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SHOPPING ORIENTATION AND PURCHASE BEHAVIOUR OF MALAYSIAN CONSUMERS TOWARDS GREEN PRODUCTS

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Abstract

Over the past decades, concern about the environment has become not only a significant public issue but also a crucial topic in academic research. Concern about environmental sustainability and climate change has increased dramatically in the past and is affecting the way consumers behave. This change has lead to a greater focus on green consumerism. This study aimed to identify the profile of green consumers in Malaysia and the factors that contribute to green purchase behaviour. This study is correlational in nature, with the intention to obtain a good grasp of the consumer purchasing behavior of green products. This study is a cross-sectional where data was gathered once. A survey was carried out to acquire data from 616 respondents at ten main hypermarkets in Malaysia, utilizing a series of mall intercept method. From the responses gathered, only 186 respondents can be categorized as green consumers. Data were analyzed using descriptive statistics, t-test, anova, correlation and path analysis. The result indicated that level of green purchase behavior among Malaysian consumers were not encouraging. They tend to have low level of purchase on environmentally products as their shopping items. Respondents overall reported moderate levels of environmental knowledge and environmental attitudes. The findings suggest that environmental knowledge and subjective norms significantly influence environmental attitudes. Results from the path analysis revealed that environmental attitudes, environmental knowledge, subjective norms and perceived behavioural control contributed significantly to green purchase behavior. This study provides valuable insight into consumer behavior literature regarding the profile and purchase behavior of green products. Results are compared with earlier findings and implications for future research are discussed.

Keywords: Green products, environmental knowledge, environmental attitude, green purchase behavior, subjective norms, perceive behavioral control, green marketing.

Abstrak

Sejak bertahun yang lalu, kebimbangan mengenai alam sekitar bukan sahaja menjadi isu sosial yang penting tetapi juga menjadi topik yang kritikal dalam penyelidikan akademik. Kebimbangan mengenai kelestarian alam sekitar dan perubahan iklim telah meningkat secara mendadak pada masa lalu dan memberi kesan kepada cara pengguna bertingkahlaku. Perubahan ini telah membawa kepada tumpuan yang lebih besar ke atas kepenggunaan hijau. Kajian ini bertujuan untuk mengenal pasti profil pengguna hijau di Malaysia dan faktor-faktor yang menyumbang kepada tingkah laku pembelian hijau. Kajian ini berbentuk *correlational*, dengan tujuan untuk mendapatkan gambaran mengenai pembelian produk hijau di kalangan pengguna. Kajian ini berbentuk keratan rentas di mana data dikumpulkan hanya dalam tempoh satu masa. Kajian dijalankan dalam bentuk temubual (survei) untuk memperolehi data daripada 616 responden di sepuluh pasar raya besar di Malaysia, menggunakan kaedah pintasan pusat membeli-belah. Daripada respons yang diperolehi, hanya 186 responden boleh dikategorikan sebagai pengguna hijau. Data dianalisis menggunakan statistik deskriptif, ujian-t, ANOVA, korelasi dan analisis laluan. Hasilnya menunjukkan bahawa tahap tingkah laku pembelian hijau di kalangan pengguna Malaysia tidak menggalakkan. Mereka cenderung untuk mempunyai tahap yang rendah terhadap pembelian produk hijau sebagai item membeli-belah mereka. Responden secara keseluruhannya mempunyai tahap pengetahuan alam sekitar dan sikap terhadap alam sekitar yang sederhana. Hasil kajian menunjukkan bahawa pengetahuan alam sekitar dan norma-norma subjektif ketara mempengaruhi sikap terhadap alam sekitar. Keputusan daripada analisis laluan yang dijalankan mendedahkan bahawa sikap terhadap alam sekitar, pengetahuan mengenai alam sekitar, norma subjektif dan kawalan tingkah laku yang ditanggap menyumbang dengan ketara kepada tingkah laku pembelian hijau. Kajian ini memberikan pandangan yang berharga kepada kesusasteraan gelagat pengguna mengenai profil dan tingkah laku dalam pembelian produk hijau. Keputusan dibandingkan dengan penemuan-penemuan awal dan implikasi bagi penyelidikan masa depan dibincangkan.

Kata kunci: Produk hijau, pengetahuan alam sekitar, sikap terhadap alam sekitar, tingkahlaku pembelian hijau, norma-norma subjektif, kawalan tingkahlaku yang ditanggap, pemasaran hijau.

CHAPTER 1

INTRODUCTION

1.1   Introduction

This chapter provides an overview of the study background and problem statement. These are followed by the discussion of objectives of the study and research questions. Finally, this chapter ends with a discussion of the contribution of the study.

1.2   Background of the Study

Environment is essential for the growth and survival of all living beings. But unfortunately, it has fallen prey to mankind. Nature is being degraded by the activities undertaken by companies. Hence, it becomes the responsibility of the business world to compensate for the harm that the companies are causing to the environment. According to a report by the World Wildlife Fund (WWF) on 21st October 2004, the human race is plundering the planet at a pace that outstrips its capacity to support life. Environmental problems are caused directly or indirectly by the patterns of production of industries, and pattern of consumption and behavior of consumers (Tsen *et al*., 2006). The impact of environmental degradation have caused among other things, global warming, depletion of stratospheric ozone layer, pollution of rivers and seas, acid rain and noise pollution (Ramlogan, 1997).

Since the 1960's, there has been a growing concern about the future of the earth and its inhabitants. This concern leads to the following question: "Do we have enough resources to sustain the way of living that is enjoyed by the world's consumers?"

The growing social concern for the environment has recently emerged as a key issue in marketing (Murphy, 1991). In recent years, this fact has led to the consumers' increased interest in making environmentally social purchases. More and more consumers have realized that their consumption activities will lead to environmental problems and have translated their environmental concern into action (Kangun *et al.*, 1991). Accordingly, public opinion polls show overwhelming support for environmental concern (Roper, 1992; Ottman, 1993) and environmentally sound purchases (Coddington, 1990). The Roper Organization's Green Gauge Study for 1992 has indicated that the number of environmental consumers who are becoming more knowledgeable about and competent in purchasing environmentally sound or "green" products is growing. This expanded awareness of the importance of such high levels of consumers' environmental concerns in many communities has given marketers the opportunity to use consumer behavior techniques to identify the factors that may influence consumers' intentions to purchase green products as well as their actual purchasing behavior.

Over the years, a majority of consumers have realized that their purchasing behavior had a direct impact on many ecological problems. Therefore, the "new millennium era" has witnessed that consumers are more aware and responsible to purchase green products- i.e. products which are environmentally-friendly - to tackle the ecological and environmental issues. The outcome of this is that, some of the consumers translated their environmental concern into actively purchasing green products commitment (Martin & Simintiras, 1995). Environmental consciousness also affects the willingness to pay by the customer (Richard *et al.*, 1990) and may impact their purchasing decisions beside other moderating factors (Schlegelmilch *et al.*, 1996).

In general, green products are known as ecological products or environmental friendly products (Chen & Chai, 2010). Shamdasani *et al.* (1993) defined green products as products that will not pollute the earth or deplete natural resources and can be recycled or conserved. Other researchers such as Elkington *et al.* (1990) and Wasik (1996) defined green products as those that have environmentally sound content or packaging to reduce the environmental impact. Furthermore, Rice *et al.*, (1996) indicated that consumers purchased environmentally friendly products not only to protect the environment, but also to improve the quality of life for current and future generations. Environmental product issues are complex; it includes the environmental impact of the entire life cycle of the product. Any product that is made, used or disposed of in a manner that significantly reduces the harm that it would otherwise cause to the environment, can be considered as environmentally -friendly product.

Western studies have evidenced that consumers particularly in the US and Europe are growing more environmentally conscious in the past decade (Lee, 2008). Recently, green consumerism has started to gradually emerge in the Asian region (Gurau & Ranchhod, 2005). With the interest in green consumerism, Asian consumers have recently become one of the primary targets for international marketers due to two main reasons. First, there is a growing trend that consumers in Asia are increasingly becoming conscious of the alarming environmental problems (Harris, 2006). Second, as mentioned by Li and Su (2007), the fast growing economies in Asia has led to a vigorous rise of financially-empowered consumers across Asia who are willing to spend more than the previous generations.

Undeniably, in the current business environment, creating customer satisfaction and building long-term profitable customer relationship are some of the primary objectives companies try to achieve to sustain their businesses in the competitive business world. Chen and Chai (2010) noted that with an increased in the social and political pressure, many companies embraced green marketing strategies and exploited these environmental issues as a source of competitive advantage. Profit driven companies are usually motivated to adopt the concept of green marketing in their businesses provided that consumers demonstrate a high degree of environmental attitude and translate it into environment friendly purchasing commitment.

Green marketing is now a top priority for businesses (Coleman *et al.*, 2011). Therefore, many companies have made a preemptive move to be more socially responsive in addressing pollution and waste disposal by developing environmentally friendly packaging and putting in numerous efforts to be in line with the environmental movement. To advance a country's green revolution, McGougall (1993) and Wasik (1992) assert the essential role of consumers. This assertion is supported by the evidence that 30 to 40 percent of environmental degradation has been brought by the activities of private households (Grunert, 1993; Chan & Lau, 2000). More importantly, if consumers exhibit a high degree of ecological concern and transfer it into some eco-friendly purchasing acts, it is likely that profit-driven companies will be strongly motivated to adopt the concept of green marketing in their practices. However, some of the greatest challenges faced by these companies are changes in consumer preferences, suspicion of green advertising claim, unfavorable consumer perception of green products and high cost invested in developing green products (Manaktola & Jauhari, 2007, Pickett-Baker & Ozaki, 2008).

Consumers are the essential engine for promoting less environmentally hazardous products or practicing ecologically responsible consumption (Tsen *et al.,* 2006). Research has shown that consumers have translated their resulting environmental concern into actively purchasing green products. With all the confusion surrounding green marketing, the difficulty in identifying green consumers comes as no surprise, as this segment continues to constitute a population which little is known of (Colemann *et al.,* 2011). As noted by Chan and Lau (2000), in order to understand the environmental movement of a particular country, a good starting point is the examination of how the consumers in a country view ecological issues and how these views are reflected in consumer behavior on green issues. Consequently, given the climate of ecological apathy in Malaysia, it is vital to explore how consumers view environmental issues and how they behave, especially in their attitudes and behaviors towards green products or environmental friendly products.

1.3 Problem statement

Environmental issues have become an integral aspect of marketing managers' concern. Businesses have become more concerned with environmental issues for two reasons (Osterhus, 1997). With increasing affluence derived from rapid economic development, people in various parts of the globe are becoming more and more concerned about the hazardous impacts of environmental deterioration on their enjoyment of life (Chan & Lau, 2001).

First, consumers' environmental concern influences product offerings which are proved by the fact that a core market of green exists. So called "green" consumers represent as many as one fifth of all consumers (Ottman, 1992; Stisser, 1994). Second, environmental issues permeate international, inter firm and political contexts. Therefore,

marketers must grapple with increasingly heterogeneous markets and gauge differential levels of consumer concern for environmental issues. As a result, more and more marketers are coming out with products that are environmentally "friendly" or "green".

Given that sufficient products are available, the question of whether consumers will buy these products arises. Moreover, will consumers be willing to change their purchasing behavior to be friendly to the environment? If so, are there any individual factors of consumers that impact their purchases? As a result of these questions, several research studies have attempted to identify the characteristics of the "green" consumers and the related marketing implications (Muller & Taylor, 1991; Zucarro & Fortin, 1992). Chan (1996) reports that several studies have explored aspects of environmental concerns and purchasing behaviors and concluded that environmental concerns are strong (Kerr, 1990; Donotan & Fitzgerald, 1992) since consumers often choose products perceived as environmentally sound (Ottman, 1992). Although several of these studies report that the majority of consumers identify environmental concerns as being their consideration when making purchasing decisions (Kleiner, 1991; Ottman, 1992, Chase & Smith, 1992), there are a few studies regarding the effects of attitude, belief and intention on consumer's environmentally friendly purchases. The dearth of previous research on the effects of consumers' attitudes, beliefs and intentions toward green products purchases indicates a need for an exclusive study for providing essential empirical evidence on environmental concerns as well as green marketing areas.

Although many people questioned the existence of a green consumer (Peattie, 2001), the green consumer has been described as an individual looking to protect themselves and their world through the power of

purchasing decisions (Ottman, 1992). Mintel (1994) describes a wide spread participation in green consumerism, a finding challenged by Witherspoon (1994) on the basis that around one half of those who claimed to have green values did not translate these into actual purchases. Witherspoon (1994) also stated that very few consumers were consistently environmentally friendly. A problem with much of the research about green consumerism is the complexity surrounding consumer behavior; the enormity of the range of influences on consumers and the way these influence individuals over time (Bergin-Seers & Mair, 2009).

While green marketing efforts continue to grow, marketers neither have adequate tools for evaluating green marketing success, nor do they have sufficient tools for determining consumers' environmental attitudes, intentions and behavior (Haytko & Matulich, 2008). Knowledge and attitudes are both understood to be important for changing human actions toward the environment (Arcury & Christianson, 1990). Yet, very little effort has been expended on investigating what and how much the public knows about the environment or the relationship between environmental knowledge and attitudes (Barber, Taylor & Strick, 2010).

Additionally, there is little consensus about the identity and nature of green consumers (Peattie, 2001). Understanding and predicting environmental behavior has proved to be remarkably difficult. Nearly everyone has concern and beliefs regarding the environment. However, environmental attitudes have not been correspondingly ubiquitous (McCarthy & Shrum, 2001). Previous research into consumers' attitudes toward green products has concluded different results over time (Haytko & Matulich, 2008). Much of the work in this area was developed in the 1970s (Schewpker & Cornwell, 1991). Earlier

research in this area also has mixed or inconclusive results (Troy, 1993). It is likely that surveys developed a long time ago may no longer be valid for measuring consumers' attitudes, intentions and behaviors, given the fact that societal and legal changes have occurred since the 1970s (Matulich, Haytko & Austion, 1995). Therefore, more updated studies are needed to overcome these shortcomings in order to assist marketers identify and understand green consumers and their needs and to develop market offerings that meet these needs.

Although various factors such as collectivist orientation (Li, 1997), environmental attitudes (Martin & Simintiras, 1995), and perceived consumer efficacy (Rice, Wongtada & Leelakulthanit, 1996) have been found to be related to green purchase behavior, they have typically been studied in piecemeal fashion (Chan & Lau, 2001). As such, little is known about their inter-relationships and their respective influence on green purchase behavior. This inadequacy calls for the need to examine an appropriate theoretical framework to encompass the relevant major dependent and independent variables in an integrative manner.

In predicting consumer behavior, the theory of Planned Behaviour (TPB) has been applied successfully in various contexts such as weight loss, family planning behavior, internet usage and environmental behavior. Some research studies (Ellen *et al.*, 1991; Ellen, 1994; McCarthy & Shrum, 1993) have shown that attitude towards improving the environment was a significant predictor of purchasing environmentally sound products. Hines et al. (1987) conducted a meta-analysis review of research in the relationship between attitude and behavior and found that individuals expressing more pro-environmental attitudes were more likely to have engaged in responsible environment behavior. Shrum, McCarthy and Lowrey (1995) found that particular environmentally related consumer

attitudes, not general environmental attitudes are related to the propensity to buy green products. Most research reports that social normative factors are positively related to green purchasing behavior (Balderjahn, 1988; Gill *et al.*, 1986). The successful predictions from the model relate mostly to people's report of their behavior. However, few studies have examined the predictive power of attitudes, norms and intentions for actual behaviors on environmental issues. To test the model against actual behavior, it is particularly important to examine how effectively TPB can be used to predict the actual individual green behavior.

From the practitioner's perspective, the industry for green products is estimated at over $200 billion in 2006 and expected to increase in the years after (Gupta & Ogden, 2009). This current wave of interest in environmental conservation is not a new phenomenon with research and opinion polls from a decade ago having shown that consumers are concerned about the environment. However, research also revealed that despite expressing concern towards the environment, the consumers were unwilling to purchase environmentally friendly products. For example, research report by Roper ASW (2002) stated that overall environmental concern among the general population is at a decline with 59 percent of the general population not even thinking of participating in environmental activities.

Despite a waning interest in overall environmental protection, the same poll surprisingly revealed that contrary to the above pattern, Americans were willing to purchase and even pay more for specific products that help conserve energy or less polluting. These mixed results reveal a challenging consumer environment for marketers of environmentally friendly consumer products, i.e. green products that seek guidance on "how to" identify and effectively market

environmental friendly products to the green consumer segments (Gupta & Ogden, 2009). At the same time, research to date has failed to answer the puzzling question about why despite concern towards the environment (attitude), consumers fail to purchase environmentally friendly or green products (behavior).

Looking into the evolution of green marketing; since the 1980s, green marketing has gone through several stages. After a backlash in the 1990s, green marketing made an upswing in the Western markets from 2000 onwards (Ottman *et al*, 2006). The force of "going green" is now extending to the Asian market region where environmental threats are alarming local governments and citizens.

Like many Asian countries, Malaysia suffers from dangerously high levels of air pollution, poor water quality, and high level of exposure to severe traffic noise, high levels of garbage disposal and rapidly diminishing landfill space (Lee, 2009).

For example, a research on recycling habits in Malaysia by Lim (2009) showed that Malaysians dump an average of RM163 million (USD54 million) valued of recyclable sources in plastic forms in a year and according to the Solid Waste and Public Cleansing Corporation, every household in Malaysia dumps an average of three tons of household waste everyday which is enough to fill up half of Peninsular Malaysia within one year. In fact, in the case of Penang alone, nearly 50 percent of the revenue generated by the Penang Municipal Council is spent on waste management and between RM110 and RM130 is spent to collect and dispose one ton of garbage which roughly sums up to RM1.98 million to RM2.34 million per day or RM854 million per year for generating 18, 000 tons of solid wastes per day (The Star, 2010).

This huge expenditure can be reduced if residents are willing to practice recycling, reducing and reusing their waste and the money saved can be used to upgrade facilities for a more comfortable lifestyle. In addition, Ropke (1999) explained that environmental worsening is motivated by excessive production of solid waste and unfortunately this trend is catching up in Malaysia whereby the generation of municipal solid waste has gradually increased to 90 percent over the past years and this increase was attributed to the rapid urbanization, migration to cities and change in consumption pattern (Periathamby, Hamid & Khidzir, 2009). As the environment continues to worse, the Malaysian government has begun to realize the seriousness of the problem.

Besides the issue of waste management, air pollution is also another environmental issue that Malaysia is currently addressing. At the Climate Change Conference 2009 in Copenhagen, the United Nations data showed that Malaysia's carbon emissions in 2006 stood up at RM187 million tons or 7.2 tons per capita, which is one of the worlds' highest per capita. Responding to this issue, the Prime Minister, Datuk Seri Najib Tun Razak then announced to the world that Malaysia will reduce its carbon dioxide emissions to 40 percent by the year 2020 (Bernama, 2009).

Due to the serious environmental threats and the hazardous economic, social and health problems resulting from environmental hazard (Chan, 2001), the government and citizens of Malaysia have started to highlight the importance of being a "green" country.

Throughout the years, Malaysia has demonstrated serious commitment towards environmental management to achieve environmental objectives such as launching the Product Certification program - Malaysia's national labeling program by the Standards and Product Certification Program (SIRIM). A nationwide awareness campaign was launched on 1st January 2011 whereby the minister of Domestic Trade, Cooperatives and Consumerism Ministry of Malaysia, Dato' Sri Ismail Sabri bin Yaakob launched a simultaneous nationwide campaign to encourage the general public to live a healthier and safer life. The intention of the campaign was to educate Malaysians on conserving the environment as well as living a sustainable lifestyle.

Other considerable national environmental policies which were endorsed by the Agricultural Department and Federal Agriculture Marketing Authority (FAMA) and the Malaysian Energy Commission are related to agricultural products and energy efficiency. The Malaysian government is realizing the impact of the consequences of environmental degradation and addressed it in its ninth Malaysian Plan (2006-2010) during which the government allocated RM510 million (USD170 million) for cleaning, preserving and beautifying rivers; RM530 million (USD 177 million) for coastal management; RM200 million (USD 67 million) for reforestation and RM70 million (USD 23 million) for the management of wildfire and protected areas.

The development observed in Malaysia indicates the efforts taken through green marketing initiatives to encourage consumers into taking account the environmental aspects in their purchasing behavior. The society as a whole is more alert and willing than before to respond to appeals based on green issues. Emerging markets for environmental products, services and technologies in Malaysia mean promising opportunities for international green marketing.

However, despite the current seriousness of the environmental threats in Malaysia, an overlooked area in current environmental research has been identified.

Asian-based green marketing studies, particularly conducted in Malaysia, are relatively scant when compared to the studies conducted in the West. In other words, despite the unprecedented potential for Malaysian market as well as other Asian markets for green products, very little is known regarding consumers' green buying behaviors in this region (Lee, 2009). There has been much research done on environmentally responsible consumers in the U.S and Europe. Lee and Green (1991) claim that while most of the major consumer behavior models have been developed in the West, relatively little attention has been devoted to investigating the validity of these models under other cultural settings. Developing such models is important for bridging the gap of knowledge that currently exists between practitioners (as evidenced by widespread use of green products) and academic researchers (as evidenced by the lack of empirical research on green purchase behavior).

According to Fisk (1973) irresponsible consumption in any geographic area will, at the very least, indirectly affect the environment elsewhere. International green marketers have expressed that the unavailability of market information in foreign countries often becomes a major hindrance to the success of international expansion of their green products (Lee, 2008; Gurau & Ranchhod, 2005). Without sufficient market information in Asian countries, many international green marketers fail to practice effective market segmentation in their marketing strategies (Keegan & Green, 2000).

Consequently, the present study's problem statement is stated as:

What is the level of Malaysian consumers' purchasing behaviour of green products and what are the factors that influnce their green products purchase behaviour?

Objectives of the study

Therefore, the present study will be undertaken to achieve the following objectives:

   i. To examine the level of purchase behaviour of green products among Malaysian consumers.

   ii. To describe the profile of Malaysian buyers of green products.

   iii. To examine the influence of knowledge, attitudes, subjective norms and behavioral control on purchase behaviour of green products.

   iv. To examine the extent of environmental knowledge's influence upon consumers' attitude towards green products.

   v. To examine the extent of subjective norm's influence upon consumers' attitude towards green products.

1.5 Research questions

To achieve the objectives, the research will address the following questions:

   i. What is the level of purchase behaviour of green products among Malaysian consumers?

   ii. What is the profile of Malaysian green products' buyers?

   iii. Do knowledge, attitudes, subjective norm and behavioral control influence purchase behaviour of green products?

iv. To what extent does knowledge about the environment influence consumers' attitude towards green products?

v. To what extent does subjective norm influence consumers' attitude towards green products?

1.6 Significance of the study

Based on the discussion of the research problem, it can be seen that there is still room for further research in this area.

To advance a nation's green revolution, McGoughall (1993) and Wasik (1992) assert the essential role of consumers. This assertion is supported by the evidence that 30 percent to 40 percent of environmental degradation has been brought about by the consumption activities of private households (Chan & Lau, 2000). More importantly, if consumers exhibit a high degree of ecological concern and channel it into some eco-friendly purchasing acts, it is likely that profit-driven companies will be strongly motivated to adopt the concept of green marketing in their daily operations. As a result, the dynamics of this buyer-seller interaction will lead to a further advancement of the green revolution across the whole country (Ottman, 1992).

Thus, in order have a better understanding of the environmental movement of a particular country; a good starting point is the examination of how the consumers in a country view ecological issues and how their views are reflected in consumer behavior of green issues. Given the climate of ecological apathy in Malaysia, such an examination would contribute significantly toward furthering knowledge of an evidence-based understanding of Malaysia consumers' environmental ethics.

Concerns related to the environment are evident in the increasingly environmentally conscious marketplace. Over the years, a majority of consumers have realized that their purchasing behavior had a direct impact on many ecological problems. Customers adapted to this new threatening situation by considering environmental issues when shopping and by purchasing only ecologically compatible products (Laroche, Bergeron & Barbaro-Forleo, 2001). Perhaps the most convincing evidence supporting the growth of ecologically favorable consumer behavior is the increasing number of individuals who are willing to pay more for environmentally friendly products. In this situation, an important challenge facing marketers is the identification of which consumers are willing to pay more for environmentally friendly products. It is apparent that an enhanced knowledge of the profile of this segment of consumers would be extremely beneficial. The closer we move to an understanding of what causes individuals to pay more for green products, the better marketers will be able to develop strategies specifically targeted to these consumers.

In reality, companies that make the options to pursue green marketing encounter numerous challenges mainly from the variability of demand, unfavorable consumer perception and high cost (Gurau & Ranchhold, 2005). The key concern lies in an understanding of green consumers and their characteristics to enable firms to develop a new target and segmentation strategies (D'Souza *et al.,* 2007).

Undeniably, increasing the understanding of green consumer behavior is important for environmental and business reasons. From an environmental perspective, the lessening of negative effects of consumption is vital in order to fulfill some of the goals put forth by the international community. For business and marketing perspectives, the development of less environmentally harmful products is not

effective without consumers adopting greener technologies and life styles. It has also been argued that the "right" purchasing decision has the potential to reduce and even eliminate environmental harm in the later stages of the consumption cycle.

The present study aims to assess how well a highly popular behavioral model; the theory of planned behavior (TPB) is able to explain consumers' green purchasing behavior. This assessment helps advance understanding whether TPB can really offer a cohesive framework for systematically studying green purchasing behavior and the related predictors.

The role played by the government in environmental protection is undeniable. In promoting sustainable consumption practices among Malaysians, the Malaysian government publicized various strategies to implement sustainable consumption and development. To educate and foster environmental awareness and concern among the public, the Malaysian government also opted for social advertising (Haron *et al.*, 2005). However, the most significant factor affecting nature was not the official government policy but the public awareness of the environmental problems (Chukwuma, 1998).

Despite the various policies introduced by the government to foster environmental awareness, up to our knowledge, systematic research into the attributions that consumers in Malaysia make about their environmental behavior and into the relationships between these attributions is very limited. This is surprising due to the fact that "understanding consumers" of cause-and-effect relationships would seem to be central to consumer behavior (Folkes, 1988).

In an increasingly globalized marketplace, there is evidence that knowledge of environmental issues, attitudes towards ecological issues vary across cultures (Johnson *et al.*, 2004; Laroche *et al.*, 2002). The timing is, therefore, right for consumer research that examines factors that influence the adoption of green behaviors and products in an Asian context. Virtually a very limited research has been undertaken in the Asian region particularly in Malaysia, in the field of green marketing. To remedy this void in literature, this study attempts to look at the influence of various psychographic and attitudinal factors on the green purchase behaviors of Malaysian consumers.

Owing to the fact that the concept of green marketing has achieved the establishment phase in the west, companies from developed countries have started to initiate international green marketing in order to expand their market, increase their sales and take advantage of the positive image of green brands established in their domestic markets (Gurau & Ranchhold, 2005). Explicitly, many international companies are notably aggressive in currently initiating green marketing strategies in Asian markets (Lee, 2009). The knowledge of green consumer is important for the whole supply chain and especially for the retailers since the environmental issues influence the purchase decisions. Knowing the green profiles of consumers in Malaysia allows marketers to develop strategies targeted to this segment.

Malaysia is facing a challenge in ensuring its overall sustainable development. Air quality, river water quality, deforestation, household wastes and hazardous wastes are some of the examples of environmental issues faced by the nation (Tsen *et al.*, 2006). Those challenges cause increasing support for the local environment.

Understanding factors affecting environmental attitudes is necessary before the country can move toward more effective environmental policies and institutional actions designed to increase environmentally friendly behavior.

According to Lee (2009) amongst the plausible reasons contributing to this interest is the fact that the Asian market is increasingly becoming conscious of alarming environmental problems and consequently, governmental policies and business strategies in many Asian countries are being reformed to give more consideration to long-term sustainability developments including environmental protection and moreover, the expeditious rising economies in Asian countries have led to a dynamic rise of financially-empowered consumers across Asia willing to spend more than previous generations (Li & Su, 2007; The Economist, 2006). In view of this scenario, international green marketers have expressed that the unavailability of market information in Asia often translates into a major obstruction to the success of international expansion of their green products. Thus, it is hoped that the present study will shed light on the state of green products consumption behavior among Asian consumers.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter starts with the overview of the emergence of green marketing, followed by a discussion on green products and green consumers. The influence of various psychographic variables in green purchase consumer behaviour is then discussed and finally, the research framework, underlying theory and hypotheses are proposed.

2.2 The emergence of green marketing

Concern over the environment has evolved through several phases. It started in the 1960s with the ecology movement focusing on pollution and energy conservation to the recent use of environmental issues as a source of gaining profit in business organization. This evolution has resulted in an expanded list of issues that fall within the domain of environmental responsibility.

With the increasing social and political pressure, business organizations have engaged in marketing activities known as green marketing and moved beyond simply highlighting pollution and waste disposal to looking for alternative package composition and design, alternative product formulations and cause-related promotion in an effort to keep in step with the environmental movement (Straughan & Roberts, 1999). Not surprisingly, the evolution of academic investigation of green marketing issues has mirrored the evolution of environmental sensitivity in the population.

The decade of the late 1980s witnessed the initial stage of green marketing when the concept of "green marketing" was introduced and discussed in the industry (Peattie & Crane, 2005). At this stage,

predictable emergence of a green tide spurred many marketers to engage in different forms of green actions (Vandermerwe & Oliff, 1990). Marketers during this period of time expected to generate positive consumer response which was expected to transform into an increase in goodwill, market shares or sales from their actions of being green. However, notwithstanding reports that environmental problems constituted one of the uppermost public concerns, market growth for green products disappointingly fell short of marketer's expectations (Lee, 2009; Wong et al., 1996).

Green marketing entered its second stage in the 1990s when marketers started to experience a reaction (Wong et al., 1996). Marketers slowly realized that consumer concern for the environment and a desire for green products did not necessarily translated to actual purchase (Schrum *et al.,* 1995). Amongst the reason contributing to the resistance against green marketing was consumer cynicism about green products, green claims and the companies' intention as well as actions (Peattie & Crane, 2005; Wong *et al.*, 1996).

From the mid 1990s, consumers started to become more and more environmentally and socially aware (Strong, 1996). Consumers began to realize the social responsibility from corporations (Gurau & Ranchhod, 2005). Gradually, the rise of green consumerism had show the way to a large consumption called "ethical consumerism" which refers to buyer behavior that reflects a concern with the problems that arise from unethical and unjust global trades (Uusitalo & Oksanen, 2004). During this period of time, consumers have started to demand a say in production, processing and resourcing of the products. Late 1990s witnessed continuous uprising forces of consumerism, known as "sustainability marketing" (Charter & Polonsky, 1999) where the process of building and maintaining of sustainable relationships with

customers, social environment and natural environment became a critical agenda for business organizations. To face such a challenge, green marketing went into "self adjusting" mode whereby only organizations with true intentions for long-term sustainable business development continued to stay and enhance the quality of their products.

From its introduction until 2000, the evolution of green marketing has involved in three phases. Nowadays, supported by the adoption of more sophisticated and advanced technology, enforcement from the non government organization, government regulations and incentives as well as high closer scrutiny from media, many green products have greatly improved up to the required standard and regained confidence among consumers (Gurau & Ranchhod, 2005; Ottman, 2007). It can be seen that with the constant rise of growing world concern about the quality and the importance of preserving the mother earth, green marketing has progressively picked up impetus again. In fact some researchers postulate that green marketing is now "making a comeback" (Lee, 2008; Ottman *et al.*, 2006).

Undeniably, in today's business environment, green marketing is considered one of the major trends in modern business (Lee, 2009; Kassaye, 2001). Due to its acceptance as one of the major source of competitive advantage in business, there are numerous definitions of green marketing proposed by marketing scholars; social marketing, ecological marketing, or environmental marketing.

As cited in Kanter (1991), based on worldwide survey among 12000 managers, the environmental or green issue is an increasingly important issue and is ranked as the second highest issue among business's social priorities. The definition of green marketing is still vague and is rarely portrayed in an understandable and concrete way.

The exact definition of green marketing was unclear until Kotler and Zaltman (1971) initially defined green marketing in terms of social marketing which has become an important concept in the field of marketing. Social marketing was defined by these authors as the application of marketing concepts and techniques to the marketing of socially beneficial ideas and causes rather than products and services in the commercial sense. It seems that this definition was still ambiguous and unclear from two perspectives. The first is who will be responsible for green marketing and the second is how companies will contribute their resources to support the green area.

Following these arguments, Henion and Wilson (1976) (as cited in Lozada & Mintu-Wimsatt, 1995) proposed the definition of ecological marketing as marketing activities that serve to help the cause of environmental problems and serve to provide a remedy for them. In 1991, Kotler defined green marketing as the marketing process that organization goes through to determine the needs, wants and interest of target markets and to deliver satisfaction more effectively and efficiently than competitors in the way that preserves or enhances the customers and society's well-being. Based on his definition, the major components of green marketing are focused not only on customers' needs but also society's or the public's needs.

Harrison (1993) proposed green marketing strategy by firms through the positioning of the environmental benefits of green products to consumers' mindset to influence their purchasing decisions. This is also supported by Ford (1993) who views green marketing as the concern of consumers for the environment which can affect their purchasing decisions and the ways in which companies can influence, react to and profit from these decisions. According to Charter and Polonsky (1999), green marketing is the marketing or promotion of a product based on its environmental performance or an improvement thereof. Other definitions of green marketing come from Peatitie (1995) and Welford (2000) who view green marketing as the activities involved for identifying, anticipating and satisfying the requirements of customers and society in a profitable and sustainable way.

Recently, Soonthonsmai (2007) defined green marketing as the activities taken by firms concerned about the environment or green problems, by delivering environmentally sound goods or services to create consumers and society's satisfaction.

2.3 Green products and green consumers

In general, green product is known as an ecological product or environmentally friendly product (Chen & Chai, 2010). Shamdasmi *et al.* (1993) defined green products as the product that will not pollute the earth or deplete natural resources and can be recycled or conserved. Schlegelmilch et al. (1996) classified green products into general green products, recycled paper products, products not tested on animals, environmentally friendly detergents, organically-grown fruit and vegetables ozone–friendly aerosols and energy-efficient products. It is usually specified as providing measurable improvements throughout the entire product life cycle (Manaktola & Jauhari, 2007). This may be due to a technology or process change with

development of "cleaner", more efficient technologies or may be reflected in the choice of raw material, the production of waste, how the product is used, the means of disposal, the amount of pollution generated and its health and safety measures (Shrivastava, 1995).

According to Wasik (1996), green products are the category of products that have more environmentally sound content or packaging in reducing the environment impact. In sum, Chen and Chai (2010) conclude that green products can be referred to as products that incorporate the strategies in recycling or with recycled content, reduced packaging or using less toxic materials to reduce the impact on the natural environment. Consumers who are aware of and interested in environmental issues are called green consumers (Soonthonsmai, 2007). This category of consumers usually organizes petitions, boycotts manufacturers and retailers and actively promotes the preservation of the planet (Fergus, 1991). They tend to avoid products that are likely to endanger the health; cause significant damage to the environment during manufacture; use unsafe disposal; consume a disproportionate amount of energy; cause unnecessary waste; use materials derived from threatened species or environments (Strong, 1995).

Numerous studies have addressed the characteristics of green consumers either as a primary point of investigation or as a secondary issue. The profile of "green" consumers that are willing to pay more for environmentally friendly products can be classified into five categories; demographics, knowledge, value, attitude and behavior (Laroche *et al.*, 2001). Majority of these studies have looked into and found demographic variables associated with green consumption.

Going back to the early studies of ecology and green marketing, age has been explored by a number of researchers. The general belief is that young individuals are likely to be more sensitive to environmental issues. There are a number of theories offered in support of this belief, but the most common argument is that those who have grown up in a time period in which environmental concerns have been a salient issue at some level are more likely to be sensitive to these issues (Straughan & Roberts, 1999).

As with many of the demographic variables, the findings have been somewhat equivocal. Some of the researchers who explored age as a correlate to green attitudes and behavior have found non-significant relationships (Roper 1992). Others have found the relationship to be significant and negatively correlated with environmental sensitivity and/or behavior as predicted (Zimmer et al., 1994). Early research identified the "green" consumer as being younger than average (Berkowitz and Lutterman, 1968; Anderson and Cunningham, 1972). Lustigman (1994) also found younger people are more likely to purchase environmentally sensitive products. However, this trend has been reversed and another studies identified the "green" consumer as being older than average (Sandahl & Robertson, 1989; Robert, 1996). Straughan and Roberts (1999) segmented college students based upon ecologically conscious consumer behavior and stated that the younger individuals were likely to be more sensitive to environmental issues.

The development of unique sex roles has led most researchers to argue that women are more likely than men to hold attitudes consistent with the green movement. Theoretical justification for this comes from Eagly (1987) who holds that women will, as a result of social development and sex role differences, more carefully consider the impact of their actions on others (Straughan & Roberts, 1999).

Females tend to be more ecologically conscious than men (McIntyre et al., 1993). Most studies portrayed a highly socially conscious person as female (Anderson & Cunningham, 1972; McIntyre *et al.*, 1993; Banerjee and Mc Keage 1994; Laroche *et al.,* 2001). Men were found to have more negative attitudes towards the environment compared to women (Tikka *et al.*, 2000). Women were more likely to buy a green product because they believe the product to be better for the environment (Mainieri *et al.*, 1997).

However, Reizenstein *et al.,* (1974) and Balderjahn (1988) reported that the relationship between environmentally conscious attitudes and the use of non-polluting products was more intensive among men than among women. Several studies have found the relationship not to be significant (e.g. Samdahl & Roberstson, 1989). Others have found support for the theoretical justification given (Roper, 1992; Stern et al., 1993). Still others have found the opposite of the predicted relationship (e.g. MacDonald & Hara, 1994). In the context of local study, Chen & Chen (2010) indicated that there is no difference between gender in their environmental attitudes and their attitudes on green products, which is in line with a Canadian study by Eagles and Muffitt (1990) who also found no difference between genders in environmental attitudes. Samdahl and Robertson (1989) found the relationship not to be significant in the case of ecological attitudes and genders. Moreover, D'Souza *et al*. (2007) indicated no differences with respect to gender in the respondents' attitudes towards green labels. As is the case with age-based green research, the results of gender-based investigations are still far from conclusive.

Income is generally thought to be positively related to environmental sensitivity. The most common justification for this belief is that individuals can, at higher income levels, bear the marginal increase in costs associated with supporting green causes and favoring green product offerings. Henion (1972) and Kinnear *et al.* (1974) thought that consumers with medium or high incomes would be more likely to act in an ecologically compatible manner due to their higher levels of education and therefore, increase their sensitivity to social problems. However, Sachs *et al.* (1987) and Sandahl and Robertson (1989) found that environmentally conscious consumers are less educated and have lower income than average. Other studies have shown a non-significant direct effect of income on environmental awareness (Van Liere & Dunlap, 1981). A few studies have found the opposite; a negative relationship between income and environmental concerns (Samdahl & Robertson, 1989).

Buttel and Flinn (1978) reported a moderately positive correlation between people with higher income and environmental concern. Bourgeouis and Barnes (1979) also reported that people with middle to upper-middle income were consumers who took into account the societal and environmental consequences in purchasing products. From the purchase decision process model, Engel *et al.* (1995) found that purchasing was affected greatly by consumer income. The more money consumers have, the more they purchase products.

Level of education is another demographic variable that has been linked to environmental attitudes and behavior. Specifically, education is expected to be positively correlated with environmental concerns and behavior (Roberts & Bacon, 1997; *Zimmer et al.,* 1994). Sandahl and Robertson (1989) found that the environmentally conscious consumer is less educated and has a lower income than the average American.

Although the results of studies examining education and environmental issues are somewhat more consistent than the other demographic variables, a definitive relationship between these two variables has not been established. The vast majority of these studies have found the predicted positive relationship (Roper, 1990; Schwartz & Miller, 1991, Zimmer *et al.*, 1994). However, Samdahl and Robertson (1989) found the opposite; education was negatively correlated with environmental attitudes and Kinner *et al.* (1974) found no significant relationship.

To conclude, a large number of studies found little or no relationship between demographic characteristics and environmental behavior as the demographic variables have less explanatory power to explain environmental behavior. Apart from demographic variables, several studies have attempted to identify psychographic correlates of green attitudes and behavior. Psychographic–behavioural profile of a green consumer reveals psychographic characteristics of a green consumer (personal qualities, lifestyles, hobbies, activity, etc) and behavior (attitude, knowledge, motives, benefits, response for buying eco-friendly product, etc.).

Though previous studies have not investigated psychographic variables in an exhaustive a manner as an exploratory research into demographics, they do provide some interesting insights into some nature of the green consumer. For example, Hine and Gifford (1991) stated that the effect of fear appeals to the anti-pollution movement on several different pro-environmental behaviors. They found that political orientation was significantly correlated with one of the lower-order response, verbal commitment.

Specifically, their findings suggest that those with more liberal political beliefs are more likely to exhibit strong verbal commitment than those with more conservative political views. This is keeping with the general perception of pro-environmental issues as being a part of the "liberal" mainstream.

Stern *et al*. (1993) examined the role of social altruism and egoism played in influencing green behavior. Specifically, their discussion centers on whether social altruism, a concern for the welfare of others, is the sole driver of environmentally friendly behavior or whether the positive effect of social-altruism is countered by the negative influence of egoism which inhibits willingness to incur extra costs associated with environmentalism. Their research also explores biospheric-altruism, a concern for the non-human elements of the environment. Their findings suggest that all three of these constructs (i.e. social altruism, biospheric altruism and egoism) influence willingness to purchase green products. Straughan and Roberts (1999) also discovered that altruism is positively linked with ecological conscious consumers.

Qualities and price of an eco-friendly product as of any other product has a considerable impact on consumers' decision to buy. Ottman and Reilly (1998) state that green marketing specialist have to make decisions about competitive price of eco-friendly products or about intensive communication of their valuable attributes in the market. No matter how favorable consumers are to eco-friendly attributes of a product, they want to buy a product that does not conflict with their established life style (Manaktola & Jauhari, 2007).

Another psychographic variable related to green product consumption behavior is personal norm. It refers to the feeling of moral obligation of consumers (Chen & Chai, 2010). The extent to which people feel obliged to recycle is related to conservation related products attributes (Ebreo et al., 1999). Environmentally friendly behavior is characterized as morally demanding (Chen & Chai, 2001). Consumers feel morally obligated to protect the environment and to save the limited natural resources on the earth.

2.4 The influence of psychographic variables in green purchase consumer behaviour

There is a general belief among researchers and environmental activists that through purchasing environmentally friendly products or green products, consumers can contribute significantly to improve the quality of the environment (Abdul-Muhmin, 2007; Chen & Chai, 2010). The quality of the environment depends critically on the level of knowledge, attitudes, social norms and practices of consumers (Mansaray & Abijoe, 1998; Chen & Chai, 2010). Most authors agree that demographics are less important than knowledge, norms and attitude in explaining ecologically friendly behaviour (Laroche *et al.*, 2001; Webster, 1977; Brooker, 1976; Benerjee & McKeage, 1994; Chan, 1999). Therefore, the present study will mainly focus on the infuence of this factors on consumers' purchasing behaviour of green products.

2.4.1 Environmental attitudes and purchase behaviour of green products

Allport (1935) defined attitude as "a mental and neutral state of readiness, which exerts a directing influence upon the individual's response to all objects and situations with which it is related". According to Ajzen (1985), an individual is more likely to undertake a

certain behaviour if he/she has a positive attitude toward undertaking the behaviour. Environmental attitudes refers to the individuals value judgement of environmental protection (Lee, 2008). In other words, environmental attitude taps the individuals' cognitive assessment of the value of environmental protection. In 2000, Schultz and Zelezny defined attitudes of environmental concern as rooted in a person's concept of self and it is the degree to which an individual perceives him or herself to be an integral part of the natural environment. Attitude represents what consumers like and dislike (Backwell et al., 2006) and consumers product purchasing decisions are often based on their environmental attitudes (Irland, 1993). Environmental attitude is commonly understood as a cognitive judgement towards the value of environmental protection (Lee, 2008).

Theory in the area of consumer attitude argues that individuals behave in ways consistent with their attitudes. However, research in environmental consumerism has produced inconclusive evidence in support of consumer attitude theory with mixed results that support both a positive relationship between attitude toward the environment and behaviour.

Despite the contrasting results found between environmental attitude and behaviour, attitudes are regarded as the most consistent explanatory behaviour in predicting consumers' willingness to pay for green products (Chyong *et al.*, 2006). Tanner and Kast (2003) discovered that green food purchases are strongly facilitated by positive attitude of consumers towards environmental protection. In his study, Balderjahn (1988) concluded that individuals who had a positive attitude towards the environment participated more in the buying and consumption of green products.

Consumer attitudes have also been used in past studies to predict energy conservation and ecologically conscious purchase and use of products. Kassarjian (1971) studies consumers' reaction toward a gasoline that reduced air pollution and found that attitude toward air pollution was the most important variable in determining consumers' behaviour towards the product. Mostafa (2006) also confirmed that environmental attitudes were positively related to green purchase intention. Research related to consumer attitudes and preference for organic products also confirmed that consumers who have positive attitudes towards organic products where one of the most common mentioned reason for purchasing organic products perceived as healthier than conventional alternatives (Chinnici *et al.,* 2002; Harper & Makatouni, 2002).

Specifically, while some researchers have claimed a positive correlation between environmental attitude and behaviour (e.g. Kotchen & Reiling, 2000), others have concluded that the relationship is either moderate or tenuous (e.g. Davis, 1995). Lee (2009) found that Hong Kong adolescents' environmental attitudes have weak associations with green purchasing behaviour compared with the impact of environmental concern; which suggests that adolescent consumers green purchasing behaviour is governed more by emotions than by rationality. This is consistent with the argument by Shaffer (1994) that adolescent is a stage particularly susceptible to emotional appeals. Volsky *et al.* (1999) perceived that consumers do not always base their buying decisions on their attitudes towards the environment, even though these attitudes can have a fairly strong influence on their purchases.

The contradictory results in studies of the relationhip between environmental attitude and behaviour challenge the previous assumption that individual's cognition (attitude) will alter their behaviour and these results suggest that further studies are needed to confirm the relationship between environmental attitude and behaviour.

2.4.2 Subjective norms and purchase behaviour of green products

As social beings, normative pressure inevitably affects our behaviour. Social norms influence the way we dress, what we buy and a host of other behavioural decisions (Manning, 2009). The normative factor or subjective norm represent another major variable that has been considered in the context of environmentally responsible behaviour. In Theory of Reasoned Action, Fishbein and Ajzen used the term "subjective norm" to describe social influence. It is basically discussed in terms of motivation of the individual to visibly comply with the group norms and behaviour in order to achieve rewards or avoid punishment. Elek *et al.* (2006) argued that the demonstrability of most people's behaviour influences an individual's own behaviour. People tend to believe that certain behaviour is sensible when they observe many others are doing it. Chau and Ngai (2010) indicated that individual behaviour affected by social influence might occur at three different stages: compliance, identification and internalisation.

Subjective norms which refer to the perceived social pressure to perform or not to perform the behaviour constitute an imperative part of an adolescent's social context (Brown, 1990). The literature has identified two types of subjective norms; social norms and personal norms (Fishbein & Ajzen, 1975; Deci & Ryan, 1990). Personal and social norms are distinct in terms of sources of motivation and have different effects on behavioural intentions.

Deci and Ryan (1990) defined social norms as the motivation that comes from external sources such as monetory rewards or recognition. In this case, the resulting behaviour is still controlled rather than self-determined. Personal norms, however are motivated by an intrinsic moral obligation (Schwartz, 1973). Minton and Rose (1997) reported that there was a dispute between two school of social psychology regarding the usefulness of social norms to predict and explain behaviour. One school of thought criticized social norms as having little explanatory or predictive value (Darley & Latane, 1970; Kerbs & Miller, 1985). Another school of thought views social norms as critical components for understanding human social behaviour (e.g. Berkowitz, 1972; Fishbein & Ajzen, 1975). There are therefore, many studies that try to prove empirically which school of thought is most likely to be valid.

The social dynamic in which individuals affiliate with others by displaying similar attributes is called homophily (Ryan, 2001). Homophily of peer group values and behaviours has been found in reported frequency of smoking, drinking, drug use and dating (Urberg et al., 1997). Besides risk-taking behaviours, homophily in peer groups has also been found in positive traits such as GPA, academic aspirations, time spent on homework as well as prosocial behaviours (Ryan, 2001).

Theory of Reasoned Action posits that social influence has a direct effect on behavioural intention (Fishbein & Ajzen, 1975). According to Lee (2009), social influence is the most important predictor of adolescents' green purchasing behaviour. This finding further consolidates the important roles of peers in youngsters' development (Brown 1990). Individuals significant peer network might suggest, cultivate and circulate and reinforce a "norm" of environmental

behaviour. Hence, Lee (2009) further noted that to these youngsters, green purchasing behaviour carries social meanings and functions. Researchers have suggested that peers influence each other by several ways; that is as reinforcing and punishing agents (Lamb et al., 1980), as modelling agents (Sagotsky & Lepper, 1982), as object of comparisons (Shaffer, 1994) and as value setters for a particular idea or behaviour (Shaffer, 1994). This echoes with Uusilato and Oksanen's (2004) viewpoint that green consumption is a form of symbolic consumption.

Most research find that normative influences have a positive impact on green purchasing behaviour (Balderjahn, 1988; Gill *et al.*, 1986). It is argued that if the consumption of a particular product threatens the welfare of a large number of people and/or it is possible to directly identify the parties responsible for the hazard, the normative pressure to purchase green products will be greater (Stern et al., 1986).

Warren and Warren (1977) proposed that social norms influenced energy used in various neighbourhood contexts. They found that respondents' perceptions of neighbours keeping thermostats low were positively correlated with natural gas conservation patterns. Rozendal et al. (1983) found that normative factors were important determinants of environmentally responsible behaviour. Macey and Brown (1983) confirmed that changing the intentions of non-adopters of energy conservation behaviour depends upon changing social norms, not attitudes. Mieke (1985) indicated that social norms were better predictors of littering behaviour than attitudes, under conditions of low attitude accessbility.

A recent study by Lee (2009) also confirms that peer influence is the top predictor of green purchase behaviour among consumers in Hong Kong. Chen (2008) also found that consumers could be influenced by

the choices of others when making decisions about purchasing books online. However, in other study, George (2004) found that in relation to internet purchasing, there is no significant relationship between subjective norms and internet purchasing. He concludes that in internet purchasing, it may be that parents, friends and classmates are not the important others that students listen to in determining their internet behaviour.

From the discussion above, it appears that subjective norm has generally produced supportive evidence for the relationship with purchase behavior. However, since most of these studies have been conducted in Western countries, the consistency of prior findings in another developed country is a relevant extension of knowledge (Grant *et al.*, 2001). Thus, subjective norm is included as a potential variable that influence consumer purchase behavior of green products.

2.4.3 Perceived behavioural control and purchase behaviour of green products

Behavioural control refers to "people's perceptions of the ease or difficulty of performing the behaviour of interest" (Ajzen, 1991). By taking into account for individuals to act in a specific way, the TPB is, in general considered to be appropriate for explaining behaviour over which people have incomplete volitional control (Chan & Lau, 2001).

According to TPB, an individual's beliefs about his or her abilities to perform a behaviour in question also influence whether or not he or she actually engages in the behaviour. Generally, behaviours that are perceived to be easier to perform will be completed over difficult behaviours.

When judged against previous environmental studies, TPB's incorporation of incomplete volitional control into consideration lends support to its ability to explain eco-friendly behaviour. For instance, in examining factors that might affect US citizens' environmentally responsible behaviours, Bredger and Corbin (1992) noted the significant role of perceived behavioral control. In another study on Thai consumers, Rice, Wongtada and Leelakulthanit (1996) found that subjects exhibiting a high degree of perceived behavioral control behaved more environmentally friendly than those exhibiting a low degree of perceived behavioral control. In other words, if individuals do not perceive that as consumers, they can help solve the environmental problems, they will be apathetic toward green consumption (Ellen, Weiner & Cobb-Walgren, 1991; Chan & Lau, 2001).

In a study that compares purchasing behaviour between Chinese and American, Chang and Lau (2001) discover that perceived behavioural control exert influence on the green purchasing of both citizenships. In internet purchasing, George (2004) discovers that the more in control an individual feels about making internet purchases, the more likely he or she will be to do so. However, Tarkiainen and Sundqvist (2005) found that perceived behavioral control (i.e. importance of price) has no effect on buying behaviour of organic food among consumers in Finland.

In general, most of the studies conducted in various settings to examine the relationship between perceive behavioral control and consumer purchasing behavior have demonstrated positive association between these two constructs. This indicates that people's perceptions of the ease or difficulty of performing the behaviour influenced their action.

Given the importance of perceived behavioral control on shaping the consumer's action, the need for specific research on the effect of perceived behavioral control on consumer's behaviors towards green products is justified.

2.4.4 Environmental knowledge and purchase behaviour of green products

Knowledge is recognized in consumer research as a characteristic that influences all phases in the decision process. Specifically, knowledge is a relevant and significant construct that affects how consumers gather and organize information (Alba & Hutchinson, 1987), how much information is used in decison making (Brucks, 1985) and how consumers evaluate products and services (Murray & Schlacter, 1990).

In the context of green marketing, McDoughall (1993) argued that consumers' environmental knowledge is of paramount importance because the green revolution is primarily consumer driven. This implies that if consumers possess a superior understanding of environmental issue and channel it into ecologically conscious consumption behaviours, it is likely that profit-driven company will be strongly motivated to apply the concept of green marketing to their operations (Chan, 1999).

Getzner and Grabner-Krauter (2004) asserted the need for knowledge on green consumer's necessity to know. They further added that knowing is a criterion that has an impact on green consumer behaviour in all the stages of decision making process on buying eco-friendly products. There is an assumption that the better the green consumers will be informed and the more they will know about the qualities of an ecological friendly product, the more they will be motivated to buy the product (Banytne et al., 2010). Knowledge of environmental issues

tends to create awareness in brands, possible positive attitudes towards green brands and positive attitudes towards green brands, while environmental labels may assist in identifying green products (D'Souza *et al.*, 2006).

Although behavioural literature in general advocates a positive association between knowledge and behaviour (e.g. Hoch & Deighton, 1989; Park et al., 1994), empirical findings regarding the relationship between ecological knowledge and behaviour are still not conclusive (Martin & Simintiras, 1995).

On an individual basis, consumer knowledge about ecological issues has been identified as a significant predictor of environmentally friendly behaviour (Chan, 1999; Vining & Ebroe, 1990). In a meta analysis of 128 studies, Hines *et al.* (1987) found an average correlation of 0.30 between environmental knowledge and behaviour. Similarly, Amyx *et al.* (1994) found that individuals highly knowledgable about ecological issues are more willing to pay a premium price for green products.

As the environmental knowledge of consumers increases, research indicates that a growing segment of individuals rewards businesses that address ecological issues in their marketing practices and punishes companies that ignore or abuse green imperatives (Carlson *et al.,* 1993). For example, Procter & Gamble and Wal Mart were publicly criticized for putting a green label on a brand of paper towels simply because the inner tube for the towel was made of recycled paper when in fact, the product was made of chlorine-bleached, unrecycled paper and packaged in plastic (Bergeron & Barbaro-Forleo, 2002).

Thus, it appears that an increase of customer knowledge about environmental issues has direct effects on customer attitudes and behaviours although individuals with little knowledge about the environment may still exhibit a string affective attachment to it (Henion, 1972).

Empirical support for the influence of consumers' environmental knowledge on their ecologically favourable attitude is contradictory. On one hand, Maloney and Ward (1973) reported no significant linkage between environmental knowledge and ecologically compatible behaviour. In a study of water conservation, Watson *et al.* (1992) discovered that no correlation was observed between knowledge and attitude or between knowledge and behavior. Studies by Arbuthnot and Lingg (1975), Geller (1981) and Shahn and Holzer (1990) have shown that ecological knowledge has little bearing on the performance of environmentally acts.

On the other hand, Vining and Ebreo (1990) and Chan (1999) have shown that knowledge about ecological issues is a significant predictor of environmentally-friendly behaviour. In the same vein, Amyx *et al.* (1994) even found that individuals highly knowledgeable about environmental issues were more willing to pay a premium price for green products. Simmons and Widmar (1990) concluded that lack of knowledge was a substantial barrier to recycling amongst people with positive conservation attitudes. In a study in Poland, Rokicka (2002) also found evidence that attaining a high level of environmental knowledge produces much better pro-environmental behaviour. Similarly, Grunert (1993) also discovered positive association between ecological knowledge and purchase of green or organic products.

Based on the above discussion, it appears that the relationship between environmental knowledge and behaviour still prevails. For further verification, this perspective will be tested in the present study.

2.4.5 Subjective norms and environmental attitudes towards the green products

Empirical studies using TRA or TPB have found that subjective norm positively affects individual's attitudes. Chang (1998) examined the correlation between subjective norms and attitudes toward behaviour more thoroughly and tested the causal link from norms to attitudes. He suggested that the link could be explained with social environment's influence on an individual's attitude formation. This is also confirmed by Gotschi et al. (2010) who found in purchase behaviour of organic product, subjective norms within the family was significantly correlated with attitudes toward shopping behaviour of organic products. In the field of IT study, Crespo and Rodri'guez (2008) discovered that subjective norms positively affect attitudes towards online shopping behaviour.

Generally, it can be concluded that the attitude formation towards environmental issue is partly facilitated by social influence. In the absence of social influence, consumers are unlikely to form attitudes. Thus, it can be concluded that the role of social influence is important to facilitate the formation of attitude among consumers. Therefore, the potential impact of this factor on customer-orientation behavior of the green products merits further investigation.

2.4.6 Environmental knowledge and attitudes towards the green products

Environmental knowledge can be defined as a general knowledge of facts, concepts and relationships concerning the natural environment

and its major eco-systems (Fryxell & Lo, 2003). It refers to "how much" an individual knows about the envronmental issues (Chan, 1999). Knowing is the criterion that has an impact on green consumer behaviour in all the stages of decision making process on buying an eco-friendly product. Thus, environmental knowledge involves what people know about the environment, key relationships leading to environmental aspects or impacts, an appreciation of "whole systems" and collective responsibilities necessary for sustainable development (Mostafa, 2006).

The variable environmental knowledge has been recognised by marketing research as a factor that influences every phase of the buying decison process. Knowledge is an important concept that affects the way in which consumer gather and organise information and determines how they evaluate products and services (Laroche *et al.*, 2001). One function of knowledge is to help maintain strong attitudes. Attitudes are considered strong when they are resistant to change and persistent over time. Thus, knowledgeable people with strong attitudes are careful, expert processors of information.

Many analyses of attitudes strength recognize that knowledge contributes to a high attitude level. Barber *et al.* (2010) and Eagly and Chaiken (1993) suggested that strong attitudes are often thought to be constructed on an extensive, well organized knowledge framework that provides an informational basis for reactions to the "attitude objects".

When considering the environment, increased knowledge is assumed to change environmental attitudes, and both environmental knowledge and attitudes are assumed to influence environmental behaviour (Arcury & Christianson, 1990; Barber et al., 2010). Laroche *et al.* (2001)

found that the two most influencing attitudes were the importance and the inconvenience of being environmentally friendly. On one hand, importance with respect to the environment can be defined as the degree to which one expreses concern about ecological issues (Amyx *et al.*, 1994), while on the other, inconvenience refers to how inconvenient it is perceived for the individual to behave in an ecologically compatible fashion (Laroche *et al.*, 2001).

Another well known attitude in the environmental literature is the perception of severity of environmental problems. Ecologically conscious consumers believe that current environmental conditions are deteriorating and represent serious problems facing the security of the world, whereas consumers who are less sensible to ecological issues perceive that environmental problems will resolve themselves (Banerjee & McKeage, 1994).

Nevertheless, the empirical evidence supporting the influence of environmental knowledge on behaviour is contradictory (Martin & Simintiras, 1995). On one hand, Maloney and Ward (1973) reported that there was no significant link between environmental knowledge and favourable environmental attitude. Miller (1991) found that despite a large number of consumers who express their concerns about environmental problems, only a few are willing to act at personal expense, such as making a sacrifice in their personal lifestyle. Similarly, although most consumers know about the importance of recycling, only 30-40% of environmental degradation has been brought about by the consumption activities of private households (Grunert, 1993). Similarly, Gotschi et al. (2010) discovered that a higher degree of knowledge does not necessarily lead to positive attitudes of shopping behaviour of organic products.

But on the other hand, Chan (1999) showed that knowledge about environmental issue was a variable that was fairly useful for predicting favourable environmental attitude. A degree of information someone has on a given environmental problem will largely determine his/her opinion regarding the problem (Conraud-Koellner & Rivas-Tovar, 2009). Bradley et al. (1999) also found significant correlations between attitudes and knowledge. In a similar vein, Simmons and Widmar (1990) concluded that lack of knowledge was a substantial barrier to recycling amongst people with positive conservation attitudes. This is also supported by Rokicka (2002) that attaining a high level of environmental knowledge produces much better pro-environmental attitudes. In the non-Western context, Mostafa (2006) found that perceived environmental knowledge is positively and significantly related to ecologically favourable atitudes and behaviour. This is in line with Crosby *et al.* (1981) who pointed that environmental concern is a strong attitude towards preserving the environment.

Gill *et al.* (1986) tests the effects of general attitude of environmental concern in the theory of reasoned action and found a direct effect of attitude of the environment concern on the behavioural intention to vote for container laws.

From the discussion above, it appears that knowledge has generally produced supportive evidence for the relationship with consumers' attitudes. However, since most of these studies have been conducted in Western countries, the consistency of prior findings in another developed country is a relevant extension of knowledge (Grant *et al.*, 2001). Thus, environmental knowledge is included as a potential antecedent of customer-orientation behavior in this study.

2.5 Theoretical Framework

The main thrust for this research is how the Theory of Planned Behaviour (TPB) can be used to predict and understand the intention and behaviour to purchase green products among Malaysian consumers.

The TPB is an extension of the Theory of Reasoned Action. At the heart of TPB is the individual's intention to perform a given behaviour. For TPB, attitude toward the target behaviour and subjective norms about engaging in the behaviour are thought to influence intention and TPB includes perceived behavioural control over engaging in the behaviour as a factor influencing intention. According to TPB, an individual's performance of a certain behaviour is determined by his or her intent to perform that behaviour. Intent is itself informed by attitudes toward the behaviour, subjective norms about engaging in the behaviour and perceptions about whether the individual will be able to successfully engage in the target behaviour.

TPB also includes a direct link between perceived behavioral control and behavioural achievement. Given two individuals with the same level of intention to engage in a behaviour, the one with more confidence in his or her abilities is more likely to succeed than the one who has doubts.

Figure 1: Original TPB model
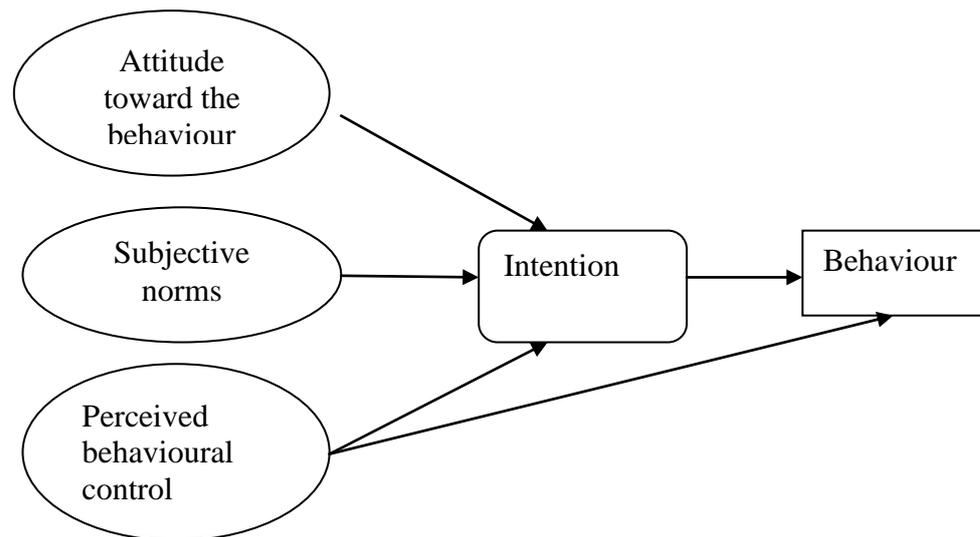
Source: Ajzen (1991)

As mentioned earlier, the typical TPB model would include the intention to make purchase as a construct antecedent to purchasing behaviour. However, as the data in this study were all collected at one point in time, it is not possible to include both intention to perform a behaviour and the behaviour itself in the model. Intentions reflect future behaviour, while report of actual behaviour reflect what happened in the past. Past behaviour is at best surrogate for future behavior and not always a good one (George, 2004).

Therefore, intention does not appear in the model, and instead there is a direct path from attitudes and subjective norms to purchase behaviour. Similarly, in a typical TPB model, the relationship between perceived behavioural control and behaviour would be both direct and mediated by intention, but the mediated relationship has been ommitted in this model, given the absence of intention. The direct relationship between perceived behavioural control and behaviour remains.

Apart from that, another underlying premise of the present study is that environmental knowledge and subjective norms are two sets of variables that are posited to help determine environmental attitudes. Environmental knowledge is also posited to have a direct relationship with purchasing behaviour. TPB provides a robust theoretical basis for testing such a premise, along with a framework for testing whether attitudes are indeed related to purchase behaviour. Based on the theory, environmental knowledge and subjective norms should also influence purchase behaviour.

Given that purchasing green products or otherwise is an ethical decision often faced by today's consumers (Hopfenback, 1993), studies concerning the application of TPB to other ethical issues are also worth referencing. For example, in the context of conserving natural resources, Lynne et al. (1995) state that TPB is adequate to explain farmers' behaviour in adopting water saving technology. Similar findings were reported by Taylor and Todd (1995) for the study of household garbage behaviour. In examining driver's intention to commit specific traffic violations using TPB, Parker *et al.* (1992) found that addition of perceived behavioural control led to significant increments in the explanatory power of the model. Chang (1998) demonstrated that TPB is superior to TRA in explaining "soft lifting behaviour" (illegal copying of software). In general, although far from conclusive, this empirical evidence lends further support to the applicability of TPB to the subject under investigation.
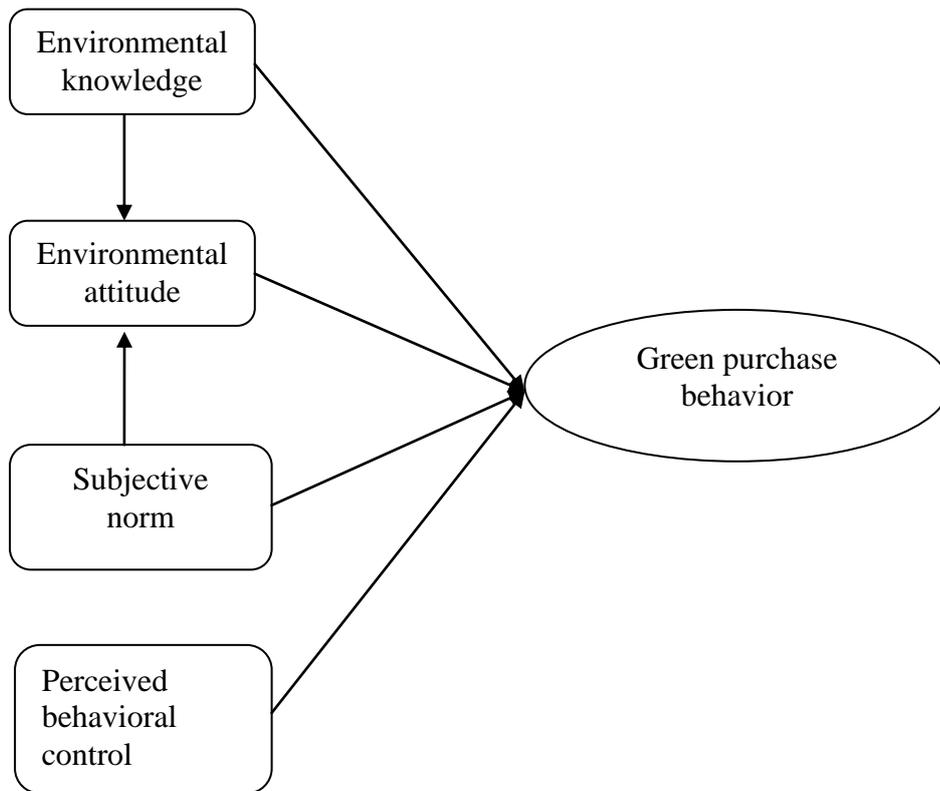
Figure 2: Research Framework

2.6 Research hypotheses

The hypotheses embodied in the model are listed below:

H1: Environmental attitude is positively related to green purchase behaviour.

H2: Subjective norm is positively related to green purchase behaviour.

H3: Behavioural control is positively related to green purchase behaviour.

H4: Environmental knowledge is positivey related to green purchase behaviour.

H5: The higher the environmental knowledge, the more positive will be the environmental attitude.

H6: The higher the influence of subjective norm, the more positive will be the environmental attitude.

CHAPTER 3
METHODOLOGY

3.1 Introduction

This chapter discusses the methodology of this study and elaborates on the study's research design, operationalization of variables, the population and sample of the study, as well as data collection procedure. Last but not least, this chapter also reports on the pilot test done for this study and ends with a discussion of the statistical techniques used to analyze the data.

3.2 Research Design

This study is correlational in nature where data was gathered once, to answer the study's research questions. The study was conducted with the intention to obtain a good grasp of the consumer purchasing behavior of green products. A survey method was employed because this study strongly believes that survey research is best adopted to obtain personal and social facts, beliefs, and attitudes (Kerlinger, 1973). The unit of analysis for this study was the individual consumer who went for shopping at various hypermarkets in Malaysia. This study treats each consumer's response as an individual data source.

3.3 Operationalization of Variables

The measure of consumer's purchasing behavior in the present study was generated from the respondent. The consumer's green purchase behavior was operationalized as the extent that consumers purchase environmentally products (organic, environmentally safe, non animal testing, no chemical ingredients, certified environmentally safe, fair community trades and recycled) as their shopping items (Mostafa, 2007). Environmentally friendly attitude is operationalized as cognitive judgment towards the value of environmental protection (Lee, 2008).

Subjective norm was operationalized as the one's perceived social pressure to perform a certain behavior (Khalil & Pearson 2008; George, 2004). Perceived behavioral control was operationalized as the degree of control that an individual perceives over performing the behavior (Chen, 2007; Kang *et al.,* 2006). Environmental knowledge was operationalized as to what extent people know about the environment, key relationships leading to environmental aspects or impact and responsibilities necessary for sustainable development (Mostafa 2006).

Table 3.1 below summarizes the variables, dimensions and total number of items used to measure the variables.

Table 3.1

Summaries of Variables, Dimensions and Total Number of Items

Variable	Dimensions	Total number of items
Green purchase behavior (Mostafa, 2007)	The extent of consumers purchase of environmentally friendly products (organic, environmentally safe, non animal testing, no chemical ingredients, certified environmentally safe, fair community trades and recycled) as their shopping items	7
Environmental attitude (Lee, 2009)	Cognitive judgment towards the value of environmental protection	7
Subjective norm (Khalil and Pearson (2008; Taylor & Todd, 1995)	One's perceived social pressure to perform a certain behavior	5
Perceived behavioral control (Chen, 2007: Kang *et al.,* 2006)	The degree of control that an individual perceives over performing the behavior	4
Environmental knowledge (Mostafa, 2006)	To what extent people know about the environment, key relationships leading to environmental aspects or impact and responsibilities necessary for sustainable development.	5

3.4 Measurement

With the exception of demographic factors, awareness level, category of green consumer, product items and consideration factor of buying green products, all other variables included in this study were measured using multiple items drawn from previous research. However, phrasings of the items were modified to suit the sample and local setting. To ensure consistency among variables and to avoid confusion among respondents, all the items were measured using one to five–point Likert scale (Ackfeldt & Coole, 2003; Ingram *et al.,* 1991).

For the purpose of this study, a scale adopted from Lee (2009) consisting of 7 items was used. Lee (2009) found the reliability of the measurement to be 0.87. Using five-point Likert scale, respondents were asked to indicate the extent to which they engaged in green products purchase activity. However, for the purpose of the present study, the wording of the scale was modified slightly to match the domain of local consumers. The items to measure green purchasing behavior construct are shown in Table 3.2 below.

Table 3.2

Green Purchasing Measure

Items
I often buy organic products.
I normally buy products that are labeled as environmentally safe.
I will put priority to buy products that are against animal testing.
I choose to buy products that contain no or fewer chemical ingredients.
When I consider buying a product, I will look for a certified environmentally-safe or organic stamp.
I often buy products that support fair community trades.
I often buy products that use recycled/recyclable packaging.

Source: Adapted from Lee (2009)

Environmental attitude was measured using the scale developed by Lee (2009). It requires respondents to assess the extent to which they perceive the value of environmental protection. It consists of seven items on a five-point Likert scale ranging from "1=strongly disagree" to "5=strongly agree". The internal reliability of 0.84 was reported by Lee (2009). The items to environmental attitude are shown in Table 3.3 below.

Table 3.3

Envonmental Attitude Measure

Items
It is essential to promote green living in Malaysia
Environmental protection works are simply a waste of money and resources.
I believe that more environmental protection works are needed in Malaysia.
Environmental issues are none of my business.
I think environmental protection is meaningless.
It is worth for Malaysian government to spend a large amount of money promoting environmental protection.
It is very important to raise environmental awareness among Malaysian people.

Source: Adapted from Lee (2009)

Subjective norm was measured using scale developed by Khalil and Pearson (2008) and Taylor and Todd (1995) with minor modification on the wording. The instrument is composed of five items focusing on the respondent beliefs about what important others think about the green purchase. Items for each scale was scored on a five-point scale, ranging from "1=strongly disagree" to "5=strongly agree". The internal reliability reported by George (2004) was 0.81. Table 3.4 below shows the items used to measure subjective norm.

Table 3.4

Subjective Norm Measure

Items
People who influence my behaviour think that I should use green products.
People who are important to me think that I should use buy green products.
People whose opinions I value think I should use green products.
People who are close to me think that I should buy green products.
People who influence my decisions think that I should buy green products.

Source: Adapted from Khalil and Pearson (2008); Taylor and Todd (1995)

Perceived behavioral control was measured using an adapted instrument developed by Shi and Fang (2004). It involved four items on a five point Likert scale ranging from "1=strongly disagree" to "5=strongly agree". Shi and Fang (2004) have used this measurement and proved that the reliability was 0.86. Table 3.5 below shows the items used to measure perceived behavioral control.

Table 3.5

Perceived Behavioral Control Measure

Items
I would be able to buy green products
I have the resources to buy green products.
Whether or not I will purchase eco-friendly products for personal use in the coming month is entirely up to me.
I have complete control over the number of eco-friendly products that I will buy for personal use in the coming month.

Source: Adapted from Shi & Fang (2004)

Environmental knowledge was measured using a five items scale from Ellen et al. (1997). This requires respondents to indicate their level of knowledge people know about the environment, key relationships leading to environmental aspects or impact and responsibilities

necessary for sustainable development. Internal consistency of 0.78 was reported by Mostafa (2006). In this study, respondents were asked to indicate their level of agreement using five point Likert scale ranging from "1=strongly disagree" to "5=strongly agree". Table 3.6 below shows the items used to measure environmental knowledge.

Table 3.6

Environmental knowledge Measure

Items
I know that I buy products and packages that are environmentally safe.
I know more about recycling than the average person.
I know how to select products and packages that reduce the amount of waste ending up in landfills.
I understand the environmental phrases and symbols on product package.
I am very knowledgeable about environmental issues.

Source: Adapted from Ellen et al. (1997)

The demographic information captured in this study was gender, age, marital status and monthly household income. Respondents were required to cross in the blank provided.

3.5 Study Population and Sample

The study population consisted of consumers in Peninsular Malaysia who shop at various hypermarkets in Malaysia. Consumers were chosen as the study sample due to the essential roles they have in advancing a nation's green revolution (McGoughall, 1993; Wasik 1992). This assertion is supported by the evidence that 30 to 40 percent of environmental degradation has been brought about by the consumption activities of private households (Chan & Lau, 2000). It has been further noted that if consumers exhibit a high degree of ecological

concern and channel it into some eco-friendly purchasing acts, it is likely that profit-driven companies will be strongly motivated to adopt the concept of green marketing in their daily operations. As a result, the dynamics of this buyer-seller interaction will lead to a further advancement of the green revolution across the whole country (Ottman, 1992).

To determine the sample size, we used the rule of thumb by Roscoe (1975) in Sekaran (2000) by multiplying the number of variables which we have by 10. The present study consisted of five variables. Therefore, following this rule, the minimum sample size required was 50. However, to ensure this minimal response number and taking into account that survey method has poor response rate (Nor Azila, 2005), we decided to distribute 700 questionnaires to selected consumers.

3.6 Data Collection Procedures

The sampling procedure used for the present study was mall intercept survey whereby respondents are intercepted in shopping in malls. This was a similar method used in other studies conducted in green purchasing (Pornpitakpan, 2001; Jin & Kang, 2011).

According to Karande and Ganesh (2000), mall intercept surveys are widely used and are able to reach a large segment of the population whenever the sampling frame is indefinite. According to a CASRO membership survey, about 25% of all marketing research and 64% of personal interviews are conducted at malls (http://www.busreslab.com/articles/article4.htm).

Karande and Ganesh (2000) stated that mall survey is preferable when studying shopping behavior because respondents find it easier to answer questions about their just concluded shopping trip. In addition, the inception method has been used by quite a number of researchers (e.g. Sawmong & Omar, 2004; Wong, 2004; Karande & Ganesh, 2000).

A majority of researchers using the random selection approach either intercept shoppers while in the mall or at the exit of the mall (Wong, 2004). Nevertheless, a few researchers state that they intercept every third shopper while other researchers (e.g. Wakefield & Baker, 1998) intercept every fifth shopper.

In the present study, the survey was conducted at various hypermarkets located at ten major cities in Peninsular Malaysia. It covers east region (Kota Bharu, Kuala Terengganu, and Kuantan); north region (George Town, Alor Star, and Ipoh); center (Kuala Lumpur, Melaka, and Seremban) and south (Johor Bharu). List of hypermarkets for all the cities were gathered from http://www. expat. com. It was decided to randomly choose only one hypermarket representing each city. Therefore, in the present study, ten major hypermarkets were involved. Each hypermarket had 70 questionnaires to be distributed.

To cover all the ten hypermarkets, data collection was conducted for three months starting from June 2011 till September 2011. For each hypermarket, the survey was carried out on one weekday and on one holiday (Saturday) for two weeks. In other words, for each hypermarket, two visits were conducted. A self-administered questionnaire was used to gather the data for this study. The questionnaire was distributed to systematically-sample shoppers in a shopping mall. These shoppers were selected randomly based on a

previously determined criterion that every fifth shoppers who passed the interviewer were to be solicited. However, only those who have indicated their willingness to participate in the survey were given the questionnaire.

Prior to the actual data collection, a few research assistants were trained in the mall intercept technique. An intercept questionnaire is constructed in order to standardize questions and accelerate data collection. After training, the research assistants were sent out with a clip-board, intercept questionnaire forms and a bag filled with small, easy to carry tokens such as pen and key chains. At every interception, the research assistants were instructed to note the date and location of the survey on the form.

Since different people might have different interpretations of what constitutes green product, it is necessary to ensure that the respondents under study would adopt a common frame of reference when answering. To this end, Peatties's (1995) classification schemes of green products were referred to. Based on his description, this study specifically defined green products as those goods whose claim to greenness lies in "the reduction of the actual or potential harm they cause to society or the environment" This definition should be able to cover, for instance, products that would exert less polluting effects on the environment. The definition was set out in the front page section of the questionnaire. Since "eco-friendly products", "environmentally friendly products" and "green products" were used in the questionnaire interchangeably to avoid monotony, respondents were also reminded as such use in the same section. It is hoped that these measures would help avoid confusion among respondents.

3.7 Pilot Study

Before deciding on the actual instrument to be utilized in this study, a pilot study was conducted using a convenience sample of 35 lecturers and students. The researcher sat with the respondents while they completed the questionnaire to identify difficulties in wording, to answer respondents' questions and generally to check on the ease of completion. The reliability test for each instrument was calculated using the pilot study data.

One of the criteria for selection of past instruments was internal consistency of the scales using Cronbach's Alpha reliability coefficients. The results of measures for the pilot study are shown in Table 3.7. Reliability estimates ranging from .60 to .81 are generally considered sufficient for research purposes (Nunally, 1978), so the scales can be regarded as relatively reliable. The pilot test also identified several problems such as the questionnaire's content, understanding of items and time taken. Some vague sentences were noted and corrected.

Each respondent took approximately 15 minutes to complete the entire questionnaire. As expected, there were some confusion on the sentences in the questionnaire, and thus, some amendments were made to the final version. The final version of the questionnaire was 8 pages long including front cover and cover letter (refer to Appendix A).

Table 3.7

Reliability Coefficient for Multiple Items in Pilot Study (n=35)

Variable	alpha (α)
Green purchase behavior	0.60
Environmental attitude	0.81
Subjective norm	0.70
Behavioral control	0.80
Environmental knowledge	0.80

3.8 Data Analysis

For the purpose of data analyses and hypotheses testing, several statistical tools and methods were employed from SPSS software, version 16. These include factor and reliability analyses to test the goodness of measures, descriptive statistics to describe the characteristic of respondents, test of differences to compare the level of awareness towards green products between different demographic profiles, correlational analysis to describe the relationship between variables and path analysis to test the impact of knowledge and subjective norms on attitude towards green products as well as the influence of knowledge, attitude, subjective norm and perceived behavioral control on green purchase behavior.

3.8.1 Factor and Reliability Analyses

One important step in data analysis is to understand the dimension of the variables in the proposed model or relationships in empirical research (Hair *et al.,* 1998). In other words, factor analysis is conducted to identify the structure of interrelationship (correlation) among a large number of items. This is done by defining common underlying dimensions, known as factors (Hair *et al.,* 1998). In the present study, the cut-off point chosen for significant factor loading was .30, which is suggested by Hair *et al.* (1998) for a sample of more than 350.

In assessing the appropriateness of factor analysis, Hair et al. (1998) suggested that as a general rule, the minimum is to have at least five times as many observations as there are variables to be analyzed. The more acceptable size would have a ten-to-one ratio. The present study has five variables, and therefore, the minimum sample size needed is 25 (5 X 5 variables) or preferably 50 observations (5 X 10 variables).

Another test to determine the appropriateness of factor analysis is the Barlett test of sphericity which examines the presence of sufficient number of significant correlations among the variables. It provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables (Hair *et al.,* 1998).

The measure of sampling adequacy (MSA) was also examined in order to quantify the degree of correlations among the variables and the appropriateness of factor analysis. Hair et al. (1998) indicated that the measure can be interpreted with the following guidelines: .80 or above, meritorious; .70 or above, middling; .60 or above, mediocre; .50 or above, miserable; and below .50, unacceptable. In the present study, the MSA values for each variable were first examined and those values falling to the unacceptable range were excluded. Once the individual variables achieved an acceptable level, then the overall MSA was evaluated before decision on continuance of the factor analysis was made.

To test the internal consistency of the measurement, reliability analysis was conducted on the factors extracted using the recommendation from Nunally (1978). In general, the closer the reliability coefficient gets to 1.0, the better it would be. Sekaran (2000) noted that reliability less than .60 is considered to be poor, those in the .70 range are acceptable, and those over .80 are good.

3.8.2 Descriptive Statistics

To acquire a feel for the data, descriptive statistics (mean values and standard deviations) for all the variables of interest were obtained. The purpose of descriptive analysis was to present raw data transformed into a form that will make them easy to understand and interpret.

3.8.3 Test of Differences

T-test was used to see if there is a statistically significant difference in the mean scores for two groups of variables (that is gender) in terms of their level of awareness of green products. The assumption of homogeneity of variance was first examined through Levene's test for equality of variance. In the case where the assumption of equal variances were violated, the t-value reported for equal variances not assumed was used.

One way analysis of variance (ANOVA) was used to examine whether there exists any difference in the level of awareness of the respondents performed by demographic variables with more than two categories (that is age, marital status, and total household income). As ANOVA test assumed equal variances, the Levene's test for homogeneity of variance was first examined in order to ensure that the assumption of homogeneity of variance has not been violated.

3.8.4 Correlation Analysis

Pearson correlation was used to describe the strength and direction of the relationship between two variables. In this study, the relationship between exogenous variables (knowledge, atitude, subjective norms and perceived behavioral control) and endegenous variable i.e. green purchase behaviour were examined using this analysis. A positive correlation indicates that as one variable increases, so does the other. A

negative correlation indicates that as one variable increases, the other decreases. A perfect correlation of 1, or –1 indicates that the value of one variable can be determined exactly by knowing the value of the other variable. On the other hand, a correlation of 0 indicates no relationship between the two variables.

3.8.5 Path Analysis

In order to test the hypotheses developed in the present study, path analysis was conducted. Path analysis is a straightforward extension of multiple regressions. Its aim is to provide estimates of the magnitude and significance of hypothesized causal connections between sets of variables. Using path analysis, the amount of variance of green purchase behavior explained by knowledge, attitude, subjective norm and perceive behavioral as well as the variance of attitude explained by knowledge and subjective norms were examined.

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter presents the result of data analysis. Firstly, this chapter describes overview of data collection. Secondly, it presents profile of the respondents followed by the analysis on goodness of measures to test the validity and reliability of the variables. Finally, the results of hypotheses testing are presented.

4.2 Overview of Data Collected

For data collection purposes, 700 questionnaires were distributed to consumers in ten hypermarkets in peninsular Malaysia. Out of this number, 84 were excluded because they were incomplete. Thus, a total of 616 responses were usable and used for subsequent analysis, giving a response rate of 88 percent. It was with tremendous effort, hard work and extra financial cost that this response rate was obtained. The sample size appears to be adequate and response rate obtained was comparable to several studies using consumers as the study sample. Respective response rates for such study was 44 percent by Barber, Taylor and Strick (2010).

4.3 Profile of the Respondents

Table 4.1 presents the profile of the respondents. 55.5% of the respondents are males and 44.5% are females. With regards to age of the respondents, majority of the respondents (48.7%) are at the ages of 26-30 and 31-35. Respondents below 20 years old constitute 14.6% followed by respondents of ages 21-25 (15.9%) and finally, respondents of ages 36-40 years (19.8%).

Regarding the marital status of the respondents, almost half of the respondents (47.6%) are married. Those who are single constitutes 46.3% and a minimal 6.2% are divorced.

In general, the monthly household income of the respondents are diverse. 18.3% of the respondents earn household income below RM 2000. Around 53.1% respondents have household income between RM 2001- RM 6000. Those with household income between RM 6001-RM 8000 constitute 20.1% followed by 8.4% with household income RM 8001 and above.

Table 4.1

Profile of the Respondents (N=616)

Variable	Categories	N	(%)
Gender	Male	342	55.5
	Female	274	44.5
Age	Below 20	90	14.6
	21-25	98	15.9
	26-30	136	21.1
	31-35	170	27.6
	36-40	122	19.8
Marital status	Single	285	46.3
	Married	293	47.6
	Divorced	38	6.2
Monthly household income	Below RM 2000	113	18.3
	RM 2001-RM 4000	140	22.7
	RM 4001- RM 6000	187	30.4
	RM 6001 - RM 8000	124	20.1
	RM 8001 and above	52	8.4

From the 616 respondents, it was found that 563 respondents (91.4%) were aware of the existence of green products in the market and 53 respondents (8.6%) were not. It should be noted that those who were not aware were excluded for further analysis.

Regarding the elements that comes to the respondents' minds when they think about green products, from the list of elements of green products provided, it was found that 81% said that green producs are products that are made of recyclable or resusable packaging, 55.6% agreed that green producs are products made from natural substances and 44.4% think that green products are energy efficient.

53.5% of the respondents who were aware of green products agreed that green products are made from organic ingredients. 57.5% noted that green products are non toxic in nature while 58.3% said that they are ozone friendly. For the element that green products are products that are not tested on animals, 43.7% respondents agree with this statement, 64.1% believe that green products are chemical free and 58.6% said that green products use biodegradable packaging. Similarly, 41.9% of respondents think that green products are products with green certificate, 44% said green products use minimal packaging material and last but not least 57% said green products are water and natural resource saving. Table 4.2 below summarizes the percentage of elements that respondents think about green products.

Table 4.2

Elements of Green Products

Elements	Percentage (%)
Made of recyclable or reusable packaging	81
Natural substance	55.6
Energy efficient	44.4
Made from organic ingredients	53.5
Non toxic in nature	57.5
Ozone friendly	58.3
Not tested on animal	43.7
Chemical free	64.1
Biodegradable packaging	58.6
Has received green certificate	41.9
Use minimal packaging material	44
Water & natural resource saving	57

In order to determine the category of green product buyers, the catagorization of green purchasers used by Grail Research (2009) (info@grailresearch.com) is adopted. From the five categories provided in the questionnaire, respondents were asked to identify in which category they belong to. Those who consider themselves in category 1 and 2 are categorized as non green product buyers. On the other hand, those who belong to category 3, 4 and 5 are categorized as green product buyers. The first category refers to the situation where respondent understand what green products are but have never considered buying them. Second category refers to the situation where respondents considered buying green products but have never actually bought them and the third category is when the respondents used to buy green products earlier but have not bought them recently. Category four and five are related to the situation where respondents currently buy some green products and currently buy most green products respectively.

Based on the descriptive analysis undertaken, as shown in Table 4.3 below, 26.5% respondents identified themselves to belong to category 1 and 40.5% to category 2. This means that 67% of the respondents are considered as non green product buyers. Apart from that, 20.6% respondents categorized themselves in category 3, 11.4% in category 4 and 1.1% in category 5. From these percentages, it can be concluded that, from the total of 563 respondents, 186 (33%) can be categorized as green product buyers and 377 (67%) are non buyers.

Table 4.3

Category of Respondents

Level of green purchase	Percentage
Category 1: I understand what green products are but have never considered buying them.	26.5
Category 2: I have considered buying green products but have never actually bought them.	40.5
Category 3: I used to buy green products earlier but have not bought them recently.	20.6
Category 4: Some of the products I currently buy are green products.	11.4
Category 5: Most of the products I currently buy are green.	1.1

Since it is also interesting to explore the underlying reasons why 67% of respondents who are categorized as non buyers do not consider buying green products, they were asked to indicate their reasons. The frequency analysis undertaken reveals that 61.3% feel that green products are too expensive, 21.2% said that green products do not offer many choices or variants and 11.7% reasoned that green products are not easily available.

A minimum percentage of 3.2% and 2.7% said that green products are not as of good quality as normal products and they are not value for money as normal products. Table 4.4 summarizes the reasons for non purchase.

Table 4.4

Reasons for not Consider of Buying Green Products

Reason	Percentage (%)
Green products are too expensive	61.3
Green products do not offer many choices or variants.	21.2
Green products are not easily available	11.7
Green products are not as of good quality as normal products	3.2
Green products are not value for money as normal products	2.7

4.4 Goodness of Measures

4.4.1 Construct Validity

As mentioned in Chapter 3, most of the items used to measure the variables have been borrowed from the literature. Even though the borrowed measurements have been confirmed of its discriminant and convergent validity, it is felt necessary to re-examine the validity of these measures. This is because the present study is being undertaken in the Malaysian context which may be different from that of American context or any other country's. The existing literatures on green products purchase behaviour have been done in other countries, particularly in the United States and European countries where the environment and culture are entirely different from Malaysia.

In order to ascertain whether the measurements used in this study have construct validity, that is, they measure what they are supposed to measure, exploratory factor analysis was conducted on all items measuring the constructs of green purchase behaviour, environmental knowledge, environmental attitude, subjective norms and perceived behavioral control.

4.4.2   Results of Exploratory Factor Analysis

The factor analyses were conducted based on principal component method with Varimax rotation for all components. The results for each factor analysis conducted are summarized in Tables 4.5 - 4.9.

Fistly, the factor analysis was conducted on green purchase behaviour consisting of items in Section 3 of the questionnaire. The factor analysis conducted on green purchase behaviour shows the Kaiser-Meyer-Olkin value of .84, exceeding the recommended value of .50 (Hair *et al.*, 1998) and the Barlett's test of sphericity was highly significant (p= .00), supporting the factorability of the correlation matrix. Furthermore, an examination of the measure of sampling adequacy for each item fall in the acceptable range, that is between .32 - .95. These indicate that the assumptions of factor analysis were met. Principal components analysis revealed the presence of only one component with an eigen value exceeding one. This factor captured 70.18 percent of the total variance in the items. As shown in Table 4.5, the factor loadings are between .51 and .97. Reliability (Cronbach's Alpha) for this factor is .91, which indicates high reliability.

Table 4.5

Factor Analysis for Green Purchase Behaviour

Items	Factors Loadings
I often buy organic products	.97
I normally buy products that are labeled as environmentally safe.	.75
I will put priority to buy products that are against animal testing.	.97
I choose to buy products that contain no or fewer chemical ingredients.	.97
When I consider buying a product, I will look for a certified environmentally-safe or organic stamp.	.97
I often buy products that support fair community trades.	.51
I often buy products that use recycled/recyclable packaging.	.56

As shown in Table 4.6, factor analysis for environmental attitude shows the existence of one factor with eigen value of 69.5%. The varimax rotation revealed that all the 7 items have factor loadings between .57- .94. Reliability (Cronbach's Alpha) for this factor is .92, indicating high reliability.

Table 4.6

Factor Analysis for Environmental Attitude

Items	Factors Loadings
It is essential to promote green living in Malaysia	.94
Environmental protection works are simply a waste of money and resources.	.94
I believe that more environmental protection works are needed in Malaysia.	.57
Environmental issues are none of my business.	.94
I think environmental protection is meaningless.	.93
It is worth for Malaysian government to spend a large amount of money promoting environmental protection.	.64
It is very important to raise environmental awareness among Malaysian people.	.86

The third factor analysis was carried out on the environmental knowledge which consists of 5 items. As shown in Table 4.7 below, principal components analysis revealed the presence of only one component with an eigen value exceeding one. This factor captured 63.4 percent of the total variance in the items. As shown in Table 4.7, the factor loadings are between .67 and .93. Reliability (Cronbach's Alpha) for this factor is .85, which indicates high reliability.

Table 4.7

Factor Analysis for Environmental Knowledge

Items	Factors Loadings
I know that I buy products and packages that are environmentally safe.	.67
I know more about recycling than the average person.	.93
I know how to select products and packages that reduce the amount of waste ending up in landfills.	.84
I understand the environmental phrases and symbols on product package.	.82
I am very knowledgeable about environmental issues.	.69

As shown in Table 4.8, factor analysis for subjective norms shows the existence of one factor with eigen value of 69.9%. The factor analysis conducted on subjective norms shows the Kaiser-Meyer-Olkin value of .83, exceeding the recommended value of .50 (Hair *et al.,* 1998) and the Barlett's test of sphericity was highly significant (p= .00), supporting the factorability of the correlation matrix. Furthermore, an examination of the measure of sampling adequacy for each item fall in the acceptable range between .76 - .91. The varimax rotation revealed that all the 5 items have factor loadings between .49 - .97. Reliability (Cronbach's Alpha) for this factor is .72, which indicates high reliability.

Table 4.8

Factor Analysis for Subjective Norms

Items	Factors Loadings
People who influence my behaviour think that I should use green products.	.93
People who are important to me think that I should buy green products.	.84
People whose opinions I value think I should use green products.	.68
People who are close to me think that I should buy green products.	.92
People who influence my decisions think that I should buy green products.	.82

The last factor analysis was carried out on the perceived behavioural control which consists of 4 items. As shown in Table 4.9 below, principal components analysis revealed the presence of only one component with an eigen value exceeding one. This factor captured 57.1 percent of the total variance in the items. As shown in Table 4.9, the factor loadings are between .46 and .91. Reliability (Cronbach's Alpha) for this factor is .72, which indicates high reliability.

In general, it can be concluded that the factor analysis results show the parsimonious set of items that can be used to measure the dimensions of interest in this study.

Table 4.9

Factor Analysis for Perceived Behavioural Control

Items	Factors Loadings
I would be able to buy green products.	.46
I have the resources to buy green products.	.76
Whether or not I will purchase eco-friendly products for personal use in the coming month is entirely up to me.	.81
I have complete control over the number of eco-friendly products that I will buy for personal use in the coming month.	.91

4.4.3 Reliability Test

Table 4.10 below summarizes the reliability test of the measures. As shown, the Cronbach Alphas of the measures were all comfortably above the lower limit of acceptability that is α > .50. Hence, all the measures were highly reliable.

Table 4.10

Reliability Coefficients for the Variables in the Study

Variables	Number of items	Reliability
Green purchase behavior	7	.91
Environmental knowledge	5	.85
Environmental attitude	7	.92
Subjective norms	4	.72
Perceived behavioral control	4	.72

4.5 Descriptive Analyses

4.5.1 Major Variables

Descriptive statistics for the final list of variables of the study are shown in Table 4.11. With the demographic profiles, the scale measurements used is a five-point Likert scale. For ease of interpretation, the range of five point

Likert-scales were categorized into equal sized categories of low, moderate and high. Therefore, scores of less than 2.33 [4/3 + lowest value (1)] are considered low; scores of 3.67 [highest value (5)– 4/3] are considered high and those in between are considered moderate.

From Table 4.11, the mean values for subjective norms and perceived behavioural control fall in the range of 3.83 and 3.93. Clearly, the respondents exhibit high level of beliefs about what important others think about their green purchase behaviour and the degree of control that they perceive over performing the green behaviour. For variable environmental knowledge and environmental attitude, the mean scores are at the moderate level. These indicate that respondents have moderate level of knowledge and attitude towards the environment. With the mean value of 2.29, respondents generally have low levels of green products purchasing.

Table 4.11

Descriptive Statistics for Dimensions of Variables

Dimension (Variables)	M	SD
Green purchase behavior	2.29	.46
Environmental knowledge	2.77	.61
Environmental attitude	2.78	1.1
Subjective norms	3.84	.62
Perceived behavioral control	3.93	.55

4.5.2 Level of Green Purchase Behaviour among the Respondents

In order to answer the first research question that is, "what is the level of purchasing behaviour of green products among Malaysian consumers?"Table 4.11 shows the mean and standard deviation of the green purchase behaviour among respondents.

Based on the categorization that scores of, those that are less than 2.33 [4/3 + lowest value (1)] are considered low; scores of 3.67 [highest value (5)– 4/3] are considered high and those in between are considered moderate, it is important to highlight that the respondents as a group were low in their purchase behaviour.

This is shown by the mean score of 2.29 on a five point scale. In addition, with standard deviation of .46, it indicates that statistically, the variation of purchase behaviour among respondents are low.

4.5.3 Profile of Malaysian Green Product Buyers

Research question two is related to the profile of the respondents. As was stated earlier, out of 563 respondents who are aware about green products, only 186 (32%) can be categorized as green buyers. They are groups of respondents who used to buy green products earlier but have not bought them recently or those who currently buy some green products or currently buy mostly green products. Therefore, to answer the second research question that is "what is the profile of Malaysian green product buyer?", the descriptive analysis and inferential statistics undertaken were based on this 186 respondents.

Based on the descriptive analysis in Table 4.12 below , it was discovered that from the 186 respondents categorized as green buyers, 31.7% are male and 68.3% are female. It seems that females tend to buy more green products compared to their male counterparts. With regards to the marital status of the respondents, it was discovered that majority of them (81.2%) are married, followed by 18.3% who are single and a minimum percentage (0.5%) who are divorcees. In this study, majority (60.7%) of the green product buyers are between the ages of 26 and 35, followed by 29.6% of ages 36-40 years old. A

minimum percentage of 7.5% and 2.2% of respondents are of ages below 20 and between 21-25 years old respectively. Based on the household income of the respondents, it was discovered that majority of green buyers tend to be among those with household monthly income between RM 4001-RM 6000. This is evidenced by almost half of the respondents (49.5%). This category is followed by those with household income between RM 2001-RM 4000 (25.3%) and between RM 6001- RM 8000 (18.8%). Only 3.8% of green buyers have household income below RM 2000 and 2.7% of them have household income above RM8000.

Table 4.12

Profile of Green Product Buyers

Variable	Categories	N	(%)
Gender	Male	59	31.7
	Female	127	68.3
Age	Below 20	14	7.5
	21-25	4	2.2
	26-30	57	30.6
	31-35	56	30.1
	36-40	55	29.6
Marital status	Single	34	18.3
	Married	151	81.2
	Divorced	1	.5
Monthly household income	Below RM 2000	7	3.8
	RM 2001-RM 4000	47	25.3
	RM 4001- RM 6000	92	49.5
	RM 6001 - RM 8000	35	18.8
	RM 8001 and above	5	2.7

The 186 respondents (33%) who are green product buyers, were also asked to indicate the type of green products that they have bought for the last six months. For this purpose, there were 15 categories of green products listed in the questionnaire and respondents were required to indicate whether they have bought the product or not. The product categories are hair care, deodorant, tooth paste, cleanser, lotion,, soap, body shampoo, cosmetics, perfume, laundry detergent, diswashing liquid, house cleaners, fruits, vegetables and vitamins & supplements. It was found that 69.9% of the respondents bought green type hair care, 40.9% bought green type deodorant, 53.2% bought green type tooth paste and 36.6% bought green type of cleanser. For green type of lotion, 62.9% respondents indicated that they have bought this product, 44.1% have bought green type of soap, 74.7% claimed that they bought green body lotion and 41.9% responded that they have bought green type of cosmetics. For green type fragrance, 37.6% repondents claimed that they have bought this product. 33.3% responded that they bought green type detergent, 36.6% bought green type dishwashing soap and 37.2% bought green type house cleaners. Last but not least, 67.7% respondents indicated that they have bought green type of fruits, 88.2% bought green type vegetables and finally 64.5% bought green type vitamins and supplements. Table 4.13 summarizes the category of products bought by the green buyers.

Table 4.13

Category of Products Bought by Green Buyers

Category of Product	Percentage (%)
Hair care/Shampoo	69.9
Deodorant	40.9
Tooth paste	53.2
Cleanser	36.6
Lotion	62.9
Soap	44.1
Body Shampoo	74.7
Cosmetics (lipstick, powder, lip balm, eye make-up)	41.9
Fragrance/perfume	37.6
Laundry detergent	33.3
Dishwashing liquid	36.6
House cleaners (bathroom/kitchen cleaner)	37.1
Fruits	67.7
Vegetables	88.2
Vitamins & supplements	64.5

Similar to the question that was asked to non buyers regarding their reason for not buying green products, green product buyers were also asked to indicate their reasons for buying green products. In this section, respondents were asked to select their reasons for buying green products from a provided list of reasons. As shown in Table 4.14 below, 63.4% respondents indicated their reason as because green products are safer than conventional products. 16.1% of the respondents reasoned that green products are healthier than conventional products while 8.6% believed that green products are of a higher quality than conventional products. 7% of the respondents indicated their reason as because green products are readily available in the stores and a minimum percentage of 4.8% reasoned that green products are offered at a lower price than conventional products.

Table 4.14

Reason of Buying Green Products

Reason	Percentage (%)
Green products are safer than conventional products.	63.4
Green products are healthier than conventional products.	16.1
Green products are of higher quality than conventional products.	8.6
Green products are offered at a lower price than conventional products.	4.8
Green products are readily available in the stores as conventional products.	7.0

With regard to the sources of information used to search for green products, examination of the responses given shows clearly those sources which were rated as most likely to be used by green product buyers. Table 4.15 presents the sources of information used by the respondents. The higher the percentage, the more likely the respondent used the source.

Overall, the respondents were more likey to use word of mouth, tv/radio, printed advertisement, website and social network. It was discovered that word of mouth was rated as most likely used of all sources of information by the respondents with 78.5%, folowed by 76.9% via tv/radio. 53.2% of the respondents use print advertisement (newspaper and magazine) while 36% refer to the general website providing information on green products. Information from the company's website were used by 22% of the respondents, 43.5% referred to documentaries on television and finally 47.8% obtained information regarding green products from social network (face book, blogs, online forum). Table 4.15 below summarizes the sources of green products used by the green buyers.

Table 4.15

Sources of Information about Green Products

Source	Percentage (%)
Word of mouth (friends, family, colleagues)	78.5
Television/radio advertisement	76.9
Print advertisement (newspaper, magazine)	53.2
Website providing information on green product	36
Company's website	22
Documentaries on television	43.5
Facebook/green blogs/online forum	47.8

Although it is not stated as the objective of the present study, it is also interesting to explore if the green product purchasing behaviour differs across profiles of the respondents. This is investigated in the following section to further understand the green product purchase behaviour among Malaysian consumers.

Independent t-test is used to evaluate the differences in the level of green purchase behaviour in terms of gender. A summary test of the differences is tabulated in Table 4.16. There was a statistically significant difference in the mean scores of green purchase behaviour between males and females. Females tend to have higher green purchase behaviour than males.

Table 4.16

Green Purchase Behaviour by Gender (N=186)

Independent Variable	M	SD	F- value	p-value
Male	3.78	.50	1.72	.03
Female	3.99	.44		

Note: *p< .05

The differences in the level of customer-orientation behaviour among green product buyers were explored in terms of marital status, age and monthly household income. *Analysis of variance (ANOVA)* is used to test the differences between these variables. Table 4.17 summarizes the results of the test. It was found that level of green purchase behaviour of the green product buyers did not vary by age (F=1.48; p= .21) and monthly household income (F=1.26; p= .29), but varied across marital status (F=1.86; p=.04). Married people tend to have higher green purchase behaviour than single.

Table 4.17

Green Purchase Behaviour by Marital Status, Age and Monhly Household Income

Independent Variable	F-value (p value)
Marital status	1.86 (.04)
Age	1.48 (.21)
Monthly household income	1.26 (.29)

4.6 Correlation Analysis

Table 4.18 provides a summary of the results from correlational analysis. The computation of the Pearson correlation coefficients was performed to obtain an understanding of the relationship between all the variables in the study. The values of the correlation coefficients (r) given in Table 4.18 indicate the strength of the relationship between variables. As shown in Table 4.11, overall correlation values of the variables showed correlations coefficients with values below .5. These generally indicate weak associations between variables.

The correlations within exogenous variables i.e. environmental attitude, environmental knowledge, subjective norms and perceived behavioural control are examined. As shown in Table 4.18, correlations amongst the

variable show that perceived behavioural control and environmental attitude; environmental knowledge and perceived behavioral control and environmental knowledge and subjective norms are significantly correlated. However, the association are very weak (r≤= .5). With regards to the correlations between the endegenous variable (green purchase behaviour) and exogenous variables (environmental attitude, environmental knowledge, subjective norms and perceived behavioural control), the correlation is generally positive but weak. Only environmental knowledge (r= . 28) and perceived behavioural control are positively correlated with green purchase behaviour.

Table 4.18

Pearson Correlations of Study Variables

	Environmental attitude	Environmental knowledge	Perceived behavior control	Subjective norms	Green purchase behavior
Environmental attitude	1.0				
Environmental knowledge	.14	1.0			
Perceived behavioral control	.36**	.25**	1.0		
Subjective norms	.06	.31**	.04	1.0	
Green purchase behavior	.12	.28**	.20**	.04	1.0

4.7 Hypotheses Testing

As discussed in Chapter 2, the present research hypotheses are as follows:

H1: Environmental attitude is positively related to green purchase behaviour.

H2: Subjective norm is positively related to green purchase behaviour.

H3: Behavioural control is positively related to green purchase behaviour.

H4: Environmental knowledge is positivey related to green purchase behaviour.

H5: The higher the environmental knowledge, the more positive will be the environmental attitude.

H6: The higher the influence of subjective norm, the more positive will be the environmental attitude.

Referring to the hypotheses above, it should be noted that hypotheses H1, H2, H3 and H4 are developed in order to answer the third research question that is "do knowledge, environmental attitude, subjective norms and perceived behavioral control influence purchase behavior of green products?". On the other hand, hypothesis H5 is developed with the purpose to answer the fourth research question that is "to what extent does knowledge about the environment influences consumers' attitudes towards green products?" and hypothesis 6 is to answer the last research question, i.e. "to what extent does subjective norms influence consumers' attitude towards green products?". In order to answer the third, fourth and fifth research questions, path analysis was conducted.

To be able to answer the third research question, "do knowledge, environmental attitude, subjective norms and perceived behavioral control influence purchase behavior of green products?", green purchase behavior is treated as endogenous variable and environmental knowledge, environmental attitude, subjective norms and perceived behavioral control as exogenous variables. As shown in Figure 3 below, based on the path analysis

undertaken, it was found that all the four exogenous variables, have positive relationships with green purchase behavior. There are environmental knowledge (β=.30; p=0.000); environmental attitude (β=.23; p=0.000); perceived behavioral control (β=.21; p=0.002) and subjective norms (β=.11; p=0.001). Therefore, all the hypotheses are supported. Based on the standardized regression estimate (β value), the highest value is environmental knowledge (β=.30) followed by environmental attitude (β=.23), perceived behavioral control (β=.21) and subjective norm (β=.11). Based on these values, it can be concluded that the exogenous variable that has the greatest influence on green purchase behavior is environmental knowledge, followed by environmental attitude, perceived behavioral control and finally subjective norms. To determine the contribution of exogenous variables (environmental knowledge, environmental attitude, subjective norms and perceived behavioral control) on the endogenous variable (green purchase behavior), results from path analysis show the reported squared multiple correlations (R^2) of 0.38. This means that the constructs (environmental knowledge, environmental attitude, subjective norms and perceived behavioral control) account for 38% of the variation in green purchase behavior.

For the fourth and fifth research question, which are related to the influence of environmental knowledge and subjective norms on environmental attitude, the path analysis in Figure 3 below revealed that both environmental knowledge (β=.14; p=0.002) and subjective norms (β=.02; p=0.001) are positively related to environmental attitude. Based on the standardized regression estimate (β value), it is evidenced that environmental knowledge has greater influence on environmental attitude compared to subjective norms.

The positive relationships found between environmental knowledge and subjective norm on environmental attitude lead to the support for hypotheses 5 and 6. According to the path analysis undertaken, squared multiple correlation (R^2) is reported as 0.193, meaning that environmental knowledge and subjective norms contribute to 19% of the variations in environmental attitude.

In order to test the model fit, it was found that the model returned good fit, as the following fit indices show; the value for Chi Square=22.931; df=8; p=0.000; TLI= 0.911; CFI= 0.900; and RMSEA=0.045.

Figure 3

Path Analysis Result
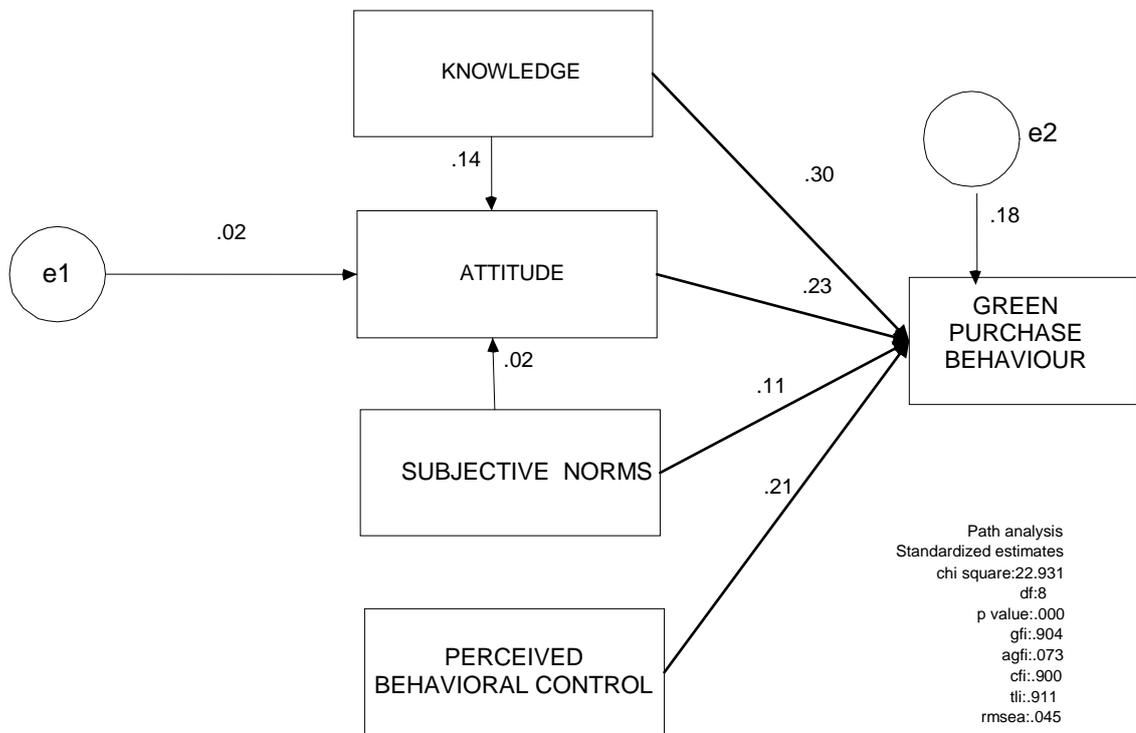
CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter recapitulates the findings of the study and discusses their theoretical and managerial implications. This is followed by a list of the study's limitations and finalises with suggestions for future research.

5.2 Recapitulation of the Study Findings

Based on the Theory of Planned Behaviour model of behaviour, this study investigates the factors influencing green purchase behaviour. Specifically, the first objective of this study is to examine the level of green purchase behaviour among Malaysian consumers. The second objective is to describe the profile of Malaysian buyers of green products. The third objective is to identify the influence of environmental knowledge, environmental attitude, subjective norms and behavioral control on purchase behaviour of green products. The fourth and fifth objectives are to examine the extent of environmental knowledge and subjective norms' influence upon the development of attitude towards the environment.

Revisiting the study's objectives, this study was undertaken to seek answers to several research questions (i) What is the level of purchase behaviour of green products among Malaysian consumers?, (ii) What is the profile of Malaysian green products' buyers?, (iii) Do knowledge, attitudes, subjective norm and behavioral control influence urchase behaviour of green products?, (iv) To what extent does knowledge about the environment influences consumers' attitude towards green products? and (v) To what extent does subjective norm influences consumers' attitude towards green products?

As noted in Chapter 3, data were gathered from Malaysian shoppers. Seven hundred questionnaires were distributed. Out of this number, 84 were excluded because they were incomplete. Thus, a total of 616 responses were usable, giving a response rate of 88 percent.

Exploratory principal component factor analyses were utilized to test the factorial validity of the measures in this study. The analyses undertaken produced various dimensions of the independent variables factors and green purchase behavior. The internal consistency of the measures was then tested by computing the reliability coefficient. Finally, the data were analyzed using path analysis to test the hypotheses of the study. The 0.05 level of significance was used as the critical level for decision making regarding the hypotheses.

Responding to the first research question, this study found that the level of green purchase behavior among Malaysian consumers is low and the variation of purchase behavior also tends to be low. It was further discovered that respondents with different age and household income exhibit similar level of green purchase behavior. However, significant differences exist across different gender and marital status.

To answer the second research question regarding the profile of green buyers, the findings show that females tend to buy more green products compared to their male counterparts and majority of green buyers are married. With regards to age, the findings show that green buyers tend to be among respondents at the age of 26 to 35 years old. Based on monthly household income of the respondents, green buyers are majority among those with monthly household income between RM 4001-RM 6000. Among the categories of products that are normally being bought by green buyers are, vegetables, hair care and body shampoo, lotion, fruits and supplements. The highest

percentage of respondents indicates that they buy green products because green products are safer than conventional products. Apart from the reason of buying green products, it was also discovered that the main source that green buyers used to get information from regarding green products is word of mouth.

To answer the third research question, the findings indicated that all the factors hypothesized to be related to green purchase behavior were supported. It is evidenced that environmental knowledge, environmental attitude, subjective norms and perceived behavioral control were found to influence green purchase behavior. The explanatory power of these factors to predict green purchase behavior is at moderate level.

With regards to the fourth and fifth research questions, path analysis undertaken revealed that both subjective norms and environmental knowledge influence the attitude towards the environment. Despite the positive relationships between these two factors and environmental attitude, their explanatory power on environmental attitude is not so strong.

5.3 Discussion

As the amount of green products continue to increase in the marketplace worldwide, understanding the determinants of consumers who willingly purchase green products become more important to both academics and practitioners. The following section discusses in further detail regarding the profile of green buyers, the impact of environmental knowledge, environmental attitude, subjective norms and perceived behavioral control on green purchase behavior and last but not least, the influence of environmental knowledge and subjective norms on the development of environmental attitude.

This study demonstrated that level of green purchase behavior among Malaysian consumers is not encouraging. Consistent with definition of green purchase behavior, it can be interpreted that, consumers tend to have low level of purchase of environmentally friendly products (organic, environmentally safe, non animal testing, no chemical ingredients, certified environmentally safe, fair community trades and recycled) as their shopping items. This result is similar to Tarkianen and Sundqvist (2005) who found low level of green purchase of organic products in Finland. Despite of the relatively low purchasing frequencies, the majority of respondents had positive environmental attitudes and knowledge towards the environment.

The findings regarding demographic variables have been somewhat equivocal. Some of the researchers found non-significant relationships between the different demographic variables and green behavior while others have found the relationship to be significant.

For example, Laroche et al. (2001) stated that the variable gender is significant in differentiating the consumers who are willing to pay more for green products while other studies indicate the opposite (Shrum *et al.,* 1995). But, in general, women tend to be more environmentally conscious (Banarjee & McKeage, 1994). In this study, green purchase behavior tends to be different across genders. Females tend to be greener than males. One plausible reason to explain this finding is due to the fact that female is more sensitive to environmental issues and more willing to participate and change their current lifestyles into something that can help the environment better. This is consistent with findings by Bayne *et al.* (2010), do Paco and Roposo (2009) and Lee (2008). This may be due to the nature of woman that makes her to be more observant, caring and sensitive. Naturally, females tend to assume responsibility for housework, child care and family matters (Lee, 2008). This orientation to the private sphere and motherly-role may shape women to become more concerned about environmental threats to health and safety.

Moreover, since most environmentally relevant behavior takes place at home (e.g. recycling, biodegradable) and most of the household purchase is much more often done by women than by man, green purchasing may be a concept more relevant to women than man.

Although Engel (1995) proposed that purchase is affected greatly by the consumers' income since income is a resource that consumers use in the exchange process of marketing, the comparison between income levels show that green buyers do not differ across different levels of household income. This is contradicting with Banyte *et al.* (2010) who noted that green buyers are among those who receive higher than average income.

Similar to the influence of household income, the comparison between age and green purchase behavior shows no significant difference. This is contradictory to the finding by do Paco and Roposo (2009) who discovered that green buyers are composed of individuals whose ages range between 25 and 34.

The analysis of the data reveals that green buyers are composed of married respondents. This is consistent with findings by Laroche et al. (2001) in their study in USA. It may be suggested that these individuals are more inclined to think of how a ruined environment may negatively impact not only their partner, but their children's future. This could be a string motivation for married couples to behave in an ecologically conscious fashion. Overall, it seems that married people may be more prone to put welfare of others before their own. Laroche *et al.* (2001) came up with similar findings.

Respondents overall reported moderate levels of environmental knowledge, indicating they considered themselves somewhat knowledgeable about environmental issues. This result yields the same results as the previous study by Barber *et al.* (2010) where respondents reported moderate environmental

knowledge. The analysis undertaken shows that environmental knowledge positively contributes to green purchase behavior. This result is completely opposite of Gotschi *et al.* (2010) who found that environmental knowledge had no impact upon organic shopping behavior but consistent with Mostafa (2006) who found additional variation in consumers' green purchase behavior explained by environmental knowledge. Furthermore, this finding also confirms many previous studies which found that environmental knowledge positively affects pro-environmental behavior (e.g. Amyx *et al.*, 1994; Chan, 1999). The majority of respondents had relatively good knowledge about the environment and green products. They recognize the environmental problems in Malaysia and the benefits of green products and are able to sacrifice their precious time and money to purchase green products.

Present study confirms previous findings on the relationship between attitudes towards the environment and green purchase behavior. This result is in line with the earlier studies; for instance, Choo *et al.* (2004) and Laroche *et al.* (2001) who upon studying antecedents to new product purchasing behavior, found that attitudes had significant effect on behavioral purchase behavior among innovative Indian consumers. This is consistent with the argument of Tsen et al. (2006) that attitudes are consistent explanatory factor in predicting consumers' willingness to pay for green products. This finding also confirms many previous studies which found that environmental attitudes positively affect pro-environmental behavior (e.g. Arcury & Christianson, 1990; Chan, 1999). Since an attitude is an enduring organization of motivational, emotional, perceptual and cognitive processes with respect to some aspect of our environment (Hawkins, Best & Coney, 1995), people who have strong environmental attitudes take responsibility in protecting the environment. Therefore, Malaysian consumers with positive environmental attitudes tend to purchase more green products.

In general, subjective norm was observed to be one of the predictors of green purchase behavior. Intuitively, this is not surprising, because subjective norm is a variable that captures notions of social influence, particularly from friends and family within this sample. It might be argued that the age group of the sample is one that is particularly vulnerable to social pressures (Goodwin & Mullan, 2009). The strong effect of subjective norms in shaping consumers behavior towards green products might be attributed to the collective nature of Malaysian culture. Collectivists value interdependent and cooperation, subordinate their goals to the group goals and their behavior is influenced primarily by norms and to a lesser degree by attitudes. The strong power of subjective norm suggests a possible "group effect" in environmental behavior. That is, significant peer network could suggest, cultivate, circulate and reinforce a set of pro-environmental values and behavioral norms. People observe and follow the norms of environmental behavior in their social circles in order to acquire acceptance by other members. If this is true, then green purchasing behavior should carry social meaning and functions in Malaysian consumers. This result parallels numerous previous studies (e.g. Jin & Kang, 2011; Shen *et al.,* 2003) but contrasts with George (2004).

As anticipated, the present study confirms the positive relationship between perceived behavioral control and green purchase behavior. In other words, people's perceptions of the ease or difficulty of performing the behaviour influence their action. This study confirms the positive influence of a person's perception of his or her controllability of external barriers for a behavior. Accordingly, once consumers perceive their control over purchasing green products, they develop behavior to purchase. This is consistent with Jin and Kang (2011) who discovered that one's controllability increase purchase behavior toward a US brand. This finding is also consistent with many previous studies such as Shen et al. (2003) and Chan and Lau (1998) who found stringer effect of perceived behavioral control on purchase behavior. Similarly, the result is also in line with Hsieh *et al.* (2008) who found a

significance of perceived behavioral control in explaining adoption behavior of information and communication technology among socio-economically disadvantaged consumers.

Our results indicated that high levels of knowledge may profoundly change attitudes. The effect of attitude towards the environment was stringer for consumers with high level of environmental knowledge than for consumers with a low level of environmental knowledge. This is also supported by Mostafa (2006) who found that perceived environmental knowledge is positively related to ecologically favorable attitudes and Chiou (2000) who discovered that the effect of attitude towards internet is stronger among those who have knowledge about internet in Taiwan.

The finding is also consistent with Gotschi *et al.* (2010) who discovered that subjective norm within the family (family socialization) was significantly correlated with attitudes toward shopping behavior of organic product and Tarkiainen and Sundqvist (2005) who found subjective norms influence attitudes. Moreover, this is also consistent with Chang's (1998) argument that individual's favorableness or unfavourableness towards behavior is affected by how those of importance to him/her think of the behavior in question. As mentioned earlier, the characteristics of collectivism among the Malaysian consumers form the strong relationship between norm and attitude. Most Malaysian consumers make a certain decision based upon the influence and information gathered from referent groups. Some information is transferred to develop attitude.

5.4 Academic and Managerial Implications

In view of the dearth of non-Western research on green marketing, this study can make a contribution to the implementation of green marketing strategies by helping academics and practitioners to better understand, explain and predict patterns of consumer behavior. Lee and Green (1991) claim that while

most of the major consumer behavior models have been developed and tested in the West, relatively little attention has been devoted to investigating the validity of these models under other cultural settings. However, this cross-cultural testing is essential as most behavioral theories are rooted in psychology, which in turn is heavily bound by cultural values (Chan & Lau, 1998). In this research, we developed a model that has proved to be reasonably competent in explaining Malaysian consumers' green purchase behavior. Developing such model is important for bridging the knowledge gap that currently exists between practitioners (as evidenced by widespread use of green products) and academic researchers (as evidenced by the lack of empirical research on green purchase behavior).

In view of the growing trend of higher environmental awareness among Asian countries, environmentally related products pose both threats and opportunities. The closer the move to understand what causes individuals to pay for green products, the more able marketers will be to develop strategies specifically targeted at this particular group. The knowledge of the green consumer is important for the whole supply chain and especially for the retailers, since the environmental issues influence the purchase of green products. Knowing the green profile of consumers in Malaysia allows marketers to develop strategies specifically targeted to this segment. For example, green marketers should consider the positive relationship observed between perceived environmental knowledge and green purchase behavior. They could for instance, educate consumers about the convenience of buying ecologically safe products. Tailoring marketing mix strategies by emphasizing the elements which they view as important would definitely help to increase their market penetration.

Regardless of it having reported that improving consumers' knowledge of green product is a means commonly adopted by green marketers to hamper green buyers, this study's findings advise against devoting resources to improving consumers' knowledge of a product with an aim to curb demand for green products. This is because, while it is not necessary to say that consumers who are more knowledgeable are less green products-prone, at the same time they do not process less favorable perceptions of green products compared to less knowledgeable consumers.

By integrating environmental protection and green marketing tasks, policy makers can help to educate the public by informing them about the environmental concern caused by a massive use of non green products. This device might be more effective if the policy makers could provide the public with some solid figures in relation to how many disposables can be generated per head in a lifetime, the scope of environmental and health concerns caused by the non green products as well as consumption of non green products.

Since attitude towards the environment is also an important factor that influences the green purchase behavior among the consumers, marketers should persuade consumers that the protection of the environment is not the sole responsibility of businesses and that each individual can also make a difference. In view of this, green marketers should carefully work out communication plans that facilitate favorable attitudinal changes of their target audiences. For instance, since consumers' attitude toward green products is strongly affected by salient attitudinal beliefs such as "safer" and "healthier", green marketers in their communication campaigns should detail clearly how their products help bring safe and healthier life style and exactly what benefits or values these products deliver to consumers and the environment.

On top of that, it is also of primary importance for marketers to provide positive feedback to consumers on a regular basis in order to show them that they really are making a difference. These actions would not only reinforce positive attitudes, but could also motivate less ecologically friendly individuals to behave in a more conscious manner. Advertising campaigns that portray individuals making a difference in combating environmental ills are also more likely to solicit the desired positive attitudes.

As the findings imply, the green product manufacturers need to work on improving green buyers' attitudes, which may vary and need to be observed over time. The government and other parties involved in the environmental awareness campaign should always track and monitor the level of the environmental concern of Malaysia as a whole. Depending on the outcome, they should find the most effective and efficient marketing strategies to be developed and implemented as necessary. Unless this is done, we are going to waste millions of dollars on unsuccessful campaigns because they basically "don't work" (for example, the Recycle Campaign in 1997 which has to be re-launched again in the year 2000).

To counter this, the manufacturers may be able to improve the buyers' attitudes through the promotion of green products. This could be done by the dissemination of the "green life style" through brochures and pamphlets. This policy is able to instill one's positive attitude on green products. As attitude plays as one of the key determinant for the use of green products, building up positive attitudes towards green products could perhaps be accomplished through green promotional materials and green advertisements that appeal to consumer rationality and emotions.

The importance of subjective norm as one of the predictor means that interventions should not solely target individuals, but attempt to include people around them such as friends and family. In terms of social influence,

the green product marketers may build-up a green buyer database in order to identify the existing customers who are buying and consuming green products, support them orally and formally to encourage them to persuade their friends, relatives and other people to buy green products in the future. Moreover, social influence is a significant driver for green product purchase behavior which implies that the green marketer needs to work on recommendation rigorously.

As hypothesized, perceived behavioral control was also noted to exert influence on the green purchase of Malaysian consumers. In other words, Malaysian consumers were found to exhibit a lower degree of volitional control over their green purchases. This phenomenon is likely to be attributed to Malaysian consumers' lack of the requisite resources (e.g. environmental knowledge, money and time) and opportunities (e.g. inadequate availability of green products). Given that Malaysia is still a developing country with its green movement in an embryonic stage, it seems very difficult to resolve all these resource and opportunities issues overnight. Nonetheless, these issues should call for continued strategic efforts from both Malaysian policy makers and green marketers if they really wish to advance a more sustainable consumption pattern across the country. These strategic efforts among others, should include further strengthening of Malaysia's environmental education and improving the distribution of green products, and more comprehensive legislation to closely monitor quality and advertising claims of these products is also essential.

It was possible to observe that there are Malaysian consumers who used to buy green products and that certain environmental and demographic variables are significant for differentiating between the "greener" segment and the "non greener". These consumers, despite their support for policies designed to improve the environment, do not translate their concerns into actions. It can be concluded that Malaysian consumers understand the

challenge currently placed to protect the environment and that they are aware of the existence of environmental problems, even though their concerns are not always translated into environmentally friendly behavior. It was also noted that there are consumers who are prepared to base their buying decisions on purchasing products that do not harm the environment. These segments should be analyzed by firms in order to assess their attractiveness, adopt a correct positioning towards them and define suitable marketing programs.

A clearly important finding in this study involves the strength of the relationships between environmental knowledge and consumers' green purchase behavior. This study reveals that knowledge on environmental issues influence consumers to behave in an ecologically favorable manner. Therefore, it is of primary importance for marketers to continuously educate the consumers about the importance of being environmentally friendly and the environmental impacts of their purchasing behaviour. The way marketers should produce and promote their product lines should sufficiently educate the customer about the benefits of being green buyers. The education of the consumer is seen as an appropriate method for increasing perceived purchasing behaviour. Bei and Simpson's (1995) study suggests that consumers' environmentally friendly behavior can be motivated by emphasizing the importance of environmental issues. Thus, marketers should educate individuals and communicate to the target audience that buying green products can have a significant impact on the welfare of the environment. Through a properly targeted advertising campaign, marketers can encourage positive attitudes and behaviors held by ecologically friendly people.

In the context of Malaysia, Malaysia faces pressing environmental problems such as air and water pollution. Those problems call for increasing support from the local government. Understanding factors affecting environmental attitudes is necessary before the country can move toward more effective environmental policies and institutional actions designed to increase environmentally friendly behavior.

The present research findings show that Malaysians are well aware of the environmental problems in this country. However, they are quite reluctant to do something about it. They need to be pushed and motivated to help out. It is therefore important for the government and NGOs to play their role right where the campaigns should focus on the action part-what people can and should do rather than awareness part- what is pollution, how pollution came into being, etc.

Some researchers argue that green policies are profitable through cost reduction (Rugman & Verbeke, 2000). Green firms can shape future regulations and reap first-mover advantage (Mostafa, 2006). It can be argued, then, that the ideal solution to environmental problems in Malaysia is for companies to include green policies in their long term strategies. Thus, Malaysian government should expedite green purchase through legislation. Given that the development of green marketing in Malaysia as well as in the rest of Asian market is still in its infancy, it is recommended that the Malaysian government should work closely with the business community and form strategic alliances with environmental groups to come up with a comprehensive eco-certification scheme and a set of guidelines that regulate the practices of green marketing.

For example, in the UAE, the Federal Environmental Agency (FEA) and the Emirates Environmental Group (EEG) are doing admirable work in spreading awareness about environmental issues, including green purchasing in the country. By working closely with the public and private sectors, these entities have succeeded in large measure in preserving the environment (Mostafa, 2006).

5.5 Limitations and Future Research Suggestions

This study was based on a cross-sectional perspective, which limits the knowledge of the long-term impact of the factors in our model. A longitudinal future research in this area is needed to unveil with clarity and greater certainty, the relationship between consumers' behavior towards green products over time.

As with any other studies using a consumer sample, the findings of this study might not represent consumers at large. A replication of this study with more general consumers of a wide range in their characteristics might be necessary to attest the applicability of the model to the broader public. Similarly, the model presented in this study was tested for green purchase decisions only, so the interrelationships among the variables might vary with different types of environmental behavior such as recycling or energy saving behavior.

As in many research studies of consumer markets, a truly representative sample was difficult to achieve. It cannot be claimed that there was no sampling bias. The size of the sample was acceptable and similar to other studies regarding consumer research. Given this context of the study, its outcomes and implications must be generalized cautiously.

It should be remembered that this research only investigated buyers at hypermarkets in the context of green purchase behavior. Since the different store formats have also very different characteristics (e.g. price level, products

assortment), it is likely that the consumers' buying behavior also differs between different stores. Thus, care should be taken in generalizing the results reported here until additional research verifies the findings across different stores and locations.

In terms of the factors influencing green purchase behavior, future research might look into the issue of whether additional variables related to firms and their products, such as brand image, prices, advertisement programs and quality would influence consumers' green purchase behavior. The present study is conducted on general green products. Would the results apply to specific green products? To answer this question, future research could study the factors that influence consumers' willingness to spend more for environmentally friendly products in a specific industry such as the cosmetics or hotel industry.

In line with the relevant literature, the knowledge-attitude–behaviour structure proved useful to understand the predictors of green purchase behavior and their inter relationships. Future research should continue to delve into this question as to what drives green purchase behavior by incorporating more cultural and psychological factors. A more comprehensive model could be constructed in which additional relevant variables are identified and the related variables are laid out from general to specific with regard to the issue.

5.6 Conclusion

This study aimed at investigating the green purchase behavior in the context of Malaysia. The analyses undertaken indicate that level of green purchase behavior among Malaysian consumers is not encouraging and tends to be different across gender and marital status. Consistent with general universality of TPB model, the path analysis highlights the influence of

environmental knowledge, environmental attitude, subjective norm and perceived behavioral control on green purchase behavior. The implications from this study would provide policy makers and green marketers with useful insights into fine-tuning their strategies to further stimulate green purchase behavior.

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