a profitable and sustainable way”. Patnaik

and Chopdar (2013) provided a succinct definition of green marketing. They defined this concept as “all activities designed to create and facilitate any exchanges aimed at meeting human needs, so that these needs and desires are met with minimal adverse impact on the natural environment”. From these definitions, it can be summarized that green marketing facilitates value creation for individual consumers, society, as well as the natural environment. It should be discussed that two terms that are often used interchangeably with green marketing in literature are ecological marketing and sustainable marketing. However, van Dam and Apeldoorn (1996) highlighted that there are subtle differences between the three terms based on the motivation behind the marketing. Green marketing is motivated by market pressures, whereas ecological marketing is driven by moral issues. On the other hand, sustainable marketing refers to a firm’s long-term view regarding trade-offs between business goals and environmental concerns.

There are several academic studies regarding the correlation between green marketing and consumer purchasing behaviour. Among these studies, there are those that focus on the relationship between consumer purchasing behaviour and green marketing tools e.g., eco-brand, eco-label, and environmental advertisement (Bleda & Valente, 2009; Chatterjee, 2009; Rahbar & Abdul Wahid, 2011). However, the present study sought to explore the effects of green marketing on consumer purchasing behaviour in the context of the green marketing mix, i.e., Green Product, Green Price, Green Promotion, and Green Place.

The green marketing mix is such a prominent feature of green marketing to the extent that researchers have outlined a relationship between the number and type of green marketing mix factors utilized by an organization, and their preferred green marketing strategy (Dangelico & Vocalelli, 2017). An organization’s green marketing strategy can be categorized into four strategies: extreme, shaded, defensive, and lean (Ginsberg & Bloom, 2004). Ginsberg and Bloom (2004) highlighted that *extreme* strategies involved all four factors. *Shaded* strategies adopted Green Product, Green Price, and Green Promotion factors whereas *defensive* strategies are only associated with Green Product and Green Promotion. Those organizations that exclusively carry out initiatives related to Green Product

are said to have a *lean* green strategy. The authors argued that organizations with *extreme* green strategies are more sustainable than those with *shaded*, *defensive*, or *lean* strategies.

Research carried out in Europe and US by Lampe and Gazda (1995) found that Green Product and Green Promotion made up the majority of green marketing initiatives. The researchers found far less emphasis on green marketing activities related to Green Price and Green Place. However, Esmaili and Fazeli (2015) highlighted the importance of Green Price, as well as Green Product. The results of their study showed that these two factors are the most crucial factors leading to the purchase of eco-friendly products. A contradictory view is taken by Boztepe (2012). From the study conducted on the green marketing mix and consumer purchasing behaviour, the author concluded that Green Promotion, instead of Green Price is an important factor that affects consumers. However, Solaiman, Osman, and Ab. Halim (2015) were of a viewpoint that Green Promotion is ineffective, unless there are other marketing mix factors supporting it, as it is essential for corporate communication to have authentic links to real organizational activities. The lack of significance of Green Price is also supported by the research of Solvalier (2010) as well as Dehghanan and Bakhshandeh (2014). In a similar study, Cheng, Govindran, and Bathmanathan (2018) found that Green Place does not have a significant effect on consumers, unlike the other three factors. Indeed, there have been multiple studies on the relationship between the green marketing mix and consumer purchasing behaviour (Boztepe, 2012; Cheng et al., 2018; Rahahleh, Moflih, Alabaddi, Farajat, & AL-Nsour, 2020).

Nevertheless, these studies do not attempt to identify possible moderators to the relationship. In terms of potential moderators, a significant number of studies have concluded that demographic characteristics, such as age and gender, have no significant effect on the relationship between green marketing and consumer purchasing behaviour (Rahahleh et al., 2020). Among these studies is the research carried out by Alharthey (2019). This research studied the moderating effects of socio-demographic characteristics including age, gender, and educational background on the aforementioned relationship, in which the author concluded that

neither age, gender, nor educational background significantly affected the relationship between the independent and dependant variables. Another study that supports the notion that demographics have no significant impact on the relationship between green marketing and consumer purchasing behaviour was carried out by Sewwandi and Dinesha (2022). The authors studied the moderating effects of gender and educational level on the relationship between green marketing, specifically green marketing tools, and purchasing behaviour of consumers in the context of the electronic home appliance market in Sri Lanka. The results of the moderation effects analysis showed that gender and educational level had no significant effect on the relationship between consumer purchasing behaviour and any of the green marketing tools included in the study which were eco-labelling, eco-branding, and environmental advertising.

Studies regarding green market segmentation further support the lack of significance of demographic criteria in the context of green marketing (Dangelico & Vocalelli, 2017). Straughan and Roberts (1999) argued that altruism, perceived performance, and ecological concern have more of an effect on consumer behaviour than demographics. Modi and Patel (2013) concluded that behavioural criteria are more relevant than demographics when analysing consumer behaviour in the green context. Besides that, studies conducted by Cleveland, Kalamas, and Laroche (2005) as well as Roberts (1996) highlighted the significance of taking into account consumer values, beliefs, and attitudes over demographics when investigating consumer behaviour within the green scope.

On the other hand, the literature supports the relevance of psychographic criteria in the conversation of consumer purchasing behaviour in the green context. Rahahleh et al. (2020) provided a justification for the importance of psychographic criteria over demographics. The authors argue that psychographic criteria have more explanatory power than demographics. In their study of green market segmentation, Straughan and Roberts (1999) found that psychographic criteria indeed have an effect on consumer behaviour in environmental terms. A potential explanation for this relevance is outlined by Peattie and Crane (2005). The authors debated that the innovative nature of green products demand the adoption of new behaviours from

consumers. Thus, the effectiveness of green marketing is highly dependent on consumer motivation, e.g. genuinely wanting a cleaner environment (Polonsky, 2008). The standpoint of Groening, Sarkis, and Zhu (2018) in which motivation is the intermediary step between intentions and behaviour provides further support for the importance of consumer motivation.

A theory that delves into motivations, with links to one's innovativeness, is Kirton's Adaption-Innovation Theory (KAIT) (Groening et al., 2018). According to this theory, an individual's decision making is anchored by their relative position on the adaption-innovation continuum (Groening et al., 2018). Notwithstanding the agreement of the relevance of consumer motivation in the effectiveness of green marketing, surprisingly, KAIT has not featured prominently in green marketing literature.

With the above in mind, the present study aimed to address the gaps in the literature. This research project explored which factors of the green marketing mix, i.e., Green Product, Green Price, Green Promotion, or Green Place, have an influence on consumer purchasing behaviour and considered consumers' adaptive-innovative characteristics as a moderator.

1.2 Problem Statement and Research Questions

The importance of developing green marketing tactics, i.e. Green Product, Green Price, Green Promotion, and Green Place initiatives, that genuinely influence consumer purchasing behaviour and identifying potential moderators that affect said relationship is crucial to marketers and businesses in general. These developments are crucial as a significant proportion of the consumer population often will not purchase environmentally superior products over an environmentally inferior one. This is surprising considering the increasing awareness of consumers regarding environmental issues and the breadth of research on the topic of green consumer targeting (Bamberg, 2003; do Paco & Raposo, 2010; Han, Hsu, Lee, & Sheu, 2010; Roberts, 1996; Tanner & Kast, 2003). Orsato (2006) further stated that

even if consumers have positive attitudes towards the environmental, there is no strong correlation with green purchasing behaviours. Gleim, Smith, Andrews, and Cronin (2013) highlighted that consumer scepticism of product quality, effectiveness, and availability, in addition to the company's actual environmental commitment, may be inhibiting the adoption of green products. The green marketing tactics or green marketing mix, i.e., Green Product, Green Price, Green Promotion, and Green Place must be suitably developed in order to effectively navigate the unique barriers faced by green marketing as mentioned above. Besides that, the innovative nature of many green products and services requires consumers to embrace new and unfamiliar behaviour (Peattie & Crane, 2005). Wong and Yazdanifard (2015) argued that innovators play a crucial role in the green product segment. This implies that there is a potential link between consumers' adaptive-innovative characteristics and the relationship between the green marketing mix and consumer purchasing behaviour.

In summary, there was a compelling need for a better understanding of which factors of the green marketing mix, Green Product, Green Price, Green Promotion, or Green Place, that have a true influence on consumer purchasing behaviour. Moreover, it was also beneficial to identify whether the adaptive-innovative characteristics of consumers may affect the green marketing mix and consumer purchasing behaviour dynamic. To be more specific, it was essential to address the following research questions:

- 1) What is the relationship between Green Product and consumer purchasing behaviour?
- 2) What is the relationship between Green Price and consumer purchasing behaviour?
- 3) What is the relationship between Green Promotion and consumer purchasing behaviour?

-
- 4) What is the relationship between Green Place and consumer purchasing behaviour?
 - 5) Is the relationship between Green Product and consumer purchasing behaviour moderated by consumer adaptive-innovative characteristics?
 - 6) Is the relationship between Green Price and consumer purchasing behaviour moderated by consumer adaptive-innovative characteristics?
 - 7) Is the relationship between Green Promotion and consumer purchasing behaviour moderated by consumer adaptive-innovative characteristics?
 - 8) Is the relationship between Green Place and consumer purchasing behaviour moderated by consumer adaptive-innovative characteristics?

1.3 Research Objectives

The aim of this research was to determine which factors of the green marketing mix: Green Product, Green Price, Green Promotion, or Green Place, impact consumer purchasing behaviour and to evaluate the moderating effects of consumers' adaptive-innovative characteristics on the green marketing mix and consumer purchasing behaviour dynamic. Specifically, the study had the following objectives:

- 1) To assess the relationship between Green Product and consumer purchasing behaviour.
- 2) To assess the relationship between Green Price and consumer purchasing behaviour.
- 3) To assess the relationship between Green Promotion and consumer purchasing behaviour.

-
- 4) To assess the relationship between Green Place and consumer purchasing behaviour.
 - 5) To evaluate the moderating effects of consumer adaptive-innovative characteristics on the relationship between Green Product and consumer purchasing behaviour.
 - 6) To evaluate the moderating effects of consumer adaptive-innovative characteristics on the relationship between Green Price and consumer purchasing behaviour.
 - 7) To evaluate the moderating effects of consumer adaptive-innovative characteristics on the relationship between Green Promotion and consumer purchasing behaviour.
 - 8) To evaluate the moderating effects of consumer adaptive-innovative characteristics on the relationship between Green Place and consumer purchasing behaviour.

1.4 Significance of Study

It may be instinctive to expect specialized green marketing tactics to have an impact on the average consumer's perception of green offerings, which leads to a shift in their purchasing behaviour. However, as previous literature has shown, there are many intricacies to green marketing that result in unique barriers. As Yeow and Yazdanifard (2014) cautioned, it is imperative for marketing managers to structure their green marketing strategies, and to a further extend their green marketing tactics, with extreme precision and care before implementation as it may result in negative consumer attitudes towards the firm instead of positive results. Furthermore, the plethora of studies on traditional (non-green) marketing mix effects on consumer behaviour may not apply to 'green' applications. As Peattie (2001) highlighted, "green marketing cannot be seen simply as a variation on

conventional marketing, suggesting some specific ways to look at it to avoid failure”.

Hence, the present study was beneficial to marketing managers that are looking to integrate environmental aspects into their marketing activities. The research aimed to shed light on which green marketing factors have true influence on consumer purchasing behaviour and whether consumers’ adaptive-innovative characteristics effect these relationships. The present study ultimately sought to provide a framework for businesses to better understand consumer purchasing behaviour related to green products and services. With this, firms will be able to focus their efforts on marketing tactics that genuinely impact consumer purchasing behaviour, while considering the adaptive-innovative characteristics of the consumer. These concentrated efforts potentially provide greater opportunities for firms to successfully align their marketing strategy and tactics with the ever-shifting expectations of consumers toward greener offerings. Therefore, resulting in sustainable competitive advantages.

Furthermore, the present study was important as it has the potential to minimize the abstract nature of green marketing. This is crucial for small businesses that may not have the financial and manpower resources of their larger competitors.

CHAPTER 2

LITERATURE REVIEW

2.1 Green Marketing Mix

The term marketing mix as defined by McCarthy (1964) is the factors that marketing managers are able to control and vary to meet the requirements of a target market. These factors include Product, Price, Promotion, and Place, collectively known as the 4Ps (McCarthy, 1964). There are various research studies that focus on the 4Ps of conventional marketing in the context of green marketing.

Davari and Strutton (2014) conducted a study that evaluated the effects of the 4 Green Ps on consumer perception and response to a sustainable brand. They found that brand loyalty was significantly affected by the 4 Green Ps. Green Product had a major influence on brand association. Both Green Product and Green Place were significantly positively related to perceived brand quality, unlike Green Promotion and Green Price. Besides that, brand trust was only affected by Green Price and Green Product. Interestingly, Green Price had a negative correlation to brand trust, and to brand loyalty as well. A study by Kordshouli, Ebrahimi, and Bouzanjani (2015) led to similar conclusions on the effects of the 4 Green Ps on brand loyalty. When researching European and US companies, Lampe and Gazda (1995) highlighted that a significant amount of green marketing efforts emphasized Green Product and Green Promotion. However, there were significantly less marketing activities that focused on Green Price and Green Place. The lack of emphasis on Green Price contradicts the results of certain studies such as the research of Esmaili and Fazeli (2015) which concluded that besides Green Product, the other most

crucial factor that impacts the purchasing of environmental conscious products is in fact Green Price.

From these literature findings, it was clear that the green marketing mix is a complex concept. To get a better understanding of this concept, the following sections focus on each of the four factors individually.

2.2 Green Product

Peattie (1995) provided a comprehensive definition of the term Green Product. A product is 'green' "when its environmental and societal performance, in production, use, and disposal, is significantly improved and improving in comparison to conventional or competitive products' offerings". Ottman, Stafford, and Hartman (2006) clarified that while no consumer product has zero environmental impact, green products strive to minimize the negative consequences to the natural environment in order to conserve or enhance it.

In the study conducted by Cheng et al. (2018) that evaluated consumer purchasing behaviour and green product quality as an extension of Green Product, the researcher found that most consumers did not opt for green products which had lower quality compared to the conventional products. This suggests that though environmental awareness among consumers is increasing, many consumers still will not sacrifice quality for eco-friendliness.

Packaging eco-labelling is a crucial aspect of green products (Rahahleh et al., 2020). Nik Abdul Rashid (2009) studied the relationship of Green Product, specifically eco-labelling, and consumer purchasing behaviour. The results of said study showed that awareness of eco-labels had a positive effect on consumer's intention to purchase. However, Leire and Thidell (2005) argued that though some studies indicate that consumers recognize the function of eco-labels, this does not necessarily result in changes to their purchasing decisions. This aligns with the view of Shamlou and Vakharia (2019). They highlighted that certain consumers are

influenced by sustainable product manufacturing, which includes eco-labelling, more than others.

2.3 Green Price

Dangelico and Vocalelli (2017) suggested that a product's price is closely associated to its quality. Hence, the definition of price should consider consumers' willingness to pay. Grove, Fisk, Pickett, and Kangun (1996) defined Green Price as "setting prices for green products that offset consumers' sensitivity to price against their willingness to pay more for products' environmental performance". This definition sheds light on a key question faced by marketing managers. At what price point do consumers' willingness to pay for green products over conventional options diminish?

This question was studied by Freestone and McGoldrick (2008). They highlighted that this price point is the "ethical critical point". The cost sacrifice will outweigh the environmental benefits if the price point is beyond the "ethical critical point". However, other researchers such as Hopkins and Roche (2009) downplayed the importance of price as a barrier to green product adoption. Kapelianis and Strachan (1996) offered a different viewpoint. They concluded that consumers' willingness to pay a higher price for green products is not homogenous, rather heterogeneous. Certain consumers demand discounts for green products, whereas others willingly pay infinite premiums for said products. Consumer willingness to pay an additional cost for green products compared to conventional alternatives may be due to many factors.

Perceived benefits are among the factors researchers have studied. In their research, Essoussi and Linton (2010) found that in addition to product category, perceived benefits indeed influenced consumers' willingness to pay. Rahahleh et al. (2020) agreed with this by stating that the high price of green products over their traditional alternatives is a crucial decision-making factor for certain consumers, perhaps confirming the environmental legitimacy of the product.

Other studies highlighted consumer standard of living as a factor of their willingness to pay premium prices for green products. In developed countries, there has been an increase in consumer willingness to pay higher prices for green products compared to traditional offerings. In a study conducted by the European Commission (2020) in developed countries in Europe, 75% of respondents claimed that they would pay a premium price for green products.

Though the study by the European Commission (2020) showed that a significant majority of consumers would sacrifice cost for the environmental benefits of green products, unfortunately certain studies have shown that when it comes to green products, purchase intention and purchase behaviour may not have a strong correlation. In other words, though consumers communicate that they intend to purchase green products that have higher prices, ultimately, they are unwilling to pay the premium (Solaiman et al., 2015). For this reason, the relationship between attitudes and behaviours has been a crucial talking point for stakeholders when considering green marketing.

2.4 Green Promotion

Rahahleh et al. (2020) stated that Green Promotion implies the transmission and exchange of genuine environmental information by firms to consumers that are engaged with the firms' activities. Aspects of promotion include advertising, sales promotions, public relations, and direct marketing (Kotler & Keller, 2009). According to Garg and Sharma (2017), green advertising can be categorized into three types of initiatives. Firstly, initiatives focusing on the relationship between the offering and the natural environment. Besides that, another type of initiative is emphasizing the green lifestyle associated with the product or service. The final type of initiative would be to highlight the firm's environmentally forward persona.

From the statement by Rahahleh et al. (2020), it is clear that a vital element of Green Promotion is genuineness. Papadas and Avlonidis (2014) agreed on the importance of sincerity in regard to Green Promotion. They highlighted that it is imperative that

green claims made by firms are honest, credible, and transparent in order to build trust and sustainable relationships with stakeholders. In fact, studies have shown that the brand image of non-environmentally friendly companies are negatively affected by their efforts of green advertising (Nyilasy, Gangadharbatla & Paladino, 2012). These negative consequences to brand image are effects of 'greenwashing'. Greenwashing is when firms falsely portray their products or services as environmentally friendly (Yadav & Pathak, 2013). Essentially, this involves positive communication regarding environmental performance but poor actual environmental performance.

Ku, Kuo, Wu, and Wu (2012) argued that evaluating consumer reactions, and to an extent consumer behaviour, towards green advertising and Green Promotion is highly complex. This is due to the varying personal characteristics of each consumer (Ku et al., 2012). Besides that, Wang, Ma, and Bai (2019) found that a relationship exists between knowledge of green brands, which is often facilitated by Green Promotion, and consumer purchasing intentions. Results of their study showed that consumer purchasing intention is affected indirectly by green product awareness.

2.5 Green Place

Davari and Strutton (2014) defined Green Place as the marketing tactics involving distribution, from the point of production to the point of consumption, as well as reverse logistics. As discussed earlier, it cannot be assumed that green marketing is simply a variation of traditional marketing. Hence, firms must be aware that marketing tactics involving distribution for green products are not similar to that of traditional products. This is due to the innovative nature of green products. Consequently, Tomasin, Pereira, Borchardt, and Sellitto (2013) suggested firms to construct dedicated marketing teams to specifically oversee distribution of their green offerings.

A known challenge of green products is that the average consumer very rarely actively seeks out these products. Thus, the method and location in which green

products are made available are integral. Due to this, locations with high consumer exposure are recommended for green products instead of niche distribution tactics (Mishra & Sharma, 2012). Solaiman et al. (2015) argued that retailers play an important role in the distribution process of green products. An additional benefit is that green product manufacturers can leverage the reputable brand image of established retailers to add credibility to their products and influence consumer purchasing behaviour.

Lee and Lam (2012) considered reverse logistics as a potentially invaluable aspect of Green Place. With the application of reverse logistics, firms have the opportunity to save costs and time, increase revenue, lower inventory costs, improve inventory management, and enhance customer service (Lee & Lam, 2012).

2.6 Consumer Purchasing Behaviour

The topic of consumer purchasing behaviour is complex in nature. Every customer has their own particular pattern and preference of purchases through time in a multi-brand market (Lawrence, 1966). There has been a plethora of research evaluating the factors that influence consumer purchasing behaviour. However, previous studies have mainly focused on how values, knowledge, and attitudes impact consumer purchasing behaviour. There has been significantly less research on the effects of environmental marketing activities, including green marketing tactics, on consumer purchasing behaviour. This is a surprise, as consumer awareness and concern for the environment has been increasing.

In a survey conducted in multiple countries including France, Germany, the United Kingdom, and the United States, 87% of consumers show concern about the environmental impacts of products they purchase (Bonini, Hintz, & Mendonca, 2008). Though environmental awareness significantly contributes to consumer purchasing intention, there is still a gap between intention and consumers' actual purchasing behaviour in regard to green products (Sharma, 2021). In simpler terms, though consumers are aware of the benefits of green products, they are still not

purchasing said products over conventional offerings. This contradiction poses obstacles to firms and their marketing teams of green products. Investigating the effects of green marketing factors, i.e., the 4 Green Ps, on consumer purchasing behaviour shed some light on this contradiction.

2.7 Consumer Adaptive-Innovative Characteristics

The adaptive-innovative personality dimension of a person is detailed by Kirton's Adaption-Innovation Theory (KAIT) (Kirton, 1976). This theory is concerned with ones problem-solving styles and cognitive tendencies (Stum, 2009). According to KAIT, a person can be placed on a continuum based on their problem-solving styles and cognitive tendencies. This continuum ranges from 'an ability to do things better' (adaptive) to 'an ability to do things differently' (innovative) (Stum, 2009).

Adaptors prioritize precision, order, discipline, and soundness (Groening et al., 2018). According to Stum (2009), a key characteristic of adaptors is that they prefer to seek solutions in tried ways and within the existing framework. On the other hand, innovators challenge existing frameworks and prefer to think tangentially (Groening et al., 2018). They are more likely to take risks and have a tendency to overhaul existing procedures when problem-solving (Stum, 2009). It is important to note that this theory considers that as a coping mechanism, everybody may show attributes of the opposite style, however, they will inevitably return to their preferred style as it is deeply anchored and goes unchanged with time (Buttner & Gryskiewicz, 1993).

In order to measure individual cognitive styles and subsequently identify a person's position along the adaptive-innovative continuum, Kirton developed the Kirton Adaption-Innovation (KAI) inventory (Kirton, 1976). The KAI inventory is an instrument that consists of 32 items divided into three dimensions. The first dimension is *rule/group conformity* and is comprised of 12 items. This dimension measures to what extent an individual works within accepted frameworks or rejects certain aspects of said framework (Bobic, Davis, & Cunningham, 1999). Adaptors

have a tendency to abide by what the framework dictates whereas innovators are more likely to overlook or even ignore pressures to conform to the general views of what is required and how it is achieved (Bobic et al., 1999). An example of an item within this dimension is “A person who likes the protection of precise instructions” (Kirton, 1989).

The second dimension is *efficiency*, which consists of 7 items. This dimension is closely related to Weber’s views on rational legal authority. According to Weber, innovation often does not align with the existing framework, thus it is rejected for hindering efficiency (Wolf, 2001). In organizational terms, Weber defines efficient personnel as those that emphasize reliability, precision, and efficiency (Wolf, 2001). Within the efficiency dimension, adaptors tend to favour incremental progress, whereas innovators tend to refrain from strenuous attention to detail (Xu & Tuttle, 2012). An example of an item within the *efficiency* dimension is “A person who is thorough” (Kirton, 1989).

The final dimension in the KAI inventory is *sufficiency vs. proliferation of originality*. This dimension is made up of 13 items and measures an individual’s preference for producing original ideas (Stum, 2009). An adaptor is said to offer fewer ideas. Furthermore, these ideas are often within existing procedures and practices. In contrast, innovators tend to offer ideas in a greater volume and attempt to reinvent the wheel (Bobic et al., 1999). A sample item within this dimension is “A person who is stimulating” (Kirton, 1989).

When answering the KAI inventory, individuals respond to items by expressing their agreement level on a scale of 1 to 5. The theoretical range of scores for the KAI inventory are from a minimum of 32 to a maximum of 160, individuals with adaptive cognitive styles being in the range of 60 to 90 and those with innovative cognitive styles being in the range of 110 to 140 (Stum, 2009). Results from empirical research show that 67% of the KAI inventory scores are between 79 and 113 with a mean of 95 (Bobic et al., 1999). Research by Bagozzi and Foxall (1995), Murdock, Isaksen, and Lauer (1993), as well as Clapp (1993) have supported Kirton’s work. Moreover, studies have related this instrument to many personality

measures such as the Big Five personality types (De Raad, 2000) and the Myers-Briggs Type Indicator (MBTI) (Isaksen, Lauer, & Wilson, 2003). Furthermore, many other scholars have integrated KAIT into their studies (Kozhevnikov, Evans, & Kosslyn, 2014; Lapp, Jablokow, & McComb, 2019; McIntyre, Friedel, & Lathan, 2022; Sheffield, 2023).

However, the utilization of the KAI inventory in literature has been greatly restricted due to it being a proprietary instrument (Xu & Tuttle, 2012). Furthermore, only certified practitioners are able to administer the KAI inventory (Xu & Tuttle, 2012). Another potential drawback of using the KAI inventory as a tool for academic studies is the sheer length of the instrument. With 32 items, this instrument may not be suitable for contexts in which potential respondents' time is constrained. As Dillman (2007) stated, response rates can be negatively impacted by instrument length, particularly if administered via the internet or the mail.

A non-proprietary and more concise adaptation of the KAI inventory is the Adaption Innovation in the Workplace scale (AI-W). This scale was developed utilizing the adaption and innovation descriptions of Summers, Sweeney, and Wolk (2000). Similar to the KAI inventory, the AI-W is divided in three dimensions: *rule governance*, *sufficiency of originality*, and *approach to efficiency*. *Rule governance* corresponds to the *rule/group conformity* dimension of the KAI inventory, whereas *sufficiency of originality* and *approach to efficiency* correspond to the *sufficiency vs. proliferation of originality* and *efficiency* dimensions of the KAI inventory respectively. Unlike the KAI inventory, each dimension of the AI-W consists of only 3 items (Xu & Tuttle, 2012). Thus, the AI-W has 9 items in total and each item is measured using a bipolar nine-point scale with an adaptor or innovator statement anchored at either end. Responses of each item range from 1 to 9. The varying degrees of an individual's adaption or innovation cognitive style is represented by their total score on the AI-W (Xu & Tuttle, 2012).

Xu and Tuttle (2012) concluded that despite the AI-W being a much shorter scale compared to the KAI inventory (9 items vs. 32 items), there is no significant effect

on reliability and the validity for the AI-W is satisfactory. The authors found that the AI-W is consistent with KAIT upon which it is based.

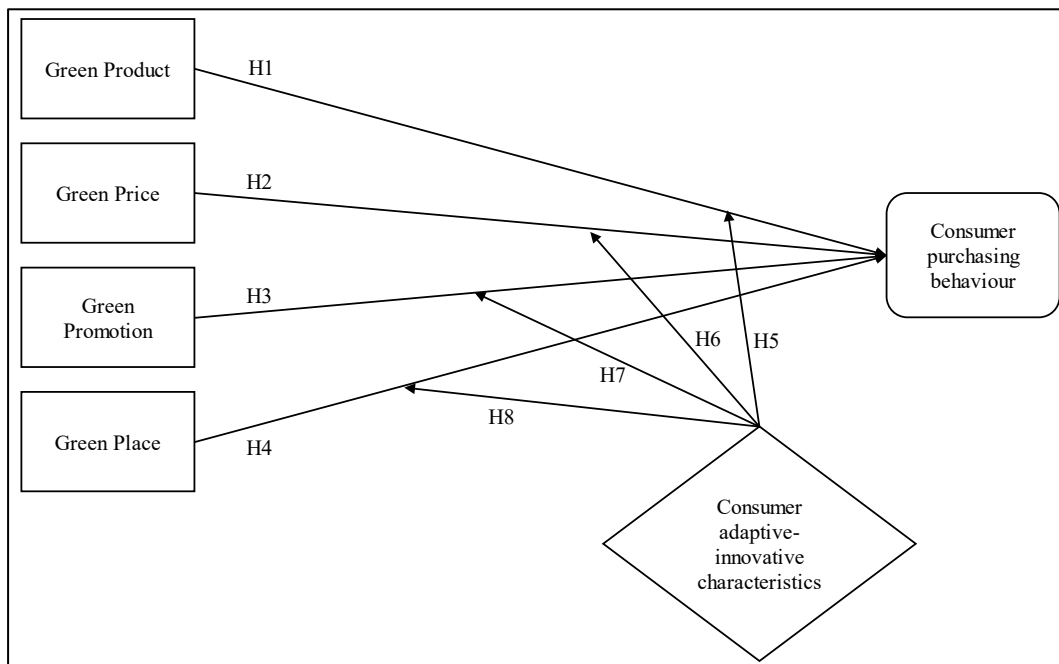
Green marketing studies have not utilized KAIT often (Stum, 2009). In terms of green marketing, KAIT has been utilized in research to discuss variances in green product acceptance in relation to different cultures (Bhate, 2002). Besides that, there is literature that shows a correlation between green product purchasing and the adaptive and innovative level differences of consumers (Bhate & Lawler, 1997). The authors concluded that an innovative problem-solving style is correlated with green product purchasing behaviour. However, Foxall and Bhate (1993) highlighted that though innovators tend to take more risks, they may not be the initial buyers of a new product. Additionally, the researchers pointed out that innovators' inclination to experiment with new green products or experience novelty does not necessarily translate into holistic eco-friendly behaviours or changes in lifestyle. Given previous evidence of correlation between KAIT and various aspects of green marketing, it was beneficial to investigate whether the two cognitive styles (as per KAIT), i.e. adaptors and innovators, have influence on the relationship between the green marketing mix and consumer purchasing behaviour.

2.8 Conceptual Framework and Hypotheses Development

2.8.1 Conceptual Framework

Figure 1 illustrates the conceptual framework for the present study. The independent variables of the present study were Green Product, Green Price, Green Promotion, and Green Place. The dependent variable was consumer purchasing behaviour. This research studied the moderating effects of consumer adaptive-innovative characteristics on the relationship between the independent variables and the dependent variable as well. Thus, the moderating variable was consumer adaptive-innovative characteristics.

Figure 1: Conceptual Framework



2.8.2 Hypotheses Development

Figure 1 shows the hypotheses that were tested in this study. Specifically, the study had the following hypotheses:

- H1: There is a significant relationship between Green Product and consumer purchasing behaviour.
- H2: There is a significant relationship between Green Price and consumer purchasing behaviour.
- H3: There is a significant relationship between Green Promotion and consumer purchasing behaviour.
- H4: There is a significant relationship between Green Place and consumer purchasing behaviour.

-
- H5: The relationship between Green Product and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.
- H6: The relationship between Green Price and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.
- H7: The relationship between Green Promotion and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.
- H8: The relationship between Green Place and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

For this descriptive study, a quantitative research design was utilized. An advantage of this type of research design is that objectivity is maintained as it relies on quantitative data and statistical analysis, thus, avoiding potential biases (Creswell & Creswell, 2017). Another benefit is the effectiveness of quantitative research in hypotheses testing (Kerlinger & Lee, 2000). Besides that, the present study was cross-sectional in nature and made use of primary data obtained from a structured questionnaire. The quota sampling technique was implemented for this study due to its effectiveness in comparing groups within the population, which was vital in the testing of the moderating effects of consumer adaptive-innovative characteristics. The reason for selecting this particular sampling technique was to ensure sufficient sample units for both the adaptive group (adaptors) and the innovative group (innovators). Furthermore, the sampling only prioritized respondents that were 18 years old or older. The justification for this is that it was assumed that individuals below 18 years old are not empowered in their purchasing decision-making, which may ultimately affect their purchasing behaviour. The results of the questionnaires were analysed using statistical software.

3.2 Sampling Area

Though the target population of this study was all consumers (18 years old or older), the sampling area of this study was the Greater Kuala Lumpur and Klang Valley

(Greater KL/KV) region in Malaysia. As of 2022, the population of this region was estimated to be 9.12 million (Statista Research Department, 2023). The Greater KL/KV region is the economic core of Malaysia (Inside Malaysia, 2012). Due to the cosmopolitan and diverse nature of this region, sufficient sample units for both the adaptive group and the innovative group could be efficiently collected. The sampling area was only limited to the Greater KL/KV region, with its relatively developed population. This was done in an attempt to minimize variations in the dependent variable, consumer purchasing behaviour, due to other independent variables besides those involved in this study.

3.3 Sampling Method

The sampling technique selected for this study was the quota sampling technique. This was due to the requirement of obtaining sufficient sample units from both adaptive and innovative groups of the moderating variable. According to Sharma (2017), the quota sampling technique (a non-probability technique) is much more time efficient compared to the stratified random sampling technique which requires a sampling frame and stringent procedures. Besides that, the additional cost of random sampling does not make the potential increase in accuracy worthwhile (Moser, 1952). The quota sampling technique was useful when comparing groups as the representations of both groups or strata, adaptors and innovators, were controlled. Thus, efficiently allowed comparison between the groups (Sharma, 2017). Additionally, the purposive sampling technique was used as well. As mentioned in the research design section of this proposal, the study selectively focused on respondents who are 18 years old or older. Besides that, sample units, i.e. questionnaire respondents, that were grouped as having a neutral cognitive style, neither adaptive nor innovative, were not included in the analysis as the focus of this study was the adaptive and innovative groups. A neutral cognitive style was categorized by an AI-W score of 45, i.e. AI-W mean score of 5. Calculation of AI-W scores and subsequent classification of adaptive-innovative characteristics (adaptor or innovator) is discussed in Section 3.6.

3.4 Sample Size

For multiple or hierarchical regression analysis, Tabachnick and Fidell (1989) recommended at least a sample-to-variable ratio of 5:1. However, higher ratios such as a 15:1 or 20:1 ratio are preferred (Hair, Black, Babin, & Anderson, 2018). Though even higher sample-to-variable ratios are possible, Mooi, Sarstedt, and Mooi-Reci (2018) as well as Boreham, Davison, Jackson, Nevill, Wallace, and Williams (2020) argued that a thorough selection of respondents is more critical to the robustness of a sample than sheer sample size. Furthermore, Hair et al. (2018) and Kline (2016) cautioned that large sample sizes have the possibility of making relationships that are not statistically significant show up as statistically significant. This is due to large sample sizes resulting in overly sensitive statistical significance, leading to Type 1 errors (Kline, 2016). Sullivan and Feinn (2012) highlighted that this is the reason for certain research results achieving statistical significance but having infinitesimal effect sizes.

For the present study, a sample-to-variable ratio of 20:1 was chosen based on the recommendations of Hair et al. (2018). Based on this ratio, the minimum sample size of this study was 120 (6 variables). As part of the quota sampling technique, two strata were identified, adaptors and innovators. A quota of 55% and 45% were set for the adaptor strata and innovator strata respectively. These quotas were based on existing population proportion estimates from Kirton's research (Kirton, 1994). In the author's research, the estimated proportion of adaptors in a general population is 55%, whereas the estimated proportion of innovators is 45%.

The final sample size of the present study was 136 (more than the targeted sample size), 76 sample units (55%) from the adaptor strata and 60 sample units (45%) from the innovator strata.

3.5 Instrumentation

For the present study, a self-completed structured questionnaire was used as the instrument for data collection. As this type of survey does not require an interviewer, biases stemming from the characteristics and skill of the interviewer were eliminated (Phellas, Bloch, & Seale, 2011). Furthermore, Phellas et al. (2011) stated that respondent anonymity is greater when no interviewer is involved, which can increase response reliability. For this study, the questionnaire only contained closed-ended questions for ease of data analysis.

The questionnaire comprised of seven sections. Section 1 focused on respondents' socio-demographic characteristics. This section essentially served two functions. The first function was to collect classification data for subsequent description of sample characteristics for reporting purposes, as recommended by Sekaran and Bougie (2016). The second function of this section was as a screening section, as it required respondents to disclose their age based on multiple age ranges. This question acted as a screening question for the purposive aspect of the sampling. Any samples from respondents below the age of 18 were removed from the analysis. The demographic characteristics included in this section were gender, age, ethnicity, monthly salary, marital status, number of dependants (aged 18 or younger, who currently lived in the same household), and employment status. Nominal scales in the form of multiple-choice answers were used for this section.

Section 2 focused on the moderating variable, consumers' adaptive-innovative characteristics. The function of this section was to classify respondents either in the adaptor group or the innovator group, based on their responses. The nine items in this section were adopted from the Adaption Innovation in the Workplace scale (AI-W), which is a non-proprietary and more concise alternative measure to the Kirton Adaption-Innovation (KAI) inventory (Xu & Tuttle, 2012). The KAI inventory consists of 32 items with three subscales: *rule/group conformity* (12 items), *sufficiency vs. proliferation of originality* (13 items), and *efficiency* (7 items) (Taylor, 1989). On the other hand, the AI-W is significantly shorter, consisting of nine items with three subscales: *rule governance* (3 items), *sufficiency of originality*

(3 items), and *approach to efficiency* (3 items) (Xu & Tuttle, 2012). Items from Section 2 were adopted from the AI-W instead of the KAI inventory due to time concerns which may affect response rates. Each item required subjects to respond on a bipolar nine-point scale anchored by an adaptor or innovator statement at either end. Any sample units classified as neutral, i.e. an AI-W score of 45 (AI-W mean score of 5), were removed from the analysis. Calculation of AI-W scores and subsequent classification of adaptive-innovative characteristics (adaptor or innovator) is discussed in the following section, Section 3.6.

Section 3 to 6 encompassed items related to the four independent variables, Green Product (6 items), Green Price (5 items), Green Promotion (5 items), and Green Place (4 items) respectively. Items in these sections were adapted from existing literature. A summary of these studies is provided in Table 1.

Table 1: Literature Utilized for Adaptation of Independent Variable Items

Section	Independent Variable	Source
3	Green Product	Hashem and Al-Rifai (2011) Tseng and Hung (2013)
4	Green Price	Bahl and Chandra (2018) Hashem and Al-Rifai (2011) Laroche, Bergeron, and Barbaro-Forleo (2001)
5	Green Promotion	Bahl and Chandra (2018) Hashem and Al-Rifai (2011) Kumar and Ghodeswar (2015)
6	Green Place	Bahl and Chandra (2018) Hashem & Al-Rifai (2011)

All twenty items that formed these four sections utilized a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Finally, Section 7 of the questionnaire measured the dependent variable, consumer purchasing behaviour. This section consisted of 5 items adapted from the studies conducted by Le-Anh and Nguyen-To (2020) on consumer purchasing behaviour related to organic food and Rahnama and Rajabpour (2016) on the factors of consumer purchasing behaviour in the context of environmentally friendly products. A five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was applied to this section as well.

3.6 Calculation of AI-W Scores and Classification of Adaptor / Innovator

The AI-W section of the questionnaire (Section 2) consisted of nine items with a nine-point scale for each item. Each respondent's AI-W score was calculated by summing across all the items on the AI-W. The theoretical range of the total score for the AI-W was from a minimum of 9 to a maximum of 81.

In order to normalize the scores, the average score for each respondent was calculated by dividing their total score by the number of items on the AI-W (9 items). These average scores were referred to as AI-W mean scores (AI-W Mean Score).

Respondents with an AI-W Mean Score of less than 5 were classified as adaptors. On the other hand, respondents with an AI-W Mean Score of more than 5 were classified as innovators. An AI-W Mean Score of exactly 5 denoted neutrals, i.e. respondents with neutral cognitive styles.

3.7 Pretest

Before the questionnaires were distributed, a small-scale pretest of 30 sample units was conducted to ensure that issues with the instrument, that may result in biases,

are identified, and rectified prior to the actual study. Among the issues that may arise were ambiguous questions, spelling errors or measurement errors (Sekaran & Bougie, 2016). Feedback from the pretest respondents were requested and compiled to evaluate and improve the questionnaire.

Besides that, the results of the pretest were used to evaluate and enhance the reliability of the questionnaire. In terms of reliability, the internal consistency was accessed using Cronbach's alpha. Furthermore, the 30 sample units from the pretest were not included in the final study.

3.8 Data Collection

According to Phellas et al. (2011), there are several options when it comes to methods of administering questionnaires including postal surveys, email surveys, and web surveys. For the present study, a web survey method was carried out. The advantages of a web-based survey included quick responses, cost minimization, and increased anonymity which facilitated more honest responses (Phellas et al., 2011). To be specific, this questionnaire was constructed using Google Forms, a platform for creating online forms and surveys. The Uniform Resource Locator (URL) link for the questionnaire was shared via multiple online platforms including WhatsApp, Facebook, and Instagram. Additionally, a QR code for the URL link was generated and physically posted at multiple locations within the Greater KL/KV region to maximize the exposure.

3.9 Data Analysis

The statistical analysis of the data collected via the questionnaires was carried out using IBM SPSS Statistics (SPSS).

Firstly, a descriptive statistics analysis was carried out to attain the frequencies, measures of central tendency, and dispersion of the socio-demographic data and all

the variables involved. As Sekaran and Bougie (2016) stated, descriptive statistics analysis assisted in getting a feel for the data collected and was the fundamental initial step in analysing the data. In order to carry out the analysis of the demographic characteristics, the demographic data collected was coded in SPSS based on the various demographic groups. A summary of these codes is provided in Table 2.

Table 2: Codes for Demographic Analysis

Demographics	Code	Groups
Gender	0	Female
	1	Male
Age	0	18 years and below
	1	19 – 24 years old
	2	25 – 34 years old
	3	35 – 44 years old
	4	45 – 54 years old
	5	55 – 64 years old
Ethnicity	6	65 years old and above
	0	Chinese
	1	Indian
	2	Malay
Monthly Salary	3	Other
	0	RM 1,500 and below
	1	RM 1,501 – RM 3,000
	2	RM 3,001 – RM 5,000
	3	RM 5,001 – RM7,000
Marital Status	4	RM 7,001 – RM 9,000
	5	Above RM 9,000
0	Married	

Demographics	Code	Groups
	1	Divorced
	2	Separated
	3	Widowed
	4	Never Married
Number of Dependants	0	None
	1	1
	2	2
	3	3
	4	4
	5	More than 4
Employment Status	0	Employed Full-time
	1	Employed Part-time
	2	Unemployed
	3	Student
	4	Retired

Next, the reliability of the data was tested by utilizing the Cronbach's alpha. Cronbach's alpha measures the internal consistency of the study, which is the extent to which the items in the study measure the same construct (Tavakol & Dennick, 2011). The internal consistency is higher as the value of Cronbach's alpha approaches 1. Taber (2018) stated that a Cronbach's alpha value of 0.7 is a sufficient measure of internal consistency. For this study, Cronbach's Alpha Based on Standardized Items was used to interpret the internal consistency as individual scale items had different scales (Gliem & Gliem, 2003).

Besides that, the correlation between various aspects of the study was tested via a correlation analysis. The Pearson correlation coefficient (r) was calculated to understand said correlations. This coefficient ranges from -1.0 (negative correlation) to +1.0 (positive correlation), however, the significance of the correlation was determined by the p-value. If the p-value was less than or equals to

the selected significance level of 0.05, the correlation was considered significant (Sekaran & Bougie, 2016). Among the correlation tests run were between the dependent variable and demographic characteristics, between the dependent variable and independent variables, between the dependent variable and AI-W mean scores, between the AI-W mean scores and demographic characteristics, and between the AI-W mean scores and independent variables.

The first part of the inferential statistics analysis involved multiple linear regression analysis for testing the various hypotheses involving the independent variables and dependent variable. Multiple regression analysis was useful for determining which independent variables influence the dependent variable (Shiu, Hair, Bush & Ortinau, 2009). From the t-test results, the significance of each independent variable was evaluated based on their respective p-values. Other than that, the unstandardized regression equation was determined and interpreted from the coefficients of regression. Furthermore, the standardized regression coefficients were interpreted as well. From the R-squared and Adjusted R-squared values, the percentage of variation of the dependant variable (consumer purchasing behaviour) was explained by the variation in the independent variables (Green Product, Green Price, Green Promotion, and Green Place). In addition, the overall significance of the multiple regression model was accessed from the F-test results (analysis of variance (ANOVA)). Assumption checks relevant to multiple regression were carried out as well (Berry, 1993). For example, multicollinearity of the independent variables was checked from the Variance Inflation Factors (VIFs). Multicollinearity occurs when there is high correlation between two or more independent variables in a multiple regression model (Daoud, 2017). A VIF value of more than 10 shows high correlation between the independent variables of the model (Hair, Black, Babin, & Anderson, 2014).

The second part of the inferential statistics analysis involved hierarchical multiple regression analysis for testing the moderating effects of the dichotomous moderating variable (consumer adaptive-innovative characteristics) (Aiken & West, 1991). The moderating variable in this study was dichotomous in nature as it consists of two categorical groups (Aguinis, 2004). For interpretation reasons, the

four independent variables were mean centred for this analysis (Aiken & West, 1991). Dummy variables for each of the two categorical groups (adaptor and innovator) of the dichotomous moderating variable were created (Hardy, 1993). Interaction terms between the dummy variables and the mean centred independent variables were formed to test the moderating effects (Jaccard & Turrisi, 2003). Two hierarchical multiple regression procedures were carried out for each mean centred independent variable. One for the adaptor dummy variable and one for the innovator dummy variable. The latter was done mainly to verify the results of the former. Thus, a total of eight procedures were carried out. For every hierarchical multiple regression procedure, two models were run. The difference between the two models being the inclusion of the associated interaction term. The output of each procedure showed the R Square change between the two models as well as the related significance value. These values were interpreted to determine whether a moderator effect existed. Assumption checks relevant to hierarchical multiple regression were carried out as well which entailed tests for linearity, tests for multicollinearity, tests for outliers, leverage points, and influential points, tests for homoscedasticity, and tests for normality (Berry, 1993).

CHAPTER 4

RESEARCH RESULTS

4.1 Pretest Reliability Analysis

The results of the reliability analysis of the 30-sample pretest are shown in Table 3.

Table 3: Reliability Statistics of the 30-Sample Pretest

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.670	0.759	6

As a nine-point scale was utilized for the moderator variable, whereas a five-point scale was utilized for the dependent and independent variables, i.e. individual scale items have different scales, Cronbach's Alpha Based on Standardized Items was used to interpret the internal consistency (Gliem & Gliem, 2003). Based on Table 3, the internal consistency of the pretest was at a good level as Cronbach's Alpha Based on Standardized Items was 0.759. According to DeVillis (2003) and Kline (2016), recommended values of Cronbach's Alpha showing good levels of internal consistency are 0.7 and higher.

4.2 Descriptive Analysis

A total of 150 respondents answered the questionnaire for this study. However, 10 respondents were below 18 years old. Furthermore, 4 respondents'

adaptive/innovative characteristics were classified as neutral. Thus, the final sample size of this study was 136.

4.2.1 Frequency of Demographics

Section 1 of the questionnaire focused on respondents' socio-demographic characteristics. Seven demographic characteristics of respondents were investigated: gender, age, ethnicity, monthly salary, marital status, number of dependants, and employment status. Gender was divided into two categories, female and male. Age consisted of five age groups: 19 - 24 years old, 25 - 34 years old, 35 - 44 years old, 45 - 54 years old, 55 - 64 years old, and 65 years old and above. Ethnicity was divided into Chinese, Indian, Malay, and other. Monthly salary had six groups: RM 1,500 and below, RM 1,501 - RM 3,000, RM 3,001 - RM 5,000, RM 5,001 - RM 7,000, RM 7,001 - RM 9,000, and above RM 9,000. Five categories made up the marital status characteristic: married, divorced, separated, widowed, and never married. Number of dependants were divided into none, 1 dependant, 2 dependants, 3 dependants, 4 dependants, and more than 4 dependants. Finally, employment status was divided into five categories: employed full-time, employed part-time, unemployed, student, and retired.

Table 4 shows the frequency and percentage breakdown by each demographic characteristic and their respective groups.

Table 4: Frequency and Percentage of Demographics (Sample Size, n = 136)

Demographics	Frequency (n=136)	Percentage (%)
Gender		
Female	83	61.0
Male	53	39.0
Age		
19 – 24 years old	29	21.3
25 – 34 years old	37	27.2

Demographics	Frequency (n=136)	Percentage (%)
35 – 44 years old	26	19.1
45 – 54 years old	7	5.1
55 – 64 years old	37	27.2
65 years old and above	0	0.0
Ethnicity		
Chinese	54	39.7
Indian	16	11.8
Malay	54	39.7
Other	12	8.8
Monthly Salary		
RM 1,500 and below	36	26.5
RM 1,501 – RM 3,000	5	3.7
RM 3,001 – RM 5,000	21	15.4
RM 5,001 – RM 7,000	13	9.6
RM 7,001 – RM 9,000	15	11.0
Above RM 9,000	46	33.8
Marital Status		
Married	60	44.1
Divorced	3	2.2
Separated	1	0.7
Widowed	1	0.7
Never Married	71	52.2
Number of Dependants		
None	82	60.3
1	27	19.9
2	13	9.6
3	10	7.4
4	3	2.2

Demographics	Frequency (n=136)	Percentage (%)
More than 4	1	0.7
Employment Status		
Employed Full-time	86	63.2
Employed Part-time	6	4.4
Unemployed	3	2.2
Student	27	19.9
Retired	14	10.3

Referring to Table 4, out of the 136 respondents, 83 respondents (61.0%) were female, and 53 respondents (39.0%) were male.

In terms of age, most respondents were in the age groups of 25 - 34 years old and 55 - 64 years old, both having 37 respondents (27.2%) respectively. There were 29 respondents (21.3%) between 19 - 24 years old, whereas the age group of 35 - 44 years old was represented by 26 respondents (19.1%). Only 7 respondents (5.1%) were between 45 - 54 years old. There were no respondents in the final age group of 65 years old and above.

In regard to ethnicity, the Chinese and Malay ethnicities were represented by 54 respondents (39.7%) each. The Indian ethnicity was represented by 16 respondents (11.8%), whereas 12 respondents (8.8%) categorized their ethnicity as other.

The majority of respondents', 46 respondents (33.8%), monthly salary was above RM 9,000. The second highest monthly salary group in terms of frequency was RM 1,500 and below with 36 respondents (26.5%). 21 respondents (15.4%) had a monthly salary between RM 3,001 - RM 5,000, whereas the RM 7,001 - RM 9,000 monthly salary group was represented by 15 respondents (11.0%). 13 respondents' (9.6%) monthly salary was between RM 5,001 – RM 7,000. The monthly salary group with the least representation was the RM 1,501 - RM 3,000 group, with 5 respondents (3.7%).

In terms of marital status, the majority of respondents, 71 respondents (52.2%), were never married. On the other hand, there were 60 respondents (44.1%) that were married. 3 respondents (2.2%) were divorced. The marital status of separated and widowed were represented by 1 respondent (0.7%) each.

When looking at the number of dependants, this study specifically looked at dependants aged 18 or younger, who currently lived in the same household. A large majority of respondents, 82 respondents (60.3%), had no dependants. 27 respondents (19.9%) had 1 dependant. 13 respondents (9.6%) and 10 respondents (7.4%) disclosed that they had 2 dependants and 3 dependants respectively. 3 respondents (2.2%) had 4 dependants, whereas only 1 respondent (0.7%) disclosed having more than 4 dependants.

The final demographic characteristic investigated during this study was employment status. The majority of respondents, 86 respondents (63.2%), were employed full-time. 27 respondents (19.9%) were students. 14 respondents (10.3%) categorized themselves as retired. 6 respondents (4.4%) were employed part-time, whereas 3 respondents (2.2%) were unemployed.

4.2.2 Descriptive Analysis of Demographics

The results of the descriptive analysis carried out on the seven demographic characteristics investigated in this study are shown in Table 5. The mode, skewness, and kurtosis, specifically excess kurtosis, are detailed.

Table 5: Mode, Skewness, Kurtosis (Excess Kurtosis) of Demographics

	Gender	Age	Ethnicity	Monthly Salary	Marital Status	Number of Dependants	Employment Status
Mode	0	2 ^a	0 ^a	5	4	0	0
Skewness	0.457	0.283	0.094	-0.229	-0.143	1.576	0.855
Kurtosis	-1.818	-1.366	-1.469	-1.544	-1.984	1.865	-1.054

a. Multiple modes exist. The smallest value is shown.

As seen in Table 5, the modes of the seven demographic characteristics investigated correspond to the code of the group or groups with highest frequency of respondents as previously detailed in Table 4. The mode for gender was 0, i.e. female. The mode for age was 2 and 5, i.e. 25 - 34 years old and 55 - 64 years old respectively. Ethnicity had a mode of 0 and 2, which were Chinese and Malay respectively. The mode of monthly salary was 5 corresponding to the above RM 9,000 group, whereas the mode for marital status was 4, i.e. never married. Both number of dependants and employment status had 0 as the mode corresponding to no dependants and employed full-time respectively.

When interpreting skewness, Hair, Hult, Ringle, and Sarstedt (2022) outlined a general guideline. Skewness values between -1 and +1 are interpreted as excellent, however values between -2 and +2 are widely interpreted as acceptable. Substantially nonsymmetric distribution is indicative of values more than -2 and +2, whereas a symmetrical distribution is characterized by skewness value of zero. It is important to note that the authors highlighted that researchers will most likely never encounter situations in which skewness values are exactly zero. Skewness values of each demographic characteristic are shown in Table 5. Using this guideline, all skewness values were acceptable as they were all between -2 and +2. The distribution of ethnicity, marital status, monthly salary, age, gender, and employment status which had skewness values of 0.094, -0.143, -0.229, 0.283, 0.457, and 0.855 were very close to symmetrical. Though still having an acceptable skewness value, the distribution of number of dependants, with skewness value of 1.576, had positive skewness.

Hair et al. (2022) outlined a general guideline for excess kurtosis as well. According to the authors, the distribution is too peaked (leptokurtic) if the excess kurtosis value is more than +2, whereas the distribution is too flat (platykurtic) if the excess kurtosis value is less than -2. A normal distribution (mesokurtic) has an excess kurtosis value of zero. Like skewness values, the authors highlighted that researchers will most likely never encounter situations in which excess kurtosis values are exactly zero. Excess kurtosis values of each demographic characteristic

are shown in Table 5. Using this guideline, all excess kurtosis values were acceptable as they were all between -2 and +2.

4.2.3 Descriptive Analysis of Independent Variables

The results of the descriptive analysis carried out on the four independent variables of this study are shown in Table 6. The mean, standard deviation, skewness, and kurtosis, specifically excess kurtosis, are detailed.

Table 6: Mean, Standard Deviation, Skewness, Kurtosis (Excess Kurtosis) of Independent Variables

	PRD	PRI	PRM	PLA
Mean	3.300	3.032	3.915	3.480
Standard Deviation	0.818	0.824	0.716	0.455
Skewness	0.182	-0.409	-0.743	0.465
Kurtosis	-0.021	0.097	0.844	0.846

Note. PRD = Green Product, PRI = Green Price, PRM = Green Promotion, PLA = Green Place

Referring to Table 6, in terms of the means, PRM had the highest value at 3.915 with a standard deviation of 0.716. Thus, it could be said that on average, respondents answered on the higher end of the five-point Likert scale for items related to this independent variable compared to the other three independent variables. PLA had a mean value of 3.480 with a standard deviation of 0.455, whereas PRD had a mean value of 3.300 with a standard deviation of 0.818. PRI had the lowest mean value at 3.032 with a standard deviation of 0.824.

As shown in Table 6, skewness values of all independent variables were between -1 and +1. Thus, their respective distributions were interpreted as being close to symmetric (Hair et al., 2022).

Excess kurtosis values of all independent variables were between -2 and +2 as seen in Table 6. Therefore, they were all acceptable according to Hair et al. (2022), i.e. the distributions of all independent variables were not too peaked or too flat.

4.2.4 Descriptive Analysis of Dependent Variable

The results of the descriptive analysis carried out on the dependent variable of this study are shown in Table 7. The mean, standard deviation, skewness, and kurtosis, specifically excess kurtosis, are detailed.

Table 7: Mean, Standard Deviation, Skewness, Kurtosis (Excess Kurtosis) of Dependent Variable

	CPB
Mean	3.577
Standard Deviation	0.789
Skewness	-0.360
Kurtosis	0.335

Note. CPB = Consumer Purchasing Behaviour.

Referring to Table 7, the mean of CPB was 3.577 with a standard deviation of 0.789. Thus, it could be said that, on average, respondents answered higher than 3 (Neutral) on the five-point Likert scale for items regarding CPB.

As shown in Table 7, the skewness value of CPB was between -1 and +1. Thus, the distribution was interpreted as being close to symmetric (Hair et al., 2022).

The excess kurtosis value of CPB was between -2 and +2 as seen in Table 7. Therefore, it was acceptable according to Hair et al. (2022), i.e. the distribution of CPB was not too peaked or too flat.

4.2.5 Descriptive Analysis of AI-W Mean Score

The results of the descriptive analysis carried out on the respondents' respective AI-W Mean Score are shown in Table 8. The mean, standard deviation, skewness, and kurtosis, specifically excess kurtosis, are detailed.

Table 8: Mean, Standard Deviation, Skewness, Kurtosis (Excess Kurtosis) of AI-W Mean Score

	AI-W Mean Score
Mean	4.561
Standard Deviation	1.570
Skewness	0.076
Kurtosis	-0.528

Referring to Table 8, the mean of the respondents' respective AI-W Mean Score was 4.561 with a standard deviation of 1.570. Thus, it could be said that, on average, respondents answered lower than 5 on the bipolar nine-point scale of the AI-W. Since the mean was below five, the sample of 136 respondents on average, were adaptive (AI-W Mean Score of less than five) rather than innovative (AI-W Mean Score of more than five).

As shown in Table 8, the skewness value of AI-W Mean Score was between -1 and +1. Thus, the distribution was interpreted as being close to symmetric (Hair et al., 2022).

The excess kurtosis value of AI-W Mean Score was between -2 and +2 as seen in Table 8. Therefore, it was acceptable according to Hair et al. (2022), i.e. the distribution of AI-W Mean Score was not too peaked or too flat.

4.3 Pearson Correlation Coefficient Analysis

The Pearson correlation coefficient (r) was used to describe the linear relationship between CPB and the demographics, CPB and the independent variables, CPB and AI-W Mean Score, AI-W Mean Score and demographics, and AI-W Mean Score and the independent variables of the sample of 136 respondents. Cohen (1988) provided a general guideline for determining the correlation strength from the absolute value of the r . $0.1 < |r| < 0.3$ is categorized as a weak correlation. $0.3 < |r| < 0.5$ is categorized as a moderate correlation. $|r| < 0.5$ is categorized as a strong correlation. Positive values of r indicate positive correlations. On the other hand, negative correlations are indicated by negative values of r .

The statistical significance of each linear relationship was evaluated by referring to the significance value, p of the Pearson's correlation coefficient. If p was less than 0.05, the linear relationship was statistically significant, whereas if p was more than 0.05, the linear relationship was not statistically significant.

Assumption checks showed linear relationships, normal distributions, as assessed by normal Q-Q plots, and there were no significant outliers.

4.3.1 Correlation between CPB and Demographics

Table 9 details the Pearson correlation coefficient and significance values of the linear relationship between CPB and the demographic characteristics; gender, age, ethnicity, monthly salary, marital status, number of dependants, and employment status.

Table 9: Correlations Table for the Relationship between CPB and Demographics

		CPB
CPB	Pearson Correlation	1.00
	Sig. (2-tailed)	
	N	136
Gender	Pearson Correlation	-0.10
	Sig. (2-tailed)	0.252
	N	136
Age	Pearson Correlation	0.07
	Sig. (2-tailed)	0.392
	N	136
Ethnicity	Pearson Correlation	0.03
	Sig. (2-tailed)	0.700
	N	136
Monthly Salary	Pearson Correlation	-0.12
	Sig. (2-tailed)	0.151
	N	136
Marital Status	Pearson Correlation	-0.03
	Sig. (2-tailed)	0.728
	N	136
Number of Dependents	Pearson Correlation	-0.05
	Sig. (2-tailed)	0.583
	N	136

		CPB
Employment Status	Pearson Correlation	0.05
	Sig. (2-tailed)	0.598
	N	136

Note. CPB = Consumer Purchasing Behaviour.

Referring to Table 9, CPB had weak correlations with all seven demographic characteristics as the absolute value of r for all relationships were less than 0.3.

Age, employment status, and ethnicity were positively correlated with CPB, whereas gender, monthly salary, marital status, and number of dependents were negatively correlated with CPB.

However, since p was more than 0.05 for the linear relationships between CPB and the seven demographic characteristics, the linear relationships were not statistically significant.

4.3.2 Correlation between CPB and Independent Variables

Table 10 details the Pearson correlation coefficient and significance values of the linear relationship between CPB and the independent variables; PRD, PRI, PRM, and PLA.

Table 10: Correlations Table for the Relationship between CPB and Independent Variables

		CPB
CPB	Pearson Correlation	1.00
	Sig. (2-tailed)	
	N	136

		CPB
PRD	Pearson Correlation	0.20*
	Sig. (2-tailed)	0.020
	N	136
PRI	Pearson Correlation	0.52**
	Sig. (2-tailed)	0.000
	N	136
PRM	Pearson Correlation	0.68**
	Sig. (2-tailed)	0.000
	N	136
PLA	Pearson Correlation	0.46**
	Sig. (2-tailed)	0.000
	N	136

Note. CPB = Consumer Purchasing Behaviour, PRD = Green Product, PRI = Green Price,
PRM = Green Promotion, PLA = Green Place.

*.p < 0.05. **.p < 0.01.

Referring to Table 10, there was a statistically significant, strong positive correlation between CPB and PRM, $r = 0.68$, $p < 0.05$.

There was a statistically significant, strong positive correlation between CPB and PRI as well, $r = 0.52$, $p < 0.05$.

There was a statistically significant, moderate positive correlation between CPB and PLA, $r = 0.46$, $p < 0.05$.

There was a statistically significant, weak positive correlation between CPB and PRD, $r = 0.20$, $p < 0.05$.

4.3.3 Correlation between CPB and AI-W Mean Score

Table 11 details the Pearson correlation coefficient and significance value of the linear relationship between CPB and AI-W Mean Score.

Table 11: Correlations Table for the Relationship between CPB and AI-W Mean Score

		CPB
CPB	Pearson Correlation	1.00
	Sig. (2-tailed)	
	N	136
AI-W Mean Score	Pearson Correlation	0.17
	Sig. (2-tailed)	0.054
	N	136

Note. CPB = Consumer Purchasing Behaviour.

Referring to Table 11, there was no statistically significant correlation between CPB and AI-W Mean Score, $r = 0.17$, $p=0.054$.

4.3.4 Correlation between AI-W Mean Score and Demographics

Table 12 details the Pearson correlation coefficient and significance values of the linear relationship between AI-W Mean Score and the demographic characteristics; gender, age, ethnicity, monthly salary, marital status, number of dependants, and employment status.

Table 12: Correlations Table for the Relationship between AI-W Mean Score and Demographics

		AI-W Mean Score
AI-W Mean Score	Pearson Correlation	1.00
	Sig. (2-tailed)	
	N	136
Gender	Pearson Correlation	0.18*
	Sig. (2-tailed)	0.036
	N	136
Age	Pearson Correlation	-0.22*
	Sig. (2-tailed)	0.010
	N	136
Ethnicity	Pearson Correlation	-0.05
	Sig. (2-tailed)	0.559
	N	136
Monthly Salary	Pearson Correlation	-0.05
	Sig. (2-tailed)	0.566
	N	136
Marital Status	Pearson Correlation	0.06
	Sig. (2-tailed)	0.509
	N	136
Number of Dependents	Pearson Correlation	0.11
	Sig. (2-tailed)	0.192
	N	136

		AI-W Mean Score
Employment Status	Pearson Correlation	0.08
	Sig. (2-tailed)	0.361
	N	136

*.p < 0.05.

Referring to Table 12, there was a statistically significant, weak positive correlation between AI-W Mean Score and gender, $r = 0.18$, $p < 0.05$.

There was a statistically significant, weak negative correlation between AI-W Mean Score and age, $r = -0.22$, $p < 0.05$.

There were no statistically significant correlations between AI-W Mean Score and ethnicity ($r = -0.05$, $p = 0.559$), monthly salary ($r = -0.05$, $p = 0.566$), marital status ($r = 0.06$, $p = 0.509$), number of dependants ($r = 0.11$, $p = 0.192$), and employment status ($r = 0.08$, $p = 0.361$).

4.3.5 Correlation between AI-W Mean Score and Independent Variables

Table 13 details the Pearson correlation coefficient and significance values of the linear relationship between AI-W Mean Score and the independent variables; PRD, PRI, PRM, and PLA.

Table 13: Correlations Table for the Relationship between AI-W Mean Score and Independent Variables

		AI-W Mean Score
AI-W Mean Score	Pearson Correlation	1.00
	Sig. (2-tailed)	
	N	136

		AI-W Mean Score
PRD	Pearson Correlation	0.08
	Sig. (2-tailed)	0.387
	N	136
PRI	Pearson Correlation	0.22*
	Sig. (2-tailed)	0.010
	N	136
PRM	Pearson Correlation	0.03
	Sig. (2-tailed)	0.757
	N	136
PLA	Pearson Correlation	0.14
	Sig. (2-tailed)	0.111
	N	136

Note. PRD = Green Product, PRI = Green Price, PRM = Green Promotion, PLA = Green Place.

*.p < 0.05.

Referring to Table 13, there was a statistically significant, weak positive correlation between AI-W Mean Score and PRI, $r = 0.22$, $p < 0.05$.

There were no statistically significant correlations between AI-W Mean Score and PRD ($r = 0.08$, $p = 0.387$), PRM ($r = 0.03$, $p = 0.757$), and PLA ($r = 0.14$, $p = 0.111$).

4.4 Normality Tests

According to Ghasemi and Zahediasl (2012) and Laerd Statistics (2013), large sample sizes, specifically sample sizes that are more than 50, benefit from the utilization of graphical methods such as a normal Q-Q Plot to check for normality of distribution. This is because for large sample sizes, tests such as the Shapiro-

Wilk test will flag even minor deviations from a normal distribution as statistically significant. Thus, resulting in the incorrect conclusion that the distribution is not normal.

As the total sample size of this study was 136, normality of CPB, PRD, PRI, PRM, PLA, and AI-W Mean Score were tested via visual inspection of the normal Q-Q plots of each variable respectively. Distributions of CPB, CPB, PRD, PRI, PRM, PLA, and AI-W Mean Score were concluded to be normally distributed.

4.5 Reliability Analysis of Research Model

The results of the reliability analysis of the research model are shown in Table 14.

Table 14: Reliability Statistics of Research Model

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.624	0.733	6

As a nine-point scale was utilized for the moderator variable, whereas a five-point scale was utilized for the dependent and independent variables, i.e. individual scale items have different scales, Cronbach's Alpha Based on Standardized Items was used to interpret the internal consistency (Gliem & Gliem, 2003). Based on Table 14, internal consistency of the overall research model was at a good level as Cronbach's Alpha Based on Standardized Items was 0.733. According to DeVillis (2003) and Kline (2016), recommended values of Cronbach's alpha showing good levels of internal consistency are 0.7 and higher.

4.6 Multiple Linear Regression Analysis

A multiple linear regression procedure was run with consideration of the relevant assumption checks to analyse the relationship between the independent variables

(PRD, PRI, PRM, and PLA) and the dependent variable (CPB). Section 4.6 details the results of said process.

4.6.1 Interpretation of R Square

Table 15 shows the Model Summary table of the multiple linear regression procedure that was carried out.

Table 15: Model Summary Table of Multiple Linear Regression Procedure

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.739 ^a	0.546	0.533	0.539	2.018

Note. Dependent Variable: Consumer Purchasing Behaviour (CPB).

a. Predictors: (Constant), Green Product (PRD), Green Price (PRI), Green Promotion (PRM), Green Place (PLA).

Referring to Table 15, the R^2 value for the independent-dependent variable model was 0.546 with an adjusted R^2 value of 0.533. Thus, R^2 for said model was 54.6% with an adjusted R^2 of 53.3% which as specified by Cohen (1988) was a large size effect. In other words, for this independent-dependent variable model, about 54.6% of the variation in CPB could be explained by the variation in PRD, PRI, PRM, and PLA. Furthermore, about 53.3% of the of the variation in CPB could be explained by the variation in PRD, PRI, PRM, and PLA, taking into account the sample size and the number of independent variables.

4.6.2 Analysis of Variance (ANOVA)

Table 16 shows the Analysis of Variance (ANOVA) table of the multiple linear regression procedure that was carried out.

Table 16: Analysis of Variance (ANOVA) Table of Multiple Linear Regression Procedure

	Sum of Squares	df	Mean Square	F	Sig.
Regression	45.902	4	11.475	39.453	.000 ^a
Residual	38.103	131	0.291		
Total	84.005	135			

Note. Dependent Variable: Consumer Purchasing Behaviour (CPB).

a. Predictors: (Constant), Green Product (PRD), Green Price (PRI), Green Promotion (PRM), Green Place (PLA).

Referring to Table 16, since the p-value was 0.000, i.e. $p < 0.001$ which is less than the α level of 0.05, the independent variables: PRD, PRI, PRM, and PLA statistically significantly predicted CPB, $F(4, 131) = 39.453, p < 0.001$.

4.6.3 Coefficient Interpretation

Table 17 shows the Coefficients table of the multiple linear regression procedure that was carried out.

Table 17: Coefficients Table of Multiple Linear Regression Procedure

	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	β	Std. Error	Beta		
Constant	-0.181	0.381		-0.476	0.635
PRD	-0.077	0.062	-0.080	-1.246	0.215
PRI	0.218	0.067	0.228	3.263	0.001
PRM	0.580	0.077	0.527	7.580	0.000
PLA	0.311	0.119	0.179	2.606	0.010

Note. Dependent Variable: Consumer Purchasing Behaviour, PRD = Green Product, PRI = Green Price, PRM = Green Promotion, PLA = Green Place.

From Table 17, the unstandardized regression equation of CPB is as below.

$$CPB = -0.181 - 0.077(PRD) + 0.218(PRI) + 0.580(PRM) + 0.311(PLA)$$

[-1.246^{ns}][3.263*][7.580**][2.606*]

Note. ns = not significant at any α level, * Statistically significant at $\alpha = 0.05$, ** Statistically significant at $\alpha = 0.01$.

Interpreting this equation:

CPB will decrease, on average, by 0.077 units for each 1.000 unit increase in PRD, holding all other variables constant. The p-value for PRD was 0.215, which is greater than 0.05. Thus, at α level of 0.05, PRD was not a statistically significant predictor of CPB.

CPB will increase, on average, by 0.218 units for each 1.000 unit increase in PRI, holding all other variables constant. The p-value for PRI was 0.001, which is less than 0.05. Thus, at α level of 0.05, PRI was a statistically significant predictor of CPB.

CPB will increase, on average, by 0.580 units for each 1.000 unit increase in PRM, holding all other variables constant. The p-value for PRM was less than 0.001, which is less than 0.05. Thus, at α level of 0.05, PRM was a statistically significant predictor of CPB.

CPB will increase, on average, by 0.311 units for each 1.000 unit increase in PLA, holding all other variables constant. The p-value was PLA is 0.010, which is less than 0.05. Thus, at α level of 0.05, PLA was a statistically significant predictor of CPB.

Therefore, only PRI, PRM, and PLA were statistically significant predictors of CPB at a α level of 0.05.

Based on the standardized Beta coefficients shown in Table 15, the effect of PRM (0.527) on CPB was more than two times that of PRI (0.228). Moreover, PLA (0.179) had the least effect on CPB when compared to PRI and PRM.

4.6.4 Multicollinearity Check

The existence of multicollinearity was checked via inspection of either the Tolerance or VIF values from the Coefficients table of the multiple linear regression procedure (Hair et al., 2014). These values are summarized in Table 18.

Table 18: Tolerance and VIF Values from Coefficients Table of Multiple Linear Regression Procedure

	Tolerance	VIF
PRD	0.838	1.193
PRI	0.709	1.410
PRM	0.718	1.394
PLA	0.731	1.368

Note. PRD = Green Product, PRI = Green Price, PRM = Green Promotion, PLA = Green Place.

Referring to Table 18, since the VIF values were all less than 10, there were no collinearity problems (Hair et al., 2014).

4.6.5 Other Assumption Checks

Besides checking for multicollinearity, other assumptions of multiple regression were verified utilizing the output of the multiple regression procedure.

Firstly, the Durbin-Watson test was referred to judge for 1st-order autocorrelation (Draper & Smith, 1998). An approximate value of 2 of the Durbin-Watson statistic signifies no correlation between residuals. Referring to Table 15, the Durbin-Watson statistic was 2.018. Thus, the residuals were independent of each other.

Next, the linear relationship between CPB and all independent variables (PRD, PRI, PRM, and PLA) collectively was verified using a scatterplot of the studentized residuals against the unstandardized predicted values (Cook & Weisberg, 1982). The linear relationships between CPB and each of the independent variables (PRD, PRI, PRM, and PLA) respectively were verified using partial regression plots of CPB against each independent variable (Cook & Weisberg, 1982). Both these verifications were carried out via visual inspection.

The existence of homoscedasticity was assessed and verified via visual inspection of the scatterplot of the studentized residuals against the unstandardized predicted values as well (Draper & Smith, 1998; Weisberg, 2014).

One outlier and three leverage points were judged to be not problematic. Additionally, there were no influential points (Fox, 2020).

Finally, the normality of the residuals was verified via visual inspection of the regression standardized residual normal P-P plot (Cook & Weisberg, 1982).

4.7 Moderator Analysis (Dichotomous Moderator Variable – Hierarchical Multiple Regression Analysis)

A hierarchical multiple regression procedure was run with consideration of the relevant assumption checks to analyse the moderation effect of the dichotomous moderator variable (AdapInno) on the relationship between the independent variables (PRD, PRI, PRM, and PLA) and the dependent variable (CPB) (Aiken & West, 1991). Section 4.7 details the results of said process.

It is important to highlight that the four independent variables, which were all continuous variables, were mean centred for the hierarchical multiple regression procedure. This was carried out for interpretation reasons as recommended by Aiken & West (1991) and Cohen, Cohen, West, and Aiken (2003). Furthermore, dummy variables (Adap for adaptor and Inno for innovator) for the dichotomous moderator variable (AdapInno) were created (Hardy, 1993). Finally, interaction terms (PRD_c_x_adap, PRI_c_x_adap, PRM_c_x_adap, PLA_c_x_adap, PRD_c_x_inno, PRI_c_x_inno, PRM_c_x_inno, and PLA_c_x_inno) between the dummy variables and mean centred independent variables were created (Jaccard & Turrisi, 2003).

A total of five assumption checks were conducted for each of the aspects (relationships between CPB and PRD, CPB and PRI, CPB and PRM, and CPB and PLA) of the moderator analysis. These checks included tests for linearity, tests for multicollinearity, tests for outliers, leverage points, and influential points, tests for homoscedasticity, and tests for normality (Berry, 1993).

Linear relationships between dependent variable (CPB) and each of the four mean centred independent variables (PRD_c, PRI_c, PRM_c, and PLA_c) were verified using a scatterplot of CPB against PRD_c, PRI_c, PRM_c, and PLA_c respectively grouped by the dichotomous moderator variable (AdapInno) (Aguinis, 2004). Visual inspection of the scatterplots indicated that the linearity assumptions were met.

Next, the existence of multicollinearity was checked via inspection of either the Tolerance or VIF values from the Coefficients table of the hierarchical multiple regression procedure (Cohen et al., 2003). VIF values related to the check of multicollinearity between PRD_c, Adap, and PRD_c_x_adap are summarized in Table 20. VIF values related to the check of multicollinearity between PRI_c, Adap, and PRI_c_x_adap are summarized in Table 22. VIF values related to the check of multicollinearity between PRM_c, Adap, and PRM_c_x_adap are summarized in Table 24. VIF values related to the check of multicollinearity between PLA_c, Adap, and PLA_c_x_adap are summarized in Table 26. Referring to Table 20, 22,

24, and 26, since the VIF values were all less than 10, there was no evidence of multicollinearity (Cohen et al., 2003).

Besides that, outliers and leverage points were judged to be not problematic and thus, these data points were left in the analysis. Additionally, there were no influential points (Fox, 2020).

Next, existence of homoscedasticity was assessed and verified via visual inspection of the scatterplot of the studentized residuals against the unstandardized predicted values grouped by the dichotomous moderator variable (AdapInno). This was done for each of the four aspects of the moderation analysis (relationships between CPB and PRD, CPB and PRI, CPB and PRM, and CPB and PLA) (Draper & Smith, 1998; Weisberg, 2014).

Finally, the normality of the residuals was assessed and verified via visual inspection of the studentized residuals normal P-P plot (Cook & Weisberg, 1982).

4.7.1 Adaptor / Innovator on Green Product and Consumer Purchasing Behaviour

Two hierarchical multiple regression (moderator) procedures were run. The first involved the dependent variable (CPB), mean centred independent variable PRD_c, dummy variable Adap (representing the moderator), and the related interaction term PRD_c_x_adap. The second involved the dependent variable (CPB), mean centred independent variable PRD_c, dummy variable Inno (representing the moderator), and the related interaction term PRD_c_x_inno.

Each procedure had two models. Model 1 involved the dependent variable, the mean centred independent variable, and the dummy variable whereas Model 2 involved the dependent variable, the mean centred independent variable, the dummy variable, and the interaction term.

The purpose of running these two models was to determine the increase in variation, i.e. R Square change, associated by adding the interaction term between PRD_c and AdapInno to the main effects model (Model 1), as well as the related significance value.

Table 19 shows the Model Summary table of the first procedure.

Table 19: Model Summary Table of Hierarchical Multiple Regression Procedure (CPB, PRD_c, Adap, and PRD_c x adap)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.224 ^a	0.050	0.036	0.775	0.050	3.507	2	133	0.033
2	0.232 ^b	0.054	0.032	0.776	0.004	0.532	1	132	0.467

Note. Dependent Variable: Consumer Purchasing Behaviour.

a. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRD_c = Mean Centred Green Product.

b. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRD_c = Mean Centred Green Product, PRD_c x adap = Interaction Term between Mean Centred Green Product and Dummy Variable for Adaptor.

Referring to Table 19, AdapInno did not moderate the effect of PRD_c on CPB, as evidenced by a R Square change of 0.004 (addition of interaction term explaining an increase of 0.4% of the total variance), which was not statistically significant ($F(1, 132) = 0.532, p = 0.467$).

The output of the second procedure is not shown as the statistical significance of the interaction term was equivalent to the results of the first procedure.

Table 20: Tolerance and VIF Values from Coefficients Table of Hierarchical Multiple Regression Procedure (CPB, PRD_c, Adap, and PRD_c_x_adap)

Model		Tolerance	VIF
1	(Constant)		
	PRD_c	0.992	1.008
	Adap	0.992	1.008
2	(Constant)		
	PRD_c	0.437	2.291
	Adap	0.991	1.009
	PRD_c_x_adap	0.439	2.278

Note. Dependent Variable: Consumer Purchasing Behaviour, PRD_c = Mean Centred Green Product, Adap = Dummy Variable for Adaptor, PRD_c_x_adap = Interaction Term between Mean Centred Green Product and Dummy Variable for Adaptor.

4.7.2 Adaptor / Innovator on Green Price and Consumer Purchasing Behaviour

Two hierarchical multiple regression (moderator) procedures were run. The first involved the dependent variable (CPB), mean centred independent variable PRI_c, dummy variable Adap (representing the moderator), and the related interaction term PRI_c_x_adap. The second involved the dependent variable (CPB), mean centred independent variable PRI_c, dummy variable Inno (representing the moderator), and the related interaction term PRI_c_x_inno.

Each procedure had two models. Model 1 involved the dependent variable, the mean centred independent variable, and the dummy variable whereas Model 2 involved the dependent variable, the mean centred independent variable, the dummy variable, and the interaction term.

The purpose of running these two models was to determine the increase in variation, i.e. R Square change, associated by adding the interaction term between PRI_c and

AdapInno to a main effects model (Model 1), as well as the related significance value.

Table 21 shows the Model Summary table of the first procedure.

Table 21: Model Summary Table of Hierarchical Multiple Regression Procedure (CPB, PRI_c, Adap, and PRI_c x adap)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.523 ^a	0.273	0.262	0.677	0.273	25.009	2	133	0.000
2	0.523 ^b	0.274	0.257	0.680	0.000	0.044	1	132	0.835

Note. Dependent Variable: Consumer Purchasing Behaviour.

a. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRI_c = Mean Centred Green Price.

b. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRI_c = Mean Centred Green Price, PRI_c x adap = Interaction Term between Mean Centred Green Price and Dummy Variable for Adaptor.

Referring to Table 21, AdapInno did not moderate the effect of PRI_c on CPB, as evidenced by no R Square change (addition of interaction term explaining an increase of 0.0% of the total variance), which was not statistically significant ($F(1, 132) = 0.044, p = 0.835$).

The output of the second procedure is not shown as the statistical significance of the interaction term was equivalent to the results of the first procedure.

Table 22: Tolerance and VIF Values from Coefficients Table of Hierarchical Multiple Regression Procedure (CPB, PRI_c, Adap, and PRI_c_x_adap)

Model		Tolerance	VIF
1	(Constant)		
	PRI_c	0.959	1.043
	Adap	0.959	1.043
2	(Constant)		
	PRI_c	0.364	2.744
	Adap	0.953	1.049
	PRI_c_x_adap	0.375	2.667

Note. Dependent Variable: Consumer Purchasing Behaviour, PRI_c = Mean Centred Green Price, Adap = Dummy Variable for Adaptor, PRI_c_x_adap = Interaction Term between Mean Centred Green Price and Dummy Variable for Adaptor.

4.7.3 Adaptor / Innovator on Green Promotion and Consumer Purchasing Behaviour

Two hierarchical multiple regression (moderator) procedures were run. The first involved the dependent variable (CPB), mean centred independent variable PRM_c, dummy variable Adap (representing the moderator), and the related interaction term PRM_c_x_adap. The second involved the dependent variable (CPB), mean centred independent variable PRM_c, dummy variable Inno (representing the moderator), and the related interaction term PRM_c_x_inno.

Each procedure had two models. Model 1 involved the dependent variable, the mean centred independent variable, and the dummy variable whereas Model 2 involved the dependent variable, the mean centred independent variable, the dummy variable, and the interaction term.

The purpose of running these two models was to determine the increase in variation, i.e. R Square change, associated by adding the interaction term between PRM_c

and AdapInno to a main effects model (Model 1), as well as the related significance value.

Table 23 shows the Model Summary table of the first procedure.

Table 23: Model Summary Table of Hierarchical Multiple Regression Procedure (CPB, PRM_c, Adap, and PRM_c x adap)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.692 ^a	0.478	0.471	0.574	0.478	60.989	2	133	0.000
2	0.692 ^b	0.479	0.467	0.576	0.000	0.081	1	132	0.776

Note. Dependent Variable: Consumer Purchasing Behaviour.

a. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRM_c = Mean Centred Green Promotion.

b. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PRM_c = Mean Centred Green Promotion, PRM_c x adap = Interaction Term between Mean Centred Green Promotion and Dummy Variable for Adaptor.

Referring to Table 23, AdapInno did not moderate the effect of PRM_c on CPB, as evidenced by no R Square change (addition of interaction term explaining an increase of 0.0% of the total variance), which was not statistically significant ($F(1, 132) = 0.081, p = 0.776$).

The output of the second procedure is not shown as the statistical significance of the interaction term was equivalent to the results of the first procedure.

Table 24: Tolerance and VIF Values from Coefficients Table of Hierarchical Multiple Regression Procedure (CPB, PRM_c, Adap, and PRM_c_x_adap)

Model		Tolerance	VIF
1	(Constant)		
	PRM_c	0.999	1.001
	Adap	0.999	1.001
2	(Constant)		
	PRM_c	0.345	2.902
	Adap	0.999	1.001
	PRM_c_x_adap	0.345	2.900

Note. Dependent Variable: Consumer Purchasing Behaviour, PRM_c = Mean Centred Green Promotion, Adap = Dummy Variable for Adaptor, PRM_c_x_adap = Interaction Term between Mean Centred Green Promotion and Dummy Variable for Adaptor.

4.7.4 Adaptor / Innovator on Green Place and Consumer Purchasing Behaviour

Two hierarchical multiple regression (moderator) procedures were run. The first involved the dependent variable (CPB), mean centred independent variable PLA_c, dummy variable Adaptor (representing the moderator), and the related interaction term PLA_c_x_adap. The second involved the dependent variable (CPB), mean centred independent variable PLA_c, dummy variable Inno (representing the moderator), and the related interaction term PLA_c_x_inno.

Each procedure had two models. Model 1 involved the dependent variable, the mean centred independent variable, and the dummy variable whereas Model 2 involved the dependent variable, the mean centred independent variable, the dummy variable, and the interaction term.

The purpose of running these two models was to determine the increase in variation, i.e. R Square change, associated by adding the interaction term between PLA_c and

AdapInno to a main effects model (Model 1), as well as the related significance value.

Table 25 shows the Model Summary table of the first procedure.

Table 25: Model Summary Table of Hierarchical Multiple Regression Procedure (CPB, PLA_c, Adap, and PLA_c x adap)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.463 ^a	0.214	0.202	0.705	0.214	18.104	2	133	0.000
2	0.469 ^b	0.220	0.202	0.704	0.006	1.039	1	132	0.310

Note. Dependent Variable: Consumer Purchasing Behaviour.

a. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PLA_c = Mean Centred Green Place.

b. Predictors: (Constant), Adap = Dummy Variable for Adaptor, PLA_c = Mean Centred Green Place, PLA_c x adap = Interaction Term between Mean Centred Green Place and Dummy Variable for Adaptor.

Referring to Table 25, AdapInno did not moderate the effect of PLA_c on CPB, as evidenced by a R Square change of 0.006 (addition of interaction term explaining an increase of 0.6% of the total variance), which was not statistically significant ($F(1, 132) = 1.039, p = 0.310$).

The output of the second procedure is not shown as the statistical significance of the interaction term was equivalent to the results of the first procedure.

Table 26: Tolerance and VIF Values from Coefficients Table of Hierarchical Multiple Regression Procedure (CPB, PLA_c, Adap, and PLA_c x adap)

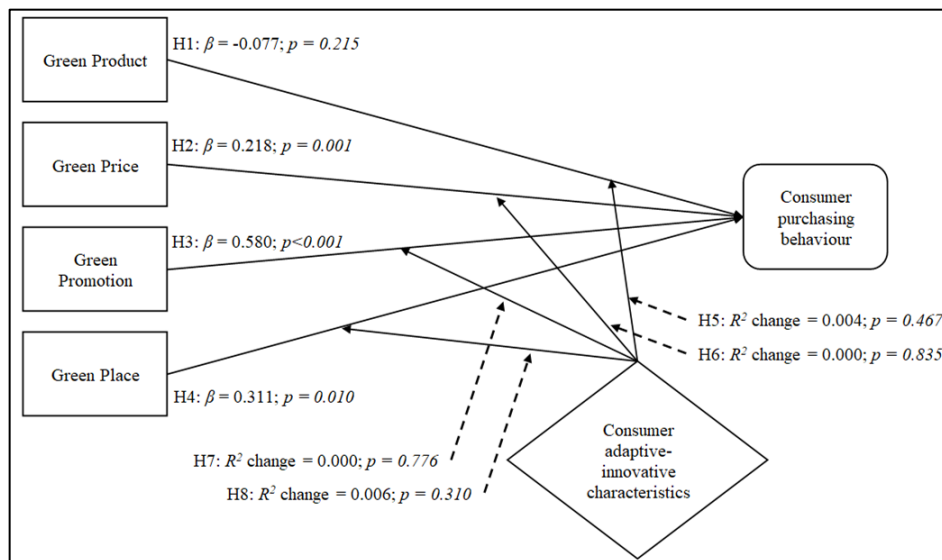
Model		Tolerance	VIF
1	(Constant)		
	PLA_c	0.962	1.039
	Adap	0.962	1.039
2	(Constant)		
	PLA_c	0.489	2.046
	Adap	0.962	1.040
	PLA_c x adap	0.500	1.999

Note. Dependent Variable: Consumer Purchasing Behaviour, PLA_c = Mean Centred Green Place, Adap = Dummy Variable for Adaptor, PLA_c x adap = Interaction term between Mean Centred Green Place and Dummy Variable for Adaptor.

4.8 Hypothesis Testing

In this section, the results of the hypotheses testing by utilizing multiple linear regression analysis and moderator analysis of the dichotomous moderator (hierarchical multiple regression analysis) are linked to the conceptual framework detailed in Chapter 2.

Figure 2: Hypotheses Testing Results of Conceptual Framework



H1: There is a significant relationship between Green Product and consumer purchasing behaviour.

The p-value (Sig. value) for Green Product was 0.215 which is greater than 0.05 (α level). Thus, the null hypothesis was not rejected. There was insufficient evidence that there was a significant relationship between Green Product and consumer purchasing behaviour.

H1 was rejected.

H2: There is a significant relationship between Green Price and consumer purchasing behaviour.

The p-value (Sig. value) for Green Price was 0.001 which is less than 0.05 (α level). Thus, the null hypothesis was rejected. There was sufficient evidence that there was a significant relationship between Green Price and consumer purchasing behaviour.

H2 was accepted.

H3: There is a significant relationship between Green Promotion and consumer purchasing behaviour.

The p-value (Sig. value) for Green Promotion was less than 0.001 which is less than 0.05 (α level). Thus, the null hypothesis was rejected. There was sufficient evidence that there was a significant relationship between Green Promotion and consumer purchasing behaviour.

H3 was accepted.

H4: There is a significant relationship between Green Place and consumer purchasing behaviour.

The p-value (Sig. value) for Green Place was 0.010 which is less than 0.05 (α level). Thus, the null hypothesis was rejected. There was sufficient evidence that there was a significant relationship between Green Place and consumer purchasing behaviour.

H4 was accepted.

H5: The relationship between Green Product and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.

The p-value (Sig. value) for the R Square change associated with the addition of the interaction term to the main effects model was 0.467 which is greater than 0.05 (α level). Thus, the null hypothesis was not rejected. There was insufficient evidence that the relationship between Green Product and consumer purchasing behaviour was moderated by consumer adaptive-innovative characteristics.

H5 was rejected.

H6: The relationship between Green Price and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.

The p-value (Sig. value) for the R Square change associated with the addition of the interaction term to the main effects model was 0.835 which is greater than 0.05 (α level). Thus, the null hypothesis was not rejected. There was insufficient evidence that the relationship between Green Price and consumer purchasing behaviour was moderated by consumer adaptive-innovative characteristics.

H6 was rejected.

H7: The relationship between Green Promotion and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.

The p-value (Sig. value) for the R Square change associated with the addition of the interaction term to the main effects model was 0.776 which is greater than 0.05 (α

level). Thus, the null hypothesis was not rejected. There was insufficient evidence that the relationship between Green Promotion and consumer purchasing behaviour was moderated by consumer adaptive-innovative characteristics.

H7 was rejected.

H8: The relationship between Green Place and consumer purchasing behaviour is moderated by consumer adaptive-innovative characteristics.

The p-value (Sig. value) for the R Square change associated with the addition of the interaction term to the main effects model was 0.310 which is greater than 0.05 (α level). Thus, the null hypothesis was not rejected. There was insufficient evidence that the relationship between Green Place and consumer purchasing behaviour was moderated by consumer adaptive-innovative characteristics.

H8 was rejected.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Discussion

Table 27 and 28 summarize the results of the hypotheses tests conducted during this study. A summary of the results of the multiple linear regression analysis is provided in Table 27 and Table 28 provides a summary of the results of the hierarchical multiple regression.

Table 27: Hypotheses Testing Results from Multiple Linear Regression Analysis

Hypothesis Statement	Standardized Coefficient Beta	Statistically Significant	Hypothesis Accepted/Rejected
H1	-0.080	No	Rejected
H2	0.228	Yes	Accepted
H3	0.527	Yes	Accepted
H4	0.179	Yes	Accepted

Table 28: Hypotheses Testing Results from Hierarchical Multiple Regression Analysis

Hypothesis Statement	R Square Change	Statistically Significant	Hypothesis Accepted/Rejected
H5	0.004	No	Rejected
H6	0.000	No	Rejected
H7	0.000	No	Rejected
H8	0.006	No	Rejected

From Table 27, the results for H1 signify that there was no significant relationship between Green Product and consumer purchasing behaviour (at α level of 0.05). This finding interestingly supports the notion that consumers may be aware of the benefits of green product, however this awareness does not translate to buying behaviour (Sharma, 2021). Sheth, Sethia, and Srivinas (2011) shared the same sentiment as they highlighted that green product market share has barely increased despite the increased interest of environmental issues. A study by Parguel, Benoit-Moreau, and Larceneux (2011) posed a reasoning for this phenomenon. In their research, they argued that trust that green products are genuinely environmentally friendly is vital. Nik Abdul Rashid (2009) also pointed out this missing link in increasing purchasing behaviour of green products. The results of the questionnaire used for the present study supports this lack of trust sentiment among consumers as well. Two items that were ranked the lowest in terms of mean score related to Green Product clearly showed trust issues at a brand level, as well as a regulatory level. These items were “I believe that companies focus on producing products that contribute the least percentage of negative effects on human beings” and “I believe that there is effective regulation on green products that are produced by companies” respectively. In terms of regulation, consumer trust of eco-labels could possibly be the key to influence their purchasing behaviour towards green products Nik Abdul Rashid (2009).

Referring to Table 27, the results of H2 convey that there was a significant relationship between Green Price and consumer purchasing behaviour (at α level of 0.05). This is in line with Solaiman et al. (2015). The authors reported survey results in which consumers disclosed that they were willing to pay up to 20% more for environmentally friendly products. The questionnaire results of the present study support this statement. Two items related to Green Price that had the highest mean score was “I think it is acceptable to pay 10 percent more for products that are produced, processed, and packaged in an environmentally friendly way” and “I believe that it is worth paying higher prices for green products over conventional products”. Perception of added environmental benefits is a plausible justification for consumers’ willingness to pay a premium for green products over their conventional alternatives. Rahahleh et al. (2020) agreed with this stating that the

higher prices contribute to the perception of environmental legitimacy. The standardized coefficient Beta value of Green Price (0.228) shown in Table 27 suggests that it does not influence consumer purchasing behaviour to the same extent as Green Promotion (0.527). This finding aligns with the results of Boztepe (2012) in which the study concluded that for modern consumers, the importance of the price factor of green products has diminished, and promotion has become the critical factor. Hopkins and Roche (2009) also minimized the significance of price as a factor of consumer purchasing behaviour in the context of green products.

From Table 27, the results of H3 show that there was a significant relationship between Green Promotion and consumer purchasing behaviour (at α level of 0.05). These findings are consistent with the existing literature (Boztepe, 2012; Cheng et al., 2018; Leonidou, Katsikeas, & Morgan, 2013). From the results of the questionnaire of the present study, the item relating to Green Promotion that had the highest mean score was “I feel good about purchasing from brands with a better environment reputation”. Thus, in terms of Green Promotion effects on consumer purchasing behaviour, there is a great importance on brand image. In other words, consumers tend to purchase environmentally friendly products from green companies. As Prakash (2002) highlighted, companies should become more sustainable themselves, rather than solely focusing on development of sustainable products. A green brand image could boost a company’s green brand equity, resulting in increased trust from consumers. As discussed previously, in order to positively affect consumer purchasing behaviour of green products, trust is imperative. Referring once again to the highest ranked item, specifically “I feel good...”, hints at a critical emotional component of Green Promotion. Hartmann, Ibanez, and Sainz (2005) highlighted the existence of this emotional aspect and suggested an emotional positioning strategy for green brands, in addition to functional positioning. This alternative positioning strategy emphasizes consumers’ feelings of well-being commonly associated with self-expression through purchasing of green brands, altruistic acts, and sensations derived from engaging with nature (Hartmann et al., 2005).

The item that had the second highest mean score for the Green Promotion construct of the present study's questionnaire was "I think that there should be special displays for green products". A manifestation of this importance to give prominence to green products in order to affect consumer purchasing behaviour is the increasing trend of retail stores being established that exclusively stock green products, which do not rely on traditional methods of mass media advertising (Solaiman et al., 2015).

The standardized coefficient Beta value of Green Promotion (0.527), as seen in Table 27, indicates that Green Promotion had by far the largest effect on consumer purchasing behaviour, relative to the other factors of the green marketing mix. Similarly, Cheng et al. (2018) found that Green Promotion had the largest standardized coefficient Beta value among the 4 Green Ps.

From Table 27, the results of H4 show that there was a significant relationship between Green Place and consumer purchasing behaviour (at α level of 0.05). However, based on the standardized coefficient Beta values found in Table 27, Green Place had the weakest effect on consumer purchasing behaviour when compared to Green Price and Green Promotion. This result is corroborated by the findings of Cheng et al. (2018) and Rahahleh et al. (2020). In both aforementioned studies, the standardized coefficient Beta values of Green Place were low, -0.204 in the study carried out by Rahahleh et al. (2020) and 0.066 in the study pursued by Cheng et al. (2018). A possible reason for this relatively low effect on consumer purchasing behaviour is due to a lack of understanding of the significance of the Green Place construct. As previously defined, Green Place relates to the marketing tactics involving distribution, from the point of production to the point of consumption, as well as reverse logistics (Davari & Strutton, 2014). This is a complex concept to grasp. If consumers do not comprehend the benefits, said benefits are less likely to influence purchasing behaviour (Hartmann & Ibanez, 2006). A lack of perceived relevance could be another reason for the weak influence of Green Place on consumer purchasing behaviour. Consumers may view the benefits of Green Place as not relevant to their current needs or preferences. Young, Hwang, McDonald, and Oates (2010) suggested that immediate considerations and

preferences are what a majority of consumers prioritize, rather than long-term benefits. If the benefits do not align with these immediate needs, their influence diminishes (Young et al., 2010).

Referring to Table 28, the results of H5, H6, H7, and H8 imply that the respective relationships between Green Product, Green Price, Green Promotion, and Green Place and consumer purchasing behaviour were not moderated by consumer adaptive-innovative characteristics (at α level of 0.05). In summary, consumer adaptive-innovative characteristics (being an adaptor or innovator) do not influence the relationship between the green marketing mix and consumer purchasing behaviour. The investigation into whether being an adaptor or innovator had influence on the green marketing mix-consumer purchasing behaviour relationship was on the basis that there was a correlation between green purchasing behaviour and being classified as an innovator (Bhate and Lawler, 1997). However, the existence of this correlation was not replicated in the results of the present study, evident from the correlation tests that were run. Besides that, the idea that innovators play an important role in the green product segment due the new behaviours necessary to embrace the innovative nature of many green products has been challenged by the results of this study (Wong & Yazdanifard, 2015). Perhaps it is not consumer adaptive-innovative characteristics that has a valuable role in moderating the relationship between green marketing mix and purchasing behaviour, rather it is trust. As previously discussed, trust in the product, the brand, and the regulations that govern environmental credibility are vital in the context of green products. Consumers must have confidence that green products are genuinely beneficial to the environment, that brands are authentic in their pursuit of sustainability, and that they can rely on the regulations to guide their green purchases. If these assurances are achieved, it may lead to a significant influence on their purchasing behaviour. Besides that, these assurances also diminish the suspicion of attempted greenwashing, i.e. when brands falsely portray their products or services as environmentally friendly (Yadav & Pathak, 2013). By minimizing the greenwashing concerns of consumers, green marketing mix efforts could have a more substantial effect on their purchasing behaviour.

5.2 Implications

5.2.1 Theoretical Implications

The aim of this research was to determine which factors of the green marketing mix: Green Product, Green Price, Green Promotion, or Green Place, impact consumer purchasing behaviour and to evaluate the moderating effects of consumers' adaptive-innovative characteristics on the green marketing mix and consumer purchasing behaviour dynamic. The results of the present study have several theoretical implications.

Firstly, the present study serves as an extension of the current green marketing mix research. By evaluating the impact of each factor of the green marketing mix, i.e. Green Product, Green Price, Green Promotion, and Green Place on consumer purchasing behaviour, the present study provides valuable insights into which factors have the largest impact on consumer purchasing behaviour. From the results of the study, the significantly influential drivers of consumer purchasing behaviour are Green Promotion and Green Price, and to a lesser extent Green Place. These findings act as guidelines for future studies to pursue theory development on the intricacies of the varying impact strength of the factors on consumer purchasing behaviour. The strongest driver being Green Promotion instead of Green Price corroborates the sentiment of existing research (Boztepe, 2012; Hopkins & Roche, 2009). Therefore, the results of the present study provide empirical validation of the theoretical framework relating the green marketing mix to consumer purchasing behaviour.

Though consumer adaptive-innovative characteristics were deemed to not moderate the relationship between the green marketing mix and consumer purchasing behaviour, the present study encourages the exploration and integrating of psychographic traits into existing green marketing mix frameworks, and green marketing in general. This is important as it further acknowledges the huge scope that is consumer heterogeneity. It is not possible to take a one-size-fits-all approach to the green marketing mix. In terms of purchasing behaviour theories, the

integration of psychographic traits acknowledges that there may be variances in behavioural responses to green marketing mix factors depending on an individual's psychology.

Additionally, the present study has revealed new avenues for investigation, specifically regarding Green Product. According to the results, there is no significant relationship between Green Product and consumer purchasing behaviour. From further analysis, it was found that a lack of consumer trust in green products, green brands, and green regulations may have led to this result. This shows that there are important insights to be discovered from the integration of consumer trust elements into the existing green marketing mix framework.

5.2.2 Practical Implications

Based on the findings of this study, there are several practical implications.

Firstly, the actionable insights derived from the present study are useful in the development of effective green marketing strategies. Marketing managers can utilize the knowledge that Green Promotion has the largest effect on consumer purchasing behaviour compared to Green Price and Green Place when designing marketing strategies. Extra effort and resources can be allocated to Green Promotion as the return on investment for this marketing mix factor is potentially the highest. Therefore, resulting in more cost-effective marketing efforts. Furthermore, marketing managers can delve deeper into improving the Green Product elements of their overall marketing strategy by applying the knowledge that consumer trust is a critical component of the effectiveness of Green Product influencing purchasing behaviour.

Besides that, the exploration of integrating psychographic traits into existing frameworks detailing the relationship between the green marketing mix and consumer purchasing behaviour provides marketing managers with credible information to rely on when attempting psychographic segmentation techniques.

Effectively segmenting the consumer market in terms of psychographic traits such as values, beliefs, and attitudes could be essential in the green context. Furthermore, tailoring specific green marketing mix efforts based on individual personalities may led to enhanced impacts on purchasing behaviour. For example, in terms of extroversion and introversion, brands could promote environmentally friendly social events to extroverts. On the other hand, an online webinar series on sustainability would be a more captivating option for introverts.

In terms of regulatory bodies and policy makers, the present study's insights regarding the lack of consumer trust resulting in Green Product having an insignificant relationship with purchasing behaviour could facilitate stronger awareness efforts on regulations such as eco-labels and environmental certifications for both products and brands. Additionally, establishing clear and standardized criteria for eco-labels can aid and provide assurance to consumers in identifying genuinely green products and encourage brands to adhere to said standards.

5.3 Limitations of the Study

Though the present study provided valuable insights into the impact of the green marketing mix on consumer purchasing behaviour and the moderating effects of consumer adaptive-innovative characteristics on said relationship, the limitations of this study must be acknowledged.

The first source of limitation of this study was the sampling technique utilized, i.e. quota sampling, which is a non-probability sampling technique. Due to this chosen technique, a random selection of study participants was not involved. Thus, an accurate representation of the entire population, i.e. all consumers (18 years old or older) may not have been achieved. The impact of this is that the results of the present study may not be applicable to the wider population (Sharma, 2017). Therefore, the generalizability of the study is perhaps limited.

Besides that, this study relied on self-reported data. Though the study instrument, i.e. questionnaire, was both anonymous and confidential (facts disclosed to participants), it was impossible to verify the truthfulness of the responses provided by the study participants. Perhaps participants provided responses that were socially acceptable rather than their genuine thoughts and behaviours. This is prevalent in studies related to sustainability and the environment (Phellas et al., 2011).

The next limitation was a result of limiting the study to the Greater KL/KV region. As this region is the economic core of Malaysia (Inside Malaysia, 2012), the socio-economic situation in the Greater KL/KV region may not reflect that of other areas. At least 69.8% of respondents in the present study earned more than the median monthly salary for formal workers in Malaysia, which was RM 2,844 in March 2024 (Department of Statistics Malaysia, 2024). Therefore, potentially restricting the ability to generalize the findings of the study to other areas in Malaysia as well as other countries. For instance, the significance of Green Price on purchasing behaviour may vary if the study was carried out in a less developed region or state.

Another key limitation to highlight was the removal of the sample units classified as having a neutral cognitive style, neither adaptive nor innovative. Though only comprising of a sample size of 4, additional insights on the intricacies of the tested relationships may have been lost from this exclusion. Moreover, utilizing a dichotomous approach to the moderating variable may have overlooked certain aspects of the adaptive-innovative continuum. Thus, leaving gaps in the comprehension of the moderation effects of adaptive-innovative characteristics on the relationship between the green marketing mix and consumer purchasing behaviour.

5.4 Recommendations for Future Studies

Based on the study limitations detailed in the previous section, there are several recommendations for future studies in order to build on the foundations of the present study. Therefore, providing a more holistic comprehension of how

consumer purchasing behaviour is influenced by the green marketing mix, and taking into account potential moderators.

Though more complex than quota sampling, utilizing the stratified random sampling technique would introduce a sampling frame which promotes randomization of samples. The generalizability of the findings obtained from this technique could possibly outweigh the more stringent procedures and potential added costs that come with the stratified random sampling technique.

By expanding the sampling area to include diverse geographical profiles, the generalizability of the findings could be further enhanced. Marketing managers will benefit from being able to tailor their efforts based on certain regions that differ in characteristics such as environmental policies and economic development levels. For instance, surveys conducted in Southeast Asian countries may have dramatically different findings than those carried out in European countries such as Germany and Netherlands.

Future research should also include the respondents classified as having neutral cognitive styles to better understand the full spectrum of the adaptive-innovative continuum. Besides that, to amplify any potential moderating effects, sample units could be limited to respondents that are at the extreme ends of both strata (adaptor and innovator). For instance, extreme innovators could be classified by an AI-W Mean Score of 7 or higher, whereas extreme adaptors could be classified by an AI-W Mean Score of 3 or lower. Thus, evaluating whether adaptive-innovative characteristics does moderate the relationship between the green marketing mix and consumer purchasing behaviour, but only in the context of extreme adaptors or extreme innovators.

Future studies could also take a continuous approach (instead of dichotomous) to evaluating the moderating effects of consumer adaptive-innovative characteristics. This leads to the development of different interaction terms to those used in this present study. These new interaction terms may capture the complexity of the

adaptive-innovative continuum and the interaction effects better than those based on a dichotomous approach.

Additionally, future studies that focus on other psychographic traits as moderators could provide substantial benefits to the green marketing community. Examples of these psychographic traits are values, beliefs, or attitudes. A theory that could be utilized for the research of these three traits is the Attitude-Behaviour theory which suggests that values, beliefs, concerns, and intentions form environmental attitudes (Park, Kim, & McCleary, 2014; Schultz, Shriver, Tabanico, & Khazian, 2004). As discovered in this study, another potential moderator to the relationship between the green marketing mix and consumer purchasing behaviour that could be explored is consumer trust: trust in green products, green brands, and green regulations.

5.5 Conclusion

Consumer purchasing behaviour is a complex subject, especially in the context of environmental sustainability. A more comprehensive understanding of this subject, as it relates to green marketing and the green marketing mix provide invaluable knowledge to academics and practitioners alike. This study provided a detailed analysis on the impacts of the green marketing mix on consumer purchasing behaviour and investigated the moderating effects of consumer adaptive-innovative characteristics on that dynamic. The independent variables of the study were Green Product, Green Price, Green Promotion, and Green Place. Consumer purchasing behaviour was the dependent variable. A dichotomous approach was taken for the moderating variable, consumer adaptive-innovative characteristics, i.e. respondents were classified into two categories, either adaptor or innovator.

From the analysis conducted, Green Price, Green Promotion, and Green Place had positive significant relationships with consumer purchasing behaviour. However, it was concluded that there was no significant relationship between Green Product and consumer purchasing behaviour. Consumer trust of green products, green brands, and green regulations may have been an influential factor of this lack of

significance. In terms of the factors' comparative effects on consumer purchasing behaviour, Green Promotion had the largest impact, more than double that of Green Price. Green Place had the weakest impact on the dependent variable. The prominence of Green Promotion over the other factors of the green marketing mix aligned with existing literature (Boztepe, 2012; Hopkins & Roche, 2009).

In terms of the moderator analysis, consumer's adaptive-innovative characteristics (being an adaptor or innovator) did not influence the relationship between the green marketing mix and consumer purchasing behaviour. These findings challenged ideas such as the existence of a correlation between green purchasing behaviour and being classified as an innovator (Bhate and Lawler, 1997). This correlation was not replicated in the present study. Furthermore, the idea that innovators play an important role in the green product segment was questioned as well (Wong & Yazdanifard, 2015).

That being said, the exploration into psychographic traits as moderators is a good precedent to set. A deeper understanding of how a person's personality traits influence their purchasing behaviour provides new avenues of opportunity for firms to tailor their green marketing efforts on an individual level. In the process, enhancing the firms value proposition and developing a sustainable competitive advantage.

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APPENDIX A APPROVAL LETTER FOR ETHICAL CLEARANCE

	UNIVERSITI TUNKU ABDUL RAHMAN <small>DU012(A)</small> Wholly owned by UTAR Education Foundation <small>Co. No. 578227-M</small>
Re: U/SERC/56(A)-399/2024	
13 June 2024	
Dr Choo Siew Ming Department of International Business Faculty of Accountancy and Management Universiti Tunku Abdul Rahman Jalan Sungai Long Bandar Sungai Long 43000 Kajang, Selangor	
Dear Dr Choo,	
Ethical Approval For Research Project/Protocol	
We refer to your application for ethical approval for your research project (Master student's project) and are pleased to inform you that your application has been approved under <u>Expedited Review</u> .	
The details of your research project are as follows:	
Research Title	Impacts of Green Marketing Mix on Consumer Purchasing Behaviour and Moderation of Consumer Adaptive-innovative Characteristics
Investigator(s)	Dr Choo Siew Ming Mukhzamir Bin Mahathir (UTAR Postgraduate Student)
Research Area	Marketing and Social Science
Research Location	Greater Kuala Lumpur and Klang Valley Region
No of Participants	120 participants (Age: 18 and above)
Research Costs	Self-funded
Approval Validity	13 June 2024 - 12 June 2025
The conduct of this research is subject to the following:	
(1) The participants' informed consent be obtained prior to the commencement of the research,	
(2) Confidentiality of participants' personal data must be maintained,	
(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines; and	
(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.	
Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia Tel: (605) 468 8888 Fax: (605) 466 1313 Sungai Long Campus : Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor Darul Ehsan, Malaysia Tel: (603) 9086 0288 Fax: (603) 9019 8868 Website: www.utar.edu.my	
	

Should you collect personal data of participants in your study, please have the participants sign the attached Personal Data Protection Statement for your records.

The University wishes you all the best in your research.

Thank you.

Yours sincerely,



Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Accountancy and Management
 Director, Institute of Postgraduate Studies and Research

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APPENDIX B QUESTIONNAIRE

SECTION A: Profile of Respondents

Please tick (✓) according to the answers in the boxes that best represents you.

1. Gender

- Female Male

2. Age

- 18 years old and below
 19 – 24 years old
 25 – 34 years old
 35 – 44 years old
 45 – 54 years old
 55 – 64 years old
 65 years old and above

3. Ethnicity

- Chinese Malay
 Indian Others: _____

4. Monthly income level

- RM 1,500 and below
- RM 1,501 – RM 3,000
- RM 3,001 – RM 5,000
- RM 5,001 – RM 7,000
- RM 7,001 – RM 9,000
- Above RM 9,000

5. Marital Status

- Married
- Divorced
- Separated
- Widowed
- Never married

6. Dependents

How many dependents do you have that currently live in your household (aged 18 or younger only)?

- None
- 1
- 2
- 3
- 4
- More than 4

7. Employment

Which of the following best describes your current employment status?

- Employed full-time
- Employed part-time
- Unemployed
- Student
- Retired

SECTION B (Moderating Variable)

This section aims to measure the moderating variable – Consumer Adaptive-Innovative Characteristics.

For each pair of statements select the number that corresponds most closely with how you think about yourself when solving problems.

<i>Approach to Efficiency</i>										
I am disciplined, precise, and methodical in my approach to solving problems.	1	2	3	4	5	6	7	8	9	I am creative and like to approach tasks from unusual angles
I can do routine work for long periods.	1	2	3	4	5	6	7	8	9	I avoid painstaking attention to detail.
I prefer to progress incrementally towards a defined goal.	1	2	3	4	5	6	7	8	9	I cannot tolerate following routines and structure all the time
<i>Rule Governance</i>										
I perform best in situations where well-established rules exist.	1	2	3	4	5	6	7	8	9	I like to tackle situations where no rules exist.
I seek to solve problems with tried and accepted means.	1	2	3	4	5	6	7	8	9	I do not rely on accepted means to solve problems
I value continuity, stability, consensus, and group unity.	1	2	3	4	5	6	7	8	9	I am not always reverent of consensus, custom, and group norms
<i>Sufficiency of Originality</i>										
I am more concerned with resolving problems than finding them.	1	2	3	4	5	6	7	8	9	I like to identify problems and find new avenues of solution.
I like to produce few ideas, generally aimed at improving the existing system.	1	2	3	4	5	6	7	8	9	I like to produce numerous ideas, generally aimed at changing the existing system.
I prefer to present few solutions which I know will be feasible.	1	2	3	4	5	6	7	8	9	I like to propose many solutions, although some may turn out to be impractical.

SECTION C (IV1)

This section aims to measure IV1 – Green Product

Please indicate the extent to which you agree with the statements regarding Green Product by using the scale provided below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Statements	1	2	3	4	5
1. I think that green products are free of toxic materials.					
2. I believe that green products do not cause pollution.					
3. I think that green product refills do not cause damage to the environment.					
4. I believe that there is effective regulation on green products that are produced by companies.					
5. I believe that companies focus on producing products that contribute the least percentage of negative effects on human beings.					
6. I think that green products have eco-labels.					

SECTION D (IV2)**This section aims to measure IV2 – Green Price**

Please indicate the extent to which you agree with the statements regarding Green Price by using the scale provided below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Statements	1	2	3	4	5
1. I believe that it is worth paying higher prices for green products over conventional products.					
2. I think green products are reasonably priced.					
3. I believe prices of green products are proportional to their quality.					
4. I would spend an extra RM50.00 a week to buy products that are less environmentally harmful.					
5. I think it is acceptable to pay 10 percent more for products that are produced, processed, and packaged in an environmentally friendly way.					

SECTION E (IV3)

This section aims to measure IV3 – Green Promotion

Please indicate the extent to which you agree with the statements regarding Green Promotion by using the scale provided below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Statements	1	2	3	4	5
1. I think that there should be special displays for green products.					
2. I am influenced by green certification on product packaging.					
3. I believe that companies should devote a day for environmental awareness.					
4. I will not buy products from companies accused of being polluters.					
5. I feel good about purchasing from brands with a better environment reputation.					

SECTION F (IV4)

This section aims to measure IV4 – Green Place

Please indicate the extent to which you agree with the statements regarding Green Place by using the scale provided below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Statements	1	2	3	4	5
1. I intentionally search for green products to purchase.					
2. I think that green products are not readily available.					
3. If there is a lack of availability of green products, I will without a doubt purchase the conventional alternative.					
4. I believe that companies that produce green products are more likely to deal with distributors/retailers that are environmentally friendly.					

SECTION G (DV)**This section aims to measure DV – Consumer Purchasing Behaviour**

Please indicate the extent to which you agree with the statements regarding Consumer Purchasing Behaviour by using the scale provided below.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Statements	1	2	3	4	5
1. I will buy green products instead of conventional products if possible.					
2. I will continue to buy green products in the future.					
3. I will recommend other people to buy green products if asked.					
4. I have switched products for environmental reasons.					
5. I have avoided buying products that are potentially harmful to the environment.					