THE INFLUENCE OF ENVIRONMENTAL ATTITUDE, ENVIRONMENTAL KNOWLEDGE, SOCIAL INFLUENCE AND SELF-IMAGE ON GREEN PURCHASING INTENTION

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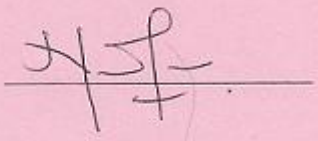

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ABSTRAK

Kertas ini bertujuan untuk mengkaji faktor-faktor yang mempengaruhi niat pembelian produk hijau dikalangan pelanggan remaja. Responden di dalam kajian ini adalah seramai 384 pelajar yang telah dipilih dari empat buah universiti-universiti awam di sekitar Selangor. Tujuan utama kajian ini adalah untuk mengenalpasti hubungan antara sikap terhadap persekitaran, pengetahuan terhadap persekitaran, pengaruh sosial, dan imej kendiri ke atas niat pembelian produk hijau. Hasil kajian menunjukkan bahawa imej kendiri sebagai pembolehubah tidak bersandar yang paling penting dan diikuti oleh sikap terhadap persekitaran manakala, pengaruh sosial dan pengetahuan terhadap persekitaran tidak menyumbang dalam mempengaruhi niat pembelian produk hijau. Aktiviti- aktiviti seperti ganjaran dan pengiktirafan serta pelaksanaan usaha-usaha pemasaran adalah dicadangkan untuk menjadi tumpuan utama pemasar dalam mempengaruhi niat pembelian produk hijau.

ABSTRACT

This paper studies the factors that influence green purchasing intention among young consumer. Respondents in this study were 384 students who were chosen from four public universities in Selangor. The main purpose was to identify the relationships between environmental attitude, environmental knowledge, social influence and self-image on green purchasing intention. The result shows that self-image was the most important predictor followed by environmental attitude, while social influence and environmental knowledge variables did not influence the green purchasing intention. Reward and recognition activities and implementation of specific marketing efforts are recommended as the focus of marketers in influencing green purchasing intention among youth.

Key words: green purchasing, attitude, knowledge, social influence, self-image, student, Malaysia

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INTRODUCTION

1.1 Background of the Study

The accelerated growth of the global economy worldwide has been connected with an increase in consumers' consumption. However, the more goods that people purchase, the larger is the impact upon the environment. People's concern about global environmental problems has grown since 1970s, but in Western countries environmental problems worsened in the 1980s. Ottman et al., (2006) stated that from 2000 onwards environmental problems created an upswing in concern in the Western and, at the same time, provoked developing countries towards the green movement.

Environmental deterioration can manifest itself in the form of global warming, hazardous waste, ozone depletion, rain forest destruction and air pollution, among others (Ramlogan, 1977). Most scientists have agreed with the view that global warming is a major issue, which requires attention, action and support to be overcome. Those responsible for overcoming environmental problems could be government or industry.

According to Ottman (1992), consumers expressed their concern by shaping a new movement called "green consumerism" or environmental consumerism in the 1990s. The attempts of individuals to purchase goods that are not harmful to themselves or the environment are called as green consumerism (Ottman, 1992). Green consumerism began its existence at the time when the United Nations World Commission on Environment and Development, also known as the WCED, released the Brundtland report also known as *Our Common Future,* in 1987. The report's main focus was on sustainability and maintenance of the environment. This report created awareness among many people about the global environmental crisis.

Ryan (2006) defined a green consumer as a person who was committed to the green lifestyle and was serious about own ecological practices and consequences, who looked for companies that implemented green practices, who emphasized their green behaviour and who preferred environment protection to be easy. Meanwhile, a green consumer is interpreted as a person who is aware of ecologically related issues and duties and is supportive or encouraging of the environment, and is willing to switching his loyalty from single product or provider to another even if that switch involves higher cost (Business Wire, 2009).

According to Coddington (1993) in United States, children and youngsters were, in general, more concerned and more knowledgeable about the green environment than adults. They influenced their parents' purchasing decisions. These youngsters represent the Generation Y, who Paul (2001) defined as those born between 1981 and 1994 who currently range between age 18 and 32 years old. Past studies also found that youngsters are more prepared than older generations to accept innovative ideas (Ottman et al., 2006; Tai & Tam, 1997) and that, proponents of environmental protection tend to be people from a younger age group (Martinsoons et al., 1997; Schwepker & Cornwell, 1991).

Malaysia is seen as among the first countries to have taken a step forward to enhance the quality of the environment by introducing an act the Environmental Quality Act of 1974. To promote the importance of green technology, the Malaysian government also formed the Ministry of Energy, Green Technology and Water and the Ministry of Natural Resources and Environment to ensure the sustainability of environment.

However, according to *Free Malaysia Today*(2012), Malaysia has increasingly become a more polluted country. The Eighth Annual Climate Change Performance Index (CCPI) ranked Malaysia near the

bottom being 55th out 61 countries that were part of research, scoring only 47.53 out of 100.

1.2 Problem Statement

Even though both the government and citizens in Malaysia have realized the seriousness of environmental threats, the practices of environmental responsibly among consumers are still low. According to a 2008 survey conducted online by the global market insight and information group Taylor Nelson Sofres (TNS) merely 8 percent of survey respondents said that they had changed their behaviour towards benefitting the environment through habit of eco-friendly behaviour (Our Green World, 2008). Meanwhile, 60 percent of respondents rated natural environment conditions in Malaysia as being either fair or poor (Our Green World, 2008). Therefore, it can be said that the respondents were aware of the downward trajectory of the natural environment in Malaysia but did not behave in an environmentally friendly manner.

Thus, studying factors that determine consumers' green consumption in Malaysia is not only important but also prescient. Lee (2008) stated that research on green marketing in Western countries was huge in number compared to studies conducted in Malaysia. Similarly, Mei et

al., (2012) showed that still less research has been done in Malaysia testing green purchasing intention with the Theory of Reasoned Action (TRA) model. To close this existing gap using this model and looking at the factors that could influence green purchasing intentions would be an extremely relevant topic of study. This current study does so, while identifying the influence of environmental attitudes, environmental knowledge, social influence and self-image on green purchasing intention among young customers. This is particularly interesting because young customers rarely have been examined in the green marketing studies conducted in Asia (Chan, 2001; Yam-Tang & Chan, 1998).

1.3 Research Questions

The research questions for this study are as below:

a) What is the relationship between environmental attitudes and green purchasing intention?

b) What is the relationship between environmental knowledge and green purchasing intention?

c) What is the relationship between social influence and green purchasing intention?

d) What is the relationship between self-image and green purchasing intention?

1.4 Research Objectives

The research objectives developed are as below:

a) To explore the relationship between environmental attitudes and green purchasing intention;

b) To identify the relationship between environmental knowledge and green purchasing intention;

c) To examine the relationship between social influence and green purchasing intention; and

d) To investigate the relationship between self-image and green purchasing intention.

1.5 Significance of the Study

The findings will provide basic knowledge about the relationship between (and effects of) environmental attitude, environmental knowledge, social influence and self-image on young consumers' purchasing intention. The result could help government and

businesses to have a clear idea in planning their strategies to support consumers to be more conscious on the environment and to increase the green adaption in their lives. Furthermore, the present study also will contribute to a better understanding by businesses about the potential green market and the purchasing trends of young consumers who will be a major market in near future. So that, in the long run, Malaysia can overcome environmental problems.

1.6 Definition of Key Terms

1.6.1 Green purchasing intention

Chan and Lau (2000) interpreted green purchases as a detailed type of environmental friendly behaviours that purchasers act upon to relieve their anxiety towards the environment.

1.6.2 Environmental attitude

An attitude is defined as a tendency to learn over and over again either in a good or poor way about an agreed upon objective (Fishbein & Ajzen, 1975). Weigel (1983) defined environmental attitude as a long-term set of beliefs with

regards to an objective that influences people to react in a particular way.

1.6.3 Environmental knowledge

Knowledge is defined as information that eliminates ignorance that provides sure and firm comprehension of something. Besides, knowledge also is known as awareness and contrary to ignorance. Environmental knowledge is defined as an individual or group of people been resourceful regarding surrounding environmental issues (Kerney & DeYoung, 1995).

1.6.4 Social influence

Social influence is the influence of individuals or groups upon the actions, reactions, and views of an individual. Social influence also may be represented by peer pressure, persuasion, conformity, marketing and sales (Kalafatis et al., 1999).

1.6.5 Self-image

Self-image is defined as a mental picture of self that is resistant to change. It can be what the person has learned about them selves, or be derived from personal experiences. A simple meaning of a person's self-image is her response to the question "What do you believe people think about you?" Self-image can be defined in three ways: first, how the individual sees himself or herself; second, how others see the individual; and third how the person perceives the way in which others see him (Baker & Ozaki, 2008).

1.6.6 Green products

A green product is defined as a tangible or non-tangible product that is designed using recycling resources and provides beneficial consequences for the environment, or reduces the effect of toxic damage on the environment in the whole of its life-cycle (Chai et al., 2011).

1.7 Organization of Remaining Chapters

This research paper has five chapters. The first chapter of this research introduces the concepts of green consumerism, the problems arising in the green environment field, and forms questions to be answered at the end of the study. Chapter two contains the theoretical framework, discusses literature from existing studies, and presents the hypotheses. The methodology and instruments for data analysis are discussed in the third chapter. Chapter four covers data analysis and findings while chapter five contains the discussion, conclusion and recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The contents of this chapter are an interpretation drawn from past studies by international and Malaysia researchers on green purchasing intention. This study adapted the Theory of Reasoned Action (TRA) as an underpinning theory and drew variables from existing literature to develop a theoretical framework for research purposes. This chapter reviews literature on green purchasing intentions, environmental attitudes, environmental knowledge, social influence and self-image.

2.2 Review of Related Literature

2.2.1 Green Purchasing Intention

Nik Abdul Rashid (2009) conceptualized green purchase intention as the possibility and readiness of an individual to give priority to products that are environmental friendly over other features of non-green conventional products in making his purchase decision. Green purchasing intention is also

defined as the purchasing of products and services that can be seen as less harmful to the environment and human health (Lee, 2004).

Mostafa (2007) on the other hand, stated that green purchasing behaviour refers to the decision of an individual to consume products that are important to the environment, conservable, recyclable and responsive or insightful to the environmental needs. In most research, Theory of Reasoned Action (TRA) is used to help explain the influence of antecedents on purchasing intention (Fishbein & Ajzen, 1980).

2.2.2 Environmental Attitude

Allport (1935) defined attitude as a mental and neural state of willingness, which puts upon a directing, weight upon an individual's reaction to all objects and circumstances, which are related. Environmental attitude is concerned with an individual's value judgment and follows an individual's cognitive assessment of the value of environmental protection (Lee, 2008). According to Schultz and Zelezny (2000), attitudes about environmental concern are constructed on a

person's perception or view of self and the extent to which an individual sees himself to be a vital part of the environment.

Blackwell et al., (2006) stated that attitude refers to what consumers like and dislike, while Ireland(1993) and Schwepker and Cornwell(1991) said hat consumers' concerns about purchasing products are often based on their environmental attitudes. An environmental attitude is also defined as a tendency to react in either a favourable or unfavourable way with respect to the environment (Nik Abdul Rashid, 2009).

2.2.3 Environmental Knowledge

Knowledge is a characteristic that influences all the phases in a decision- making process (Laroche et al., 2001). Alba and Hutchinson (1987) stated that knowledge also is known as a related and important construct that affects the way consumers collect and sort out information.

According to Kaplan (1991), a consumer's decision making is influenced by knowledge about a particular issue that significantly impacts them. In particular, people dislike, and

therefore avoid situations in which they have insufficient knowledge to guide their behaviour (Kerney & DeYoung, 1995). This gives some explanation as to why some people may prefer not to implement green consumption practices such as involvement in the purchasing of green products.

Both the significance of knowledge and the lack of knowledge in decision-making practices have been established in several studies. As a matter of fact, environmental consciousness and behaviours were found to be subjective by attitudes, values and knowledge (Laroche et al., 2001).

Additionally, according to Fryxell and Lo (2003), ecological knowledge is common knowledge of concepts, facts and relationships with regard to the natural environment and it's most important ecological systems. In easily understood terms ecological knowledge takes into account what an individual recognizes concerning the environment and the beliefs that they hold about the meaning of environmental impacts.

Peattie(1995) said that an individual who is well informed about the problems or issues related to environment would be motivated towards green consumption. On the other hand,

Hines et al., (1987) and Schann and Holzer(1990) discovered that it was not just an understanding of environmental issues that affected individual behaviour but also the action strategies that were presented to react to environmental issues.

2.2.4 Social Influence

Bearden et al.,(1989) mentioned social influence as a crucial determinate of individual behaviour influence. According to Wahid et al., (2011) social influence is known as a proxy for the subjective norm. Social influence about the environment will extend and change human outlook, beliefs, and cognitive competencies (Cheah & Phau, 2005). Kalafatis et al.,(1999) provided a similar view, stating that a social norm was a form of action that should or should not be carried out by certain individuals from a referenced point of view. Wahid et al.,(2011) explained that referents included parents, teachers, friends, and neighbours.

Sinappan and Rahman (2011) described social influence as a circumstance that an individual shares the same values, opinion and way of life with the people with whom they communication. According to Lee (2008), social influence

also is a proxy for peer network or peer pressure. According to Cohan (2009), peer pressure is defined as psychological strain that every individual experiences when they compare their actions with others. In this case, Mei et al., (2012) concluded that even full sets of information not were sufficient for people to form a difference in behaviour.

According to Cheah (2009) social learning assumptions also proposes that individuals gain common knowledge when past experiences contribute to existing behaviour and attitudes. Numerous studies have evaluated how parent and peer groups impact on consumption attitudes of an individual (Bush et al., 1999; Carlson et al., 1994; Keillor et al., 1996; Laczniak et al., 1995). These will affect the purchasing decision of an individual with respect to certain products and brands. Consumerism patterns of young consumers will change depending upon the existence or nonexistence of inter-family communications about consumption as well as the adolescents' media use.

Social media is another factor that has huge possibilities for influencing the purchasing intention of an individual (Cheah, 2009). Business Wire, (2009) carried out a survey to

investigate online social media and traditional impacts on purchasing decision. From the analysis, they found that 57 per cent of 18 to 24 years old and 48.5 per cent of 25 to 34 years old respondents say that social media influenced their purchasing choice. Thus, social media has become as a major contributor in purchasing decisions.

2.2.5 Self-Image

Wahid et al.,(2011) defined self-image as the formation of an individual image one has of oneself. Sharp's et al.,(2007)studies about young customers identified formation as a most important factor. Waterman (2004) found that individuals are interested in connecting in activities that represent their own identities. When it comes to talking about self-image in environmental protection, interest is initiated as the influence of green purchasing intention among young consumer (Cheah, 2009).

Based on Goldsmith et al.,(1999) self-image is the perception that individuals have of what they are like. Self-image or self-concept is a major determinant of individual actions as it is concerned with how one sees himself and how he thinks

others see them. Individuals have a tendency to form a personal image that meets the standards of their reference group. Lancaster and Reynolds (2005) said that self-image was influenced by social interaction and to protect and enhance self-image individuals make purchases that are consonant with their self-concept.

2.3 Research Framework

The theoretical framework guides researches to identify suitable variables to use, variables to measure, and what statistical correlation to look for (Cheah, 2009). Trochim (2006) said that there are two realms concerned in research, which are theory and observation. Researchers determine applicable theory while observation refers to the results gained from measures and observations. The present research partly adapted the Theory of Reasoned Action (TRA) model and drew other variables from the previous literature in the scope of green purchasing intentions.

2.3.1 Theory of Reasoned Action (TRA)

Ajzen and Fishbein developed the Theory of Reasoned Action (TRA) in 1975 and added to it in 1980. The theory was used to

study the behaviour of an individual in conjunction with expanding suitable interventions. According to Ajzen and Fishbein (1980) an attitude could explain overall human actions. The main point to this theory was that an individual is rational in making use of information systematically gained from various resources. Individuals tend to consider the consequence of their actions before they make a decision (Ajzen & Fishbein, 1980).

Miller (2005) mentioned there are two fundamental elements in TRA that predict actual behaviour; these are attitudes and subjective norms. Attitudes are the total of beliefs concerning a particular behavioural subject to evaluations of these beliefs (Miller, 2005). Miller (2005) described subjective norms as the influence of others on an individual behavioural intention. In other words, attitude might lead us to do one thing but, at the same time, the related norm might direct us to do something else. So, we can conclude that both factors influence individual behavioural intention.

Individuals shape an intention to act in a certain behaviour, and thus this intention remains a behavioural tendency until some sort of attempt is made to convert the intention into

action (Ajzen, 2005). Many researchers have agreed that the behavioural tendency has a close link to a detailed action trend, which is known as the intention to execute the action under deliberation (Fishbein & Ajzen 1975; Triandis, 1977; Fisher & Fisher, 1992; Gollwitzer, 1993). Cheah (2009) mentioned that, apart from an unexpected event, people do what they intend to do.

This study adopted green purchasing intention as the dependent variable and social influence and self-image from Cheah (2009) and environmental attitude and environmental knowledge from Mei et al.,(2011) as independent variables. The research framework is shown below.

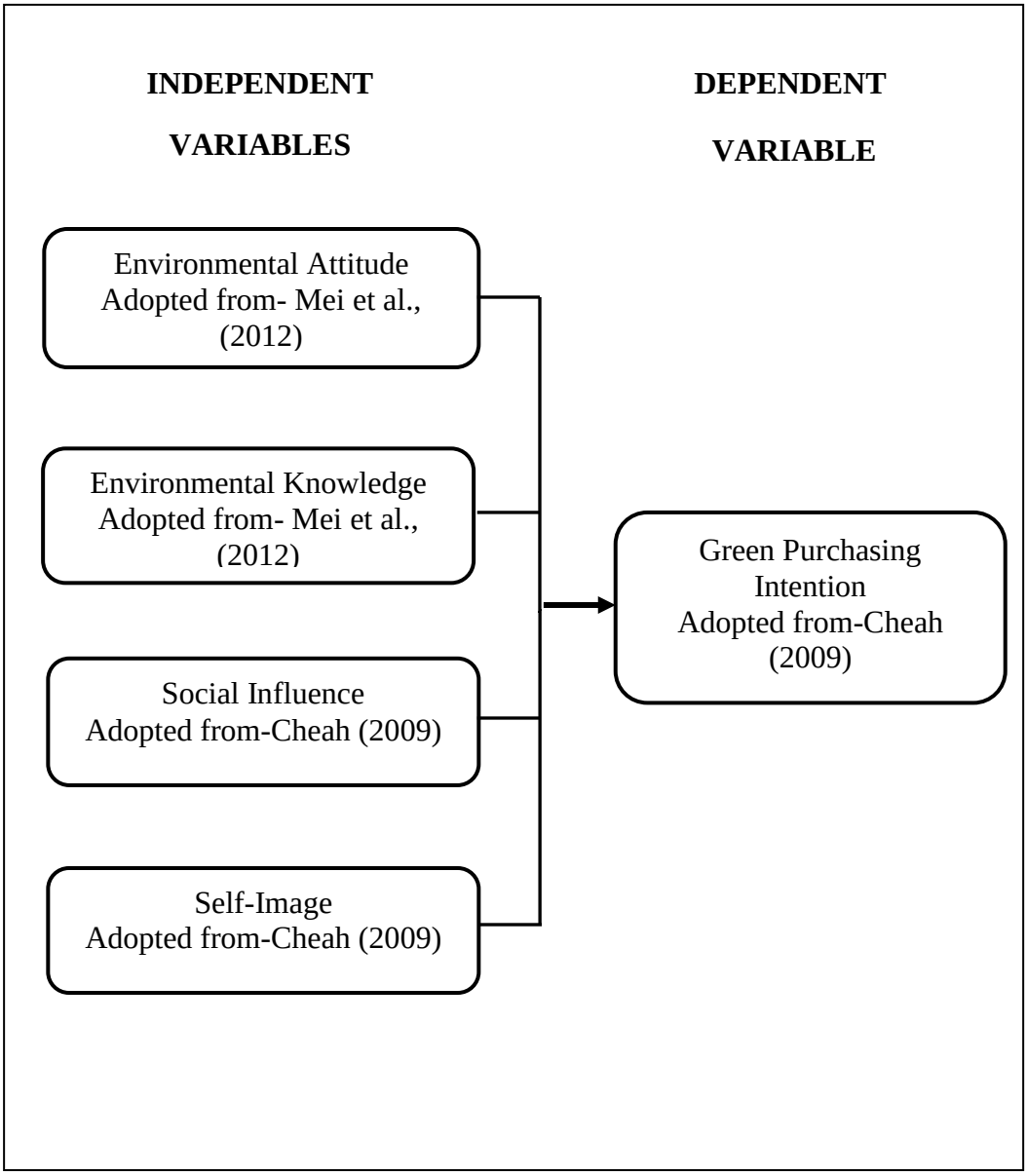

Figure 2.1: Theoretical Framework of the Research

2.4 Hypotheses

2.4.1 Relationship between Environmental Attitude and Green Purchasing Intention

Several studies have determined a positive relationship between environmental attitude and environmental behaviour (Kotchen & Reiling, 2000).Mostafa's (2007) research among Egyptian consumers found that consumer's attitude towards green purchase can impact their green purchasing intention and directly influence their actual green purchase behaviour.

Lee's (2008) study on environmental attitude said that this variable was not a strong influencer in influencing consumers' purchasing behaviour in Hong Kong, ranking the second to the last among other variables. However, Follow and Jobber (2000) found that the relationship between environmental attitude and green purchasing intention did exist.

Kaiser et al.,(1999) acknowledged that environmental attitude had been proven to be interrelated to environmental behaviour in Western literature. However, Cleveland's et al., (2005)

study found a low relationship between environmental friendly attitudes and green behaviours.

According to Chyong et al.,(2006) attitude is known as the most reliable descriptive predictor in determining consumers' willingness to purchase green products. This perspective explains that price is not the major reason in restraining an individual or consumer from consuming green products.

Paco and Raposo (2009) said consumers were to be expected to purchase green products if they were more directly concerned with the environment. Furthermore, Paco and Rapos (2009) mentioned that, even though consumers did not essentially use attitude as a platform for their green purchasing intention, attitude could remained a strong influence on their green consumption. Therefore, the hypothesis developed as below:

H_1: There is a significant relationship between environmental attitude and green purchasing intention.

2.4.2 Relationship between Environmental Knowledge and Green Purchasing Intention

Alba and Hutchinson (1987) stated that in a large number of cases environmental knowledge was highly correlated with how consumers gather, organize and evaluate products that they prefer to buy. Chan and Lau's (1998) study supported the statement that consumers' knowledge of the environment is a significant predictor of eco-friendly behaviour.

Chan and Lau (2000) included environmental knowledge as one independent variable to measure green purchasing behaviour of consumers in China. The outcome of the study showed that Chinese consumers with higher environmental knowledge had a stronger desire to engage in purchasing green products. Similarly Wahid et al., (2011) found that ecological knowledge tends to have a positive impact on the green purchase behaviour of Penang green volunteers.

However, other studies in the green purchasing area have shown that ecological knowledge had an insignificant relationship with green purchasing behaviour (Paco & Raposo, 2009). Tadajewski and Tsukamoto (2006) in their empirical

study on green consumers behaviour said that, even though their sample had knowledge on life-cycle analysis which was evaluated using related questions, it was unsuccessful to showing it was related their shopping behaviour.

Moreover, Rahbar (2008) could not find a positive relationship between ecological knowledge and green purchasing behaviour. Equally important, Haron et al., (2005) in their research on Malaysian's ecological knowledge, concluded that knowledge of a green environment had a significant relationship with ecological behaviour, attitude and involvement even though the magnitude of the correlation was low. This present study has adopted the concept of environmental knowledge from existing literature to test it on young consumers in Malaysia.

H_2: There is a significant relationship between environmental knowledge and green purchasing intention.

2.4.3 Relationship between Social Influence and Green Purchasing Intention

Based on Lee's (2008) study on young Hong Kong consumers purchasing behaviour found that social influence (also known as peer network) was the top predictor. This finding was similar to that of by Kalafatis et al., (1999) that social norms provided impact upon most consumers' intention to consume eco-friendly products in the United Kingdom. In addition, Kalafatis et al., (1999) stated that social norms had a significant relationship with respect to individual intention.

Lee and Green (1991) from their findings said that social norms have a positive impact on consumers' purchasing intention. However, research by Irwan and Darmayanti (2012) found that social influence did not significantly influence green purchasing behaviour. Chen-Yu and Seock (2002) found that peers strongly impacted an individual's clothing purchasing behaviour. Lee (2008) found that peer impact was an important predictor for Hong Kong's youngsters in their green purchasing behaviour compared to other predictors.

H_3: There is a significant relationship between social influence and green purchasing intention.

2.4.4 Relationship between Self-Image and Green Purchasing Intention

Waterman (2004) said that consumers were likely to be involved in certain activities that had an impact on their real identities. This was similar to Mannetti et al.'s (2004) study, in which an individual's self-image of ecological consciousness had a positive relationship with the intention to be involved in recycling. Furthermore, in research on young consumers, Sharp et al., (2007) discovered that self-development was the most important variable.

Lee (2008) also discovered that self-image had a significant relationship with green purchasing behaviour and was the third best predictor in the research conducted among Hong Kong adolescences. Self-image was also identified as an influencer of green purchasing intention among young consumer in Malaysia (Cheah, 2009). Baker & Ozaki's (2008) research on marketing impact on consumers purchasing decision on pro-environmental products concluded that self-

image was one predictor of influencing green purchase behaviour.

H_4: There is a significant relationship between self-image and green purchasing intention.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter will explain in detail about the research design, population and sampling design, data collection procedures, instrumentation and data analysis techniques. The purpose of this chapter is to provide a clear view of the research process and data collection.

3.2 Research Design

The present study is within the scope of basic research, in which knowledge is created to comprehend an area of interest. This research is a quantitative study whereby the phenomena will be explained by the collection of numerical data and analyzed using mathematically based methods (Sekaran & Bougie, 2009). The study was conducted to test the hypotheses and to explain the relationships between green purchasing intention and four potential predictors, which are environmental attitude, environmental knowledge, social influence and self-image.

This study is a correlational study explaining the important variables that are linked with the problem. The present study was carried out in a natural setting with minimal interference, and the theoretical framework was developed from extensive literature; data was collected accordingly and analyzed to get the results. According to Sekaran (2003) studies conducted without any changes in natural environment are known as non-contrived settings; additionally, Sekaran also stated that correlational researches carried out in organizations are known as field studies. Moreover, this study is based on cross-sectional design, meaning that data has been collected at one point of time only.

There are several methods of collecting primary data such as questionnaires, interviews, and observations (Cheah, 2009). Among these methods, questionnaires are a popular means of collecting data because they can cover a large number of people or organization and are relatively inexpensive (de Vaues, 2002; Zikmund, 2000). In this case, the questionnaire was used as the main source of getting data.

3.3 Population and Sampling Design

The present research applied simple random sampling, which fits under the category of probability sampling. Through this sampling

method, every element in the population had an equal chance of being chosen as a subject (Sekaran, 2003). The unit analysis of this study is individual consumers who are university students.

The sample for this study was obtained from major public universities in Selangor. That is because, Selangor has the most public higher educations with the highest number of students compared to other states in Malaysia (Ministry of Higher Education, 2012). Studies by Mui et al., (2003) found that students purchasing pattern in Selangor was high compared to other consumers.

According to quick facts by Ministry of Higher Education (2012), Malaysia has twenty major public universities. Overall, the enrolment of students in November 2011 was 546,987. (See Table 3.1 below.) A total of four universities were chosen from Selangor for this study. These were: Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM), Universiti Islam Antarabangsa (UIAM), and Universiti Teknologi MARA (UiTM). In Selangor there are six UiTM campuses, which are UiTM Shah Alam, UiTM Puncak Alam, UiTM Puncak Perdana, Kolej Pendidikan Antarabangsa (INTEC), UiTM Jalan Othman, and UiTM Hospital Selayang. From the six UiTM campuses in Selangor, UiTM Shah Alam was chosen as because it is the main campus and had a total number of students 52,826 in 2011.

Abdul Ghaffar (1999) stated that sample size is important because it impacts the strength of the research's findings and that a bigger sample may influence the accuracy of the information obtained. Martin and Barteson (1986) mentioned that gathering more data from large sample size would improve the statistical power. Under this circumstance, the targeted population for the present study focused on students from those four public universities list above, which had a total of 138,801 students as of November 2011 enrolment. Table 3.2 below shows the number of students based on universities as of the November 2011 enrolment.

Table 3.1: Number of Public Universities and Enrolment

	Public Universities		Location	Enrolment
1	Universiti Malaya	UM	Kuala Lumpur	26,341
2	Universiti Sains Malaysia	USM	Pulau Pinang	28,277
3	Universiti Kebangsaan Malaysia	UKM	Selangor	24,993
4	Universiti Putra Malaysia	UPM	Selangor	31,180
5	Universiti Teknologi Malaysia	UTM	Johor	34,618
6	Universiti Utara Malaysia	UUM	Kedah	31,617
7	Universiti Islam Antarabangsa Malaysia	UIAM	Selangor	29,802
8	Universiti Malaysia Sarawak	UNIMAS	Sarawak	10,927
9	Universiti Malaysia Sabah	UMS	Sabah	18,017
10	Universiti Pendidikan Sultan Idris	UPSI	Perak	22,214
11	Universitit Teknologi MARA	UiTM	Selangor, Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang Perak, Perlis, Pulau Pinang Sabah, Sarawak, Terengganu	223,753
12	Universiti Sultan Zainal Abidin	UniSZA	Terengganu	6,311
13	Universiti Malaysia Terengganu	UMT	Terengganu	7,263
14	Universiti Sains Islam Malaysia	USIM	Negeri Sembilan	9,390
15	Universiti Tun Hussein Onn Malaysia	UTHM	Johor	12,534
16	Universiti Teknikal Malaysia Melaka	UTeM	Melaka	9,006
17	Universiti Malaysia Pahang	UMP	Pahang	8,003
18	Universiti Malaysia Perlis	UnIMAP	Perlis	7,438
19	Universiti Malaysia Kelantan	UMK	Kelantan	2,770
20	Universiti Pertahanan Nasional Malaysia	UPNM	Kuala Lumpur	2,533
	TOTAL			**546,798**

Source: Quick Facts IPTA 2012- Ministry of Higher Education Malaysia (MOHE)

Table 3.2: Number of Public Universities and Enrolment in Selangor

	Public Universities		Enrolment
1	Universiti Kebangsaan Malaysia	UKM	24,993
2	Universiti Putra Malaysia	UPM	31,180
3	Universiti Islam Antarabangsa Malaysia	UIAM	29,802
4	Universitit Teknologi MARA Shah Alam	UiTM	52,826
	TOTAL		**138,801**

Source: Quick Facts IPTA 2012- Ministry of Higher Education Malaysia (MOHE)

Krejcie and Morgan (1970) provide comprehensive scientific guidelines reference sample size decisions. Based on the table, when the population size is N= 75,000, the sample size n = 382 and when N= 1,000,000 the sample size is n= 384. Therefore, the sample for study should be around 384. The estimation of sample size to be selected for each of the four universities is shown in Table 3.4 below.

Table 3.3: Sample Size for a Given Population Size

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note: N= population size and S= sample size Adopted from Krejcie, R.V. & Morgan, D.W. (1970)

Table 3.4: Estimated Sample According to Universities

	Public Universities		Enrolment	Sample
1	Universiti Kebangsaan Malaysia	UKM	24,993	82
2	Universiti Putra Malaysia	UPM	31,180	95
3	Universiti Islam Antarabangsa Malaysia	UIAM	29,802	82
4	Universitit Teknologi MARA Shah Alam	UiTM	52,826	125
	TOTAL			**384**

3.4 Data Collection Procedures

The first step in conducting data collection is obtaining an approval from those respective universities. For this purpose, a letter was sent to each of the universities, describing the objectives and procedures for the present study. After approval, details such as the name, course and matric number of final-year students was obtained from the Student Affairs Department of each university for undergraduates. For postgraduate students, the students' details were obtained from their respective colleges.

To obtain the minimum sample size of 384 students from all four universities, 82 students were approached from Universiti Kebangsaan Malaysia (UKM) and Universiti Islam Antarabangsa Malaysia (UIAM), 90 students from Universiti Putra Malaysia (UPM), and 125 students from Universiti Teknologi MARA (UiTM).

The timetables of the core subjects including the list of the final-year students registered for core subjects were obtained from the Academic Affairs Department of the respective universities. In each of the four universities, five to six core lecturers' periods were entered and from 13 to 20 questionnaires were distributed in each class. The 384 students were chosen based on the random numbers method, in which student matrix numbers were chosen from a starting point in the name list. It created an equal opportunity for students from all the courses in respective universities to answer the questionnaire and at the same time the sample method avoid bias.

Permission to distribute and collect the survey questionnaire for the purpose of this study was obtained from the relevant lecturers before the classes began. Upon getting permission, a quick briefing session on how to answer the questions was given to the students. Students were given approximately 10 to 15 minutes to answer and return the

questionnaire. Some questionnaires were collected from the respondents after the class ended.

3.5 Measurement of Variables

Data for this study were obtained from the questionnaire. The questionnaire consisted of a combination of closed-ended questions and dichotomous questions. Nominal and interval scales were used. A nominal scale was used for demographic questions including: gender, age, race, field of study and place of origin. An interval scale was used in sections two, four, five and six. According to Sekaran and Bougie (2009), one function of interval scale is to measure the degree of differences in the preferences among the respondents.

Questions included positively and negatively worded questions to reduce respondents' bias and halo effects (Sekaran & Bougie, 2009). Close-ended questions were adopted in all six sections of the questionnaire. According to Zikmund (2007), close-ended questions take less time to answer and are easier for respondents to answer. Five close-ended questions in section one, which were about demographics, were adopted from Cheah (2009).

Section two consisted of five questions on environmental attitudes, which were adapted from Lee (2008). Section three used five dichotomous questions with Yes or No as the two possible answers. Three questions in this section were adapted from Sinappan et al., (2011), one from Lavega (2004), and another one from Haron et al., (2005) to measure general consumers' knowledge on environmental issues and environmental products.

Section four of the questionnaire consisted of five questions, in which four questions were adapted from Sinappan et al., (2011) and one question was adapted from Lee (2008) on social influence. In the section five, five questions on self-image were asked. The questions in this section adapted from Lee (2008) and Dahlberg et al., (2005). The last section had questions about green purchasing intention. This section consisted of five questions: two questions were adapted from Ishaswini (2011), one question from Haron et al., (2005), and two questions from Cheah (2009).

In this study a six-point Likert scale was for a rating scale that ranged from "extremely disagree" (1) to "extremely agree" (6). The purpose of using the Likert scale was to generate statistical measurement of respondents' attitudes and views. The benefit of Likert scale is that respondents can indicate their level of agreement to a statement when

answering to a Likert questionnaire items. According to Barry (1969) a six-point scale is more sensitive than a four-point scale in showing unbiased responses. In this case, the bigger scale is the better. The use of Likert scale has been applied successfully in various research to measure purchasing intention (Lee & Green, 1991; Kalwani &Silk, 1982; Twyman, 1973).

Table 3.5: Summary of the Questionnaire

	Items	No. of Items
Section 1	**Demographic**	
	Gender	1
	Age	1
	Race	1
	Field of study	1
	Place of origin	1
	Independent variables	
Section 2	Environmental attitude	5
Section 3	Environmental knowledge	5
Section 4	Social influence	5
Section 5	Self-image	5
	Dependent variable	
Section 6	Green purchasing intention	5

3.5.1 Validation of Instrument

Before the questionnaire was distributed to the actual respondents a pilot test was conducted to verify the validity and reliability of the questionnaire. A pilot test was conducted with a sample of respondents representing the study's target population. A total of 40 respondents from among Universiti Utara Malaysia (UUM) students were chosen for purpose of pilot test, which about 10 percent of the sample size for the study. The number of respondents for the pilot test also was adopted from Cheah (2009) based on his sample recommendation of respondents is 382, which was nearly the number of sample used in this study.

A Reliability test is conduced using Cronbach's alpha. According to Cavana et al., (2001)the reliability test refers to the extent to which a test is reliable and constant in measuring what it is intended to measure. The correlations between the items are considered as consistent or reliable with a value of 0.65 or higher (Chua, 2012). The results of the pilot test were discussed in chapter four.

3.6 Data Analysis Techniques

Statistical methods are used to analyze raw data obtained from respondents. According to Cheah (2009), several software packages exist to analyze quantitative research. In this study, the Statistical Package for the Social Science 19.0 (SPSS 19.0) was chosen to analyze raw data.

The data that collected from a representative sample was analyzed using statistics such as mean, standard deviation, Pearson correlation and multiple regression. The purpose of testing the mean and standard deviation is to measure central tendency and dispersion. These also help in knowing how respondents react to the items in questionnaire (Sekaran& Bougie, 2009). According to Sekaran and Bougie (2009) mean and standard deviation are the most frequently used descriptive statistics for interval data.

All four hypotheses were tested using Pearson correlation. That is because the Pearson correlation will show the direction, significance and strength of relationships among all the variables that are measured at an interval level. Multiple regression analysis also was used in this study. Multiple regression analysis was used to assess if

(and) how a single dependent variable will be predicted by two or more independent variables (Wahid, 2011).

3.7 Summary

This chapter provided details on the research methodology. The development of the questionnaire was discussed together with the purpose and objectives of the study, along with a literature review. The chapter also discussed the pilot test, which was conducted to ensure the questionnaire was reliable enough to be used in this present study. The results obtained from the reliability test are discussed in chapter four.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter summarizes the results obtained from the data analysis. The main objective of this chapter is to analyze and presents the results regarding the relationship between environmental attitude, environmental knowledge, social influence and self-image on green purchasing intention. Mean and standard deviation were used in the analysis as the most common descriptive statistics for interval scaled data (Sekaran, 2009). Inferential statistics included Pearson correlation used to identify the direction and the strength of the relationships and multiple regression was used to test the hypotheses developed in this study.

4.2 Overview of Data Collected

4.2.1 Response Rate

A total of 400 questionnaires were distributed to the respondents, which was more than the needed in order to get

the 384-sample size. As predicted the subtotal of 384 questionnaires have been received back. This shows 96 per cent of response rate from the respondents. According to Sekaran (2003), a high response rate is good for statistical analysis.

4.3 Profile of Respondents

The questions about respondents' demographic characteristics were used to create a profile. Descriptive statistics were used to summarize the sets of data gathered from the distribution of the questionnaires. According to Kendrick (2005) descriptive statistics will be useful to the researcher to describe the frequency of characteristics such as gender, age, and race. Demographic questions including gender, age, race, field of study, and place of origin were asked in this study.

The results obtained from the descriptive statistics are shown in Table 4.1 below. Of those who responded, 64.6 per cent (248 respondents) were female and 35.4 per cent (136 respondents) were male. The age of respondents was categorized into four levels, which were 18 to 21, 22 to 25, 26 to 30 and more than 31 years old. Most respondents fell into the range of age 22 to 25, which had 81.5 per cent (313) of the respondents followed by the respondents with the range of age 18 to

21 with 11.5 per cent (44 respondents), 26 to 30 with of 6.3 per cent (24 respondents), and 0.8 per cent (3 respondents) who were more than 31 years old.

The third factor in the demographic section was race of the respondents. There were three major races represented, which were Malay, Chinese and Indian. Malay recorded the highest percentage with 71.4 per cent (274 respondents) followed by Chinese with 12 per cent (46 respondents), Indian 10.4 per cent (40 respondents), and about 6.3 per cent (24 respondents) were other races.

More than 17 courses were identified from the data collection. Social Science and Humanities recorded highest percentage with 21.4 per cent (82 respondents), second were respondents pursuing a Science and Technology course with 18.5 per cent (71 respondents), followed by Agriculture with 12.8 per cent (49 respondents), Management and Business 10.9 per cent (42 respondents), Islam Revealed Knowledge and Human Science 10.4 per cent (40 respondents), Engineering 4.7 per cent (18 respondents), Economic and Management 4.2 per cent (16 respondents). Education and other courses that not listed recorded 3.4 per cent each (26 respondents). There were several courses that recorded below 1.4 per cent. These courses were Architecture and Environmental Design, Biotechnology and Bio-molecular, Computer

Science and Technology, Environmental, Information Science and Technology, Islamic Studies, Laws, Modern Language and Communication and Science

.

Table 4.1 below also shows the frequency and percentage of the place of origin. Most respondents' place of origin was Johor. Johor recorded 14.1 per cent (54 respondents). The second highest state was Selangor with 10.7 per cent (41 respondents) followed by Kedah 9.4 per cent (36 respondents), Negeri Sembilan 8.6 per cent (33 respondents). Pahang and Perak had 8.3 per cent each (64 respondents) while Kelantan and Wilayah Persekutuan had 6.3 per cent each (48 respondents). Melaka had 5.7 per cent (22 respondents) followed by Pulau Pinang 5.2 per cent (20 respondents), Sarawak 4.7 per cent (18 respondents) and Terengganu 4.4 per cent (17 respondents). A few states recorded less than 3 per cent, which were Perlis, Sabah and other states were not included on the list at all.

Table 4.1: Profile of Respondents

Demographic Factors		Frequency	Percent (%)
Gender			
	Male	136	35.4
	Female	248	64.6
	Total	384	100
Age			
	18-21 years old	44	11.5
	22-25 years old	313	81.5
	26-30 years old	24	6.3
	More than 31 years old	3	0.8
	Total	384	100
Race			
	Malay	274	71.4
	Chinese	46	12.0
	Indian	40	10.4
	Others	24	6.3
	Total	384	100

Field of Study			
	Agriculture	49	12.8
	Architecture and Environmental Design	1	0.3
	Biotechnology and Bio-molecular	5	1.3
	Computer Science and Technology	5	1.3
	Economic and Management	16	4.2
	Education	13	3.4
	Engineering	18	4.7
	Environmental	5	1.3
	Information Science and Technology	3	0.8
	Islamic Revealed Knowledge and Human Sciences	40	10.4
	Islamic Studies	4	1.0
	Laws	12	3.1
	Management and Business	42	10.9
	Modern Language and Communication	2	0.5
	Science	3	0.8
	Science and Technology	71	18.5
	Social Science and Humanities	82	21.4
	Others	13	3.4
	Total	384	100

Place of Origin			
	Johor	54	14.1
	Kedah	36	9.4
	Kelantan	24	6.3
	Melaka	22	5.7
	Negeri Sembilan	33	8.6
	Pahang	32	8.3
	Perak	32	8.3
	Perlis	10	2.6
	Pulau Pinang	20	5.2
	Sabah	10	2.6
	Sarawak	18	4.7
	Selangor	41	10.7
	Terengganu	17	4.4
	Wilayah Persekutuan	24	6.3
	Others	11	2.9
	Total	384	100

4.4 Goodness of Measures

4.4.1 Reliability Test

A Cronbach's alpha reliability test was carried out on the variables in this study, which included environmental attitude, environmental knowledge, social influence and self-image as independent variables while green purchasing intention was the dependent variable. Cronbach's alpha was used as a reliability coefficient to testing goodness of data. The items recorded had satisfactory reliable values, in which the overall Cronbach's alpha was 0.796, while the dependent and independent variables recorded results ranging from 0.664 to 0.829. These results fulfilled the rule of thumb that correlations between the items are reliable at a value of 0.65 or higher. Table 4.2 below show the results obtained from the reliability test.

Table 4.2: Reliability Test Results

Variables	Cronbach's Alpha
Dependent Variable	
Green Purchasing Intention	0.829
Independent Variables	
Environmental Attitude	0.798
Environmental Knowledge	0.693
Social Influence	0.664
Self-Image	0.740

4.5 Descriptive Analysis Mean and Standard Deviation

Table 4.3 to Table 4.7 below provides the mean and standard deviation scores obtained for the independent and dependent variables used in this study. On the whole, the mean scores have shown the positive high mean values.

4.5.1 Environmental Attitude

Table 4.3 below shows the means and standard deviations for environmental attitude, which is the first independent variable in the study. All the items in this section recorded means 4.85

to 5.10. Item four recorded the highest mean and thus can be seen as a leading factor in measuring the influence of environmental attitude on green purchasing intention.

Table 4.3: Means and Standard Deviation for Environmental Attitude

Items	Mean	Standard Deviation
1.Essential to promote green living in Malaysia	4.96	0.88
2.Strongly agree that more environmental protection need in Malaysia	5.06	0.82
3.Very important to raise environmental awareness among IPTA students	4.98	0.87
4.Environmental protection is none of my business (**R**)	5.10	1.02
5.Unwise for Malaysia to spend a vast amount of money on promoting environmental protection (**R**)	4.85	1.15
Average	**4.99**	**0.95**

Note: R stands for reversed code

4.5.2 Environmental Knowledge

The items in this section have been developed using a dichotomous scale with two possible answers, which were "Yes" which has been labelled with value (1) and "No" labelled which has been labelled with value (2). The mean results are shown in the Table 4.4 below. From this table, we

can see that the third item "Well knowledgeable about environmental issues" recorded the highest mean compared to other items in this section. The lowest mean was scored by the first item "Have you heard about environmental products?" and the fifth item "Aware that condition of our environment can effect our health" with mean scores of 1.02.

Table 4.4: Means and Standard deviation for Environmental Knowledge

Items	Mean	Standard Deviation
1.Have you heard about environmental products?	1.02	0.16
2.Are you aware of such products?	1.07	0.26
3.Well knowledgeable about environmental issues	1.50	0.50
4.Often share information regarding environmental issues with others	1.42	0.49
5.Aware that condition of our environment can effect our health	1.02	0.14
Average	**1.21**	**0.31**

4.5.3 Social Influence

Table 4.5 below shows mean scores and standard deviations for social influence variables. This independent variable recorded an average mean score of 3.83. The second item "Learn so much about environmental issues from my friends" recorded the highest mean compared to the other items. The fifth item "Often buy environmental products with my friends" recorded a mean value of 3.73, which was the lowest of items in this section.

Table 4.5: Means and Standard Deviation for Social Influence

Items	Mean	Standard Deviation
1.Learn so much about environmental products from my friends	3.81	0.86
2.Learn so much about environmental issues from my friends	3.92	0.93
3.Often share information regarding environmental products with my friends	3.88	0.93
4.Often share information regarding environmental issues with my friends	3.83	0.96
5.Often buy environmental products with my friends	3.73	0.99
Average	**3.83**	**0.93**

4.5.4 Self-Image

Table 4.6 below shows all the items for self-image, which recorded mean values ranging from 3.58 to 4.44. The fourth item in this section "I feel I have a number of good qualities to contribute to the environment" scored the highest mean value of 4.44. However, the third item "I will perceived as "out-dated" if I do not support environment protection" scored a mean value of 3.58, which the lowest compared of all items in this section.

Table 4.6: Means and Standard Deviation for Self-Image

Items	Mean	Standard Deviation
1.Supporting environmental protection makes me more socially attractive	4.31	0.93
2.Supporting environmental protection makes me special	4.38	0.92
3.I will be perceived as "out-dated" if do not support environmental protection	3.58	1.16
4.I feel I have a number of good qualities to contribute to the environment	4.44	0.80
5.I am satisfied with my contribution to the environment	4.21	0.79
Average	**4.18**	**0.92**

4.5.5 Green Purchasing Intention

Table 4.7 below shows the mean scores for green purchasing intention variables. This dependent variable recorded the highest mean values with an average of 4.73 compared to other independent variables on the whole. The third item "I absolutely to buy those products that are environmental friendly" scored the highest mean value of 4.83 while the fifth item "I buy green products even if they are more expensive than non-green products" scored lowest mean value of 4.58 compared to other items in this section.

Table 4.7: Means and Standard Deviation for Green Purchasing Intention

Items	Mean	Standard Deviation
1.I would definitely intend to buy those products that are environmental friendly	4.69	0.76
2.I would absolutely consider to buy those products that are environmental friendly	4.76	0.85
3.I would absolutely plan to buy those products that are environmental friendly	4.83	0.81
4.I would intend to switch to other brand for ecological reasons	4.81	0.84
5. I buy green products even if they are more expensive than the non-green products	4.56	0.94
Average	**4.73**	**0.84**

4.6 Hypotheses Testing

This study adopted Pearson correlation and multiple regression statistical tests. The Pearson correlation matrix was used to demonstrate the direction and strength of the relationships among the variables that measured using interval scale (Sekaran, 2003). Meanwhile, multiple regression was used to test the hypotheses that were developed at the beginning of the study.

4.6.1 Pearson Correlation

According to Pallant (2002), Pearson correlation can be used to measure items that are designed with one dichotomous variable and one continuous variable. This study used Pearson correlation analysis as the pre-requisite for multiple regression analysis. This study adopted guidelines from Cohen (1988) in determining the strength of the relationship, which are shown in Table 4.8 below. According to Cohen (1988), the positive or negative sign in front of correlation (**r**) value refers to the direction of the relationship and not the strength of the relationship.

Table 4.8: Strength of the Relationship

Correlation (**r**)	Strength
r= 0.10 to 0.29 or r= -0.10 to -0.29	Small
r= 0.30 to 0.49 or r= -0.30 to -0.49	Medium
r= 0.50 to 1.0 or r= -0.50 to -1.0	Large

Table 4.9 below illustrates the results obtained for the Person correlation test. There is a significant relationship between environmental attitude and green purchasing intention with a significance level of p = 0.000. The correlation value shows that the relationship between the environmental attitude variable and green purchasing intention variable is weak but positive (r = 0.230).

Table 4.9: Correlations between Environmental Attitude and Green Purchasing Intention

	Pearson Correlation (**r**)	Significance
Values	0.230**	0.000

*Note:** Correlation is significant at p = 0.01 (2-tailed)*

Table 4.10 below shows a significant relationship between environmental knowledge and green purchasing intention with a significance level of p = 0.000. The correlation value shows that the environmental knowledge variable and green purchasing intention variable have a weak negative relationship (r = -0.196).

Table 4.10: Correlation between Environmental Knowledge and Green Purchasing Intention

	Pearson Correlation (**r**)	Significance
Values	-0.196**	0.000

*Note:** Correlation is significant at p = 0.01 (2-tailed)*

Table 4.11 below shows a significant relationship between social influence and green purchasing intention with a significance level of p = 0.000. The correlation value shows that the social influence variable and green purchasing intention variable have a weak positive relationship (r = 0.230).

Table 4.11: Correlation between Social Influence and Purchasing Purchasing Intention

	Pearson Correlation (**r**)	Significance
Values	0.230**	0.000

*Note: ** Correlation is significant at p = 0.01 (2-tailed)*

Table 4.12 below shows a significant relationship between self-image and green purchasing intention with a significance level of p = 0.000. The correlation value shows the self-image variable and green purchasing intention with a moderate positive relationship (r = 0.428).

Table 4.12: Correlation between Self-Image and Green Purchasing Intention

	Pearson Correlation (**r**)	Significance
Values	0.428**	0.000

*Note** Correlation is significant at p = 0.01 (2-tailed)*

4.6.2 Multiple Regression

According to Pallant (2002) there are three main types of multiple regression analysis: 1) standard or simultaneous, 2) hierarchical or sequential, and 3) stepwise. This study adopted the standard multiple regression analysis, using it to evaluate the relationships between a dependent variable and a group of the independent variables.

Table 4.13 below shows the model summary obtained from multiple regression analysis. The value of Multiple (**R**) shows that the relationship between a group of independent variables that are environmental attitude, environmental knowledge, social influence and self-image and the dependent variable green purchasing intention is 0.491, which is characterized as

moderate using the correlation rule of thumb. Meanwhile R Square was 0.241, which means the independent variables environmental attitude, environmental knowledge, social influence and self-image explain 24.1 percent of the variance in the dependent variable (green purchasing intention).

The ANOVA table below shows an F value of 30.058 that is significant at p = 0.000. This result reveals that 24.1 percent (R Square) of the variance in the dependent variable green purchasing intention has been interpreted significantly by all independent variables, which are environmental attitude, environmental knowledge, social influence and self-image.

The Coefficients Table helps in identifying the most important variable in the independent group that explained the variance in green purchasing intention. Based on the Coefficients Table below, the largest Beta coefficient was 0.388, which was for self-image. Self-image makes the strongest contribution to interpreting the dependent variable, which is green purchasing intention. The second largest Beta coefficient was 0.213, which was for environmental attitude followed by social influence Beta coefficient of 0.066 and environmental knowledge Beta coefficient -0.054. The variables with lower

Beta coefficients made less of contribution to explaining the dependent variable, which is green purchasing intention. The equation model for the multiple regression shows below:

$$Y = B_0 + B_1X_1+B_2X_2+B_3X_3+B_4X_4$$

$$Y = 2.182 + 0.201X_1 – 0.171X_2 + 0.050X_3 + 0.372X_4$$

(5.365) (4.729) (-1.075) (1.280) (8.127)

Y = Green purchasing intention

X_1 = Environmental attitude

X_2 = Environmental knowledge

X_3 = Social influence

X_4 = Self-image

$$R^2 = 1 – \frac{RSS}{TSS}$$

$$R^2 = 1 – \frac{100.222}{132.016}$$

$$R^2 = 0.241$$

$$F = \frac{ESS/df}{RSS/df}$$

$$F = \frac{31.794/ (5-1)}{100.222/ (384-3)}$$

$$= \frac{7.9485}{0.264}$$

$$= 30.058$$

R^2 = 0.241, F statistic = 30.058 (0.05 < p value < 0.05)

Table 4.13: Multiple Regression Analysis

Model Summary

Model	R	R Square
1	0.491	0.241

ANOVA

Model	F	Significance
1	30.058	0.000

Coefficients

Model	B	Beta	T	Significance
Constant	2.182		5.365	0.000
Environmental Attitude	0.201	0.213	4.729	0.000
Environmental Knowledge	-0.171	-0.054	-1.075	0.283
Social Influence	0.050	0.066	1.280	0.201
Self-Image	0.372	0.388	8.127	0.000

Hypotheses 1: There is a significant relationship between environmental attitude and green purchasing intention.

The significant level for environmental attitude was p = 0.000 which was less than 0.05. The result explains that this variable made a significant unique contribution to the prediction of the dependent variable. Therefore, we accept the hypotheses.

Hypotheses 2: There is a significant relationship between environmental knowledge and green purchasing intention.

The significant level for environmental knowledge was 0.283 which was greater than 0.05. The result explains that this variable was not making a significant unique contribution to the prediction of the dependent variable. Therefore, we reject the hypotheses.

Hypotheses 3: There is a significant relationship between social influence and green purchasing intention.

The significant level for social influence was 0.201, which was greater than 0.05. The result explains that this variable is not making a significant unique contribution to the prediction of the dependent variable. Therefore, we reject the hypotheses.

Hypotheses 4: There is a significant relationship between self-image and green purchasing intention.

The significant value for self-image was 0.000, which was less than 0.05. The result explains that this variable is making a significant unique contribution to the prediction of the dependent variable. Therefore, we accept the hypotheses.

4.7 Summary

This chapter revealed the results obtained from the statistical analysis. Three statistical techniques were used; these were descriptive statistics, Pearson correlation, and multiple regression. Descriptive statistics were used to analyze the demographic factors to obtain frequencies and means and standard deviations for the independent variables and dependent variable.

Pearson correlation and multiple regression statistical techniques were used to explore the relationships between the variables. Pearson correlation was used to explore the direction and the strength of the relationship between a group of independent variables and a dependent variable. Meanwhile, multiple regression was used to test

the predictive ability of a group of independent variables, which were environmental attitude, environmental knowledge, social influence and self-image on the dependent variable green purchasing intention.

Based on the results obtained from the analysis, the first and the fourth hypotheses were accepted with a significance level of 0.000. Meanwhile, the second and the third hypotheses have been rejected because the significance level was greater than 0.05. Furthermore, the multiple regression test showed that environmental attitude and self-image were essential in influencing consumers' green purchasing intention while environmental knowledge and social influence did not contribute to influencing consumers' green purchasing intention.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the overall outcomes of the study. The chapter has been divided into three parts, which are the discussion, conclusion and recommendations. The four objectives developed earlier in the study will be discussed further based on results obtained in chapter four. The second part will cover the conclusion of the study. Meanwhile, recommendations have been included in the last part of this section.

5.2 Discussion

The main focus or objectives of this study were to evaluate the relationships between environmental attitude, environmental knowledge, social influence and self-image over green purchasing intention. The respondents were 384 final year students from four major public universities in Selangor, which were Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM), Universiti Islam Antarabangsa Malaysia (UIAM) and Universiti Teknologi Mara (UiTM) Shah Alam.

The present study used a questionnaire as a data collection method. The questionnaire had 30 questions divided into six sections. The first section had questions on demographic characteristics while the second section through the fifth section had questions on environmental attitude, environmental knowledge, social influence and self-image. The final section had questions on green purchasing intention. Data was collected using a simple random sampling design, which is a form of probability sampling.

The data gathered was analyzed using the Statistical Package for the Social Science 19.0 (SPSS 19.0). The questions covered in the questionnaire were adapted from various existing academic studies. The questions on environmental attitude were adapted from Lee (2008). Meanwhile, questions on environmental knowledge were adapted from Sinappan et al., (2011), Lavega (2004) and Haron et al., (2005). Questions on social influence were adapted from Sinappan et al., (2011) and Lee (2008). Questions on self-image were adapted from Lee (2008) and Dahlberg et al., (2005). Last, but not least, questions on green purchasing intention was adapted from Ishaswini (2011), Haron et al., (2005) and Cheah (2009). All the dimensions of the independent variables were chosen because each of these dimensions previously have been identified as variables giving the greatest impact on green purchasing intention in past studies.

Four objectives were developed at the beginning of the study. The main aims were to identify the relationships between environmental attitude, environmental knowledge, social influence and self-image with respect to green purchasing intention.

Objective 1: To explore the relationship between environmental attitude and green purchasing intention.

The results obtained from the Pearson correlation test shows a weak positive relationship between environmental attitude and green purchasing intention. The multiple regression analysis revealed that environment attitude ranked as second top predictor in explaining green purchasing intention with a Beta coefficient of 0.213 compared to other variables. Furthermore, the significance coefficient value of environmental attitude was 0.000, which is less than 0.05. So, it can be concluded that environmental attitude makes a unique and statistically significant contribution to the prediction of green purchasing intention.

This finding is consistent with previous literature in which, according to Kotchen and Reiling (2000), several studies found a positive relationship between environmental attitude and green purchasing intention. Paco and Rapos's (2009) study mentioned that, even though

consumers do not essentially use attitude as a platform for their green purchasing intention, attitude still could create a strong influence on their green consumption. Meanwhile, Chyong et al., (2006) mentioned attitude as a reliable predictor in determining consumers' willingness to purchase green products.

Based on the findings here and the existing literature, we could say that, consumers have a high degree of awareness about environmental protection. According to Lee (2008), consumers who have high level of anxiety towards the environment may have high level of intention to be involved in green consumerism. Therefore, we can say that consumers are aware and tend to react in the proper manner towards the sustainability of the environment.

Objective 2: To identify the relationship between environmental knowledge and green purchasing intention.

The results obtained from Pearson correlation test explain that a weak negative relationship exists between environmental knowledge and green purchasing intention. The multiple regression analysis revealed that environmental knowledge does not made a unique and statistically significant contribution to the prediction of green

purchasing intention. The coefficient value was 0.283, which is greater than 0.05.

Rahbar's (2008) study mentioned that he could not find a positive relationship between ecological knowledge and green purchasing behaviour which tallies with this present finding. Other studies in green purchasing area showed that ecological knowledge had a statistically insignificant relationship with green purchasing behaviour (Paco & Raposo, 2009).

In addition, Tadajewski and Tsukamoto (2006), in their empirical research on green consumers' behaviour said that, even though their sample had knowledge about life-cycle analysis based on responses to the questionnaire, but knowledge as unsuccessful to showing their purchasing behaviour.

Objective 3: To examine the relationship between social influence and green purchasing intention.

The results obtained from the Pearson correlation test shows a weak positive relationship between social influence and green purchasing intention. However, the multiple regression analysis revealed the social influence does not make a unique and statistically significant

contribution to the prediction of green purchasing intention. The coefficient value was 0.201, which is greater than 0.05.

Lee and Green (1991) found that social influence had a positive impact on consumers' purchasing intention. However, Irwan and Darmayanti's (2012) research found that social influence were not significantly in influencing green purchasing behaviour as their significance level was more than 0.05. This result related to the present study in which social influence did not make a statistically significant contribution to the prediction of green purchasing intention.

Based on the findings and existing literature, we could say that social influence is not a vital factor influencing green product purchases. This finding is supported by research carried out among students from universities in Indonesia. Irwan and Darmayanti (2012) mentioned that the information sharing between friends on environmental issues and environmental friendly product are low among university students in Indonesia.

Objective 4: To investigate the relationship between self-image and green purchasing intention.

The results obtained from Pearson correlation test show a moderate positive relationship existing between self-image and green purchasing intention. However, the multiple regression analysis revealed that self-image ranked as a top predictor in explaining green purchasing intention with a Beta coefficient of 0.388. Moreover, the self-image significance level was p = 0.000, which is less than 0.05.So, it can be concluded that self-image makes a unique and statistically significant contribution to the prediction of green purchasing intention.

This finding is supported by previous literature. For example, Cheah (2009) found that self-image was the most important influencer of green purchasing intention among young consumer in Malaysia. It also related to studies by Sharp et al., (2007), in which young consumers' identity development was discovered to be the most important variable in influencing green purchasing behaviour. Meanwhile, Lee (2008) revealed that self-image had a significant relationship with Hong Kong adolescence green purchasing behaviour. This is likely similar to research conducted by Mannetti et al., (2004) in which an individual's self-image of ecologically

consciousness had a positive relationship and statistically significant with the intention to be involved in recycling.

Based on the findings, we can say that a person with high pro-environment behaviour can create a positive impression on others. According to Cheah (2009) being involved in green purchasing activity may lead a person to feel trendy and superior because green consumerism nowadays happens to be a trend. Furthermore, the sample of respondents used in this study was well educated. Respondents with high educational background have been found to be more responsible towards green environment (Cheah, 2009).

Table 5.1: Summary of Results

Variables	Pearson Correlation	Multiple Regression	Hypotheses
Environmental Attitude	Positive & Significant	Beta Coefficient 0.231 & $p<0.05$ (0.000)	Accepted
Environmental Knowledge	Negative & Significant	Beta Coefficient 0.054 & $p>0.05$ (0.283)	Rejected
Social Influence	Positive & Significant	Beta Coefficient 0.066 & $p>0.05$ (0.201)	Rejected
Self-Image	Positive & Significant	Beta Coefficient 0.388 & $p<0.05$ (0.000)	Accepted

5.3 Conclusions

"Going green" has become popular buzzword among Malaysians and people all over the world. Each and everyone in society should take responsibility in protecting the environment through green purchasing. This study found that young consumers would be potential customers for purchasing green products in the near future. This study accomplished its main objectives in identifying the factors tied to green purchasing and ranking them as potential influencers of the green purchasing intention among public university students in Selangor.

The present study found that self-image is a most important independent variable that influences the green purchasing intention among public universities students. Self-image is followed by environmental attitude, social influence and environmental knowledge. However, social influence and environmental knowledge variables did not influence public universities students towards green purchasing intention. These findings are supported with the use of Theory of Reasoned Action (TRA). According to the theory, most people judge the consequences of their actions before they make a decision to be involved or not in a given behaviour (Ajzen & Fishbein, 1980). In summary, the findings here can be used for their

theoretical implications as well as their practical implications in future.

5.4 Recommendations

In general, this study gives an idea of theoretical and practical implications about young consumers in Malaysia. Based on the results from the findings, we know that those young consumers show a positive response towards green purchasing. The result from present study would be useful for the researchers in future to expand upon the study of green purchasing.

Meanwhile, because young consumers will be a powerful market in near future, local and international marketers should pay attention to young consumers as target market. According to Lee (2008), young consumers can be a potentially huge market for green products for several reasons; these are purchasing power, power in influencing the purchase of friends and parents, broader thinking and accepting new innovation and ideas.

In addition, understanding self-image and environmental attitudes seems to be important. Reward and recognition activities are recommended courses of action for marketers targeting consumers

who response to self-image as a factor that influences them towards a green purchasing intention (Earthshare, 2012).

Increasing knowledge is the best strategy to transform the attitudes of young consumers towards positive green purchases. Lee (2008) suggested companies convey a message urging each and everyone to carry out their responsibilities to sustain the environment through green products purchasing. As respondents were universities students, they are well educated. For this reason, companies need to take the opportunity to attract young consumers through implementing consumer involvement in their green marketing and also engaging these young consumers online.

Nowadays, most companies involved in the green movement willingly take the opportunity to encourage consumers to play a part in a campaign or engage straightforwardly with the products. For example "*Think about the environment before printing*" is a slogan that appears in many online transactions, which asks consumers to sustain the environment by reducing paper usage. Initiatives to educate consumers about eco-labels are known aggressive steps that drive consumers to consume green products rather than non-green products. Meanwhile, online space digital marketing involving social media, mobile marketing, email marketing and display marketing has

been found to be an important influence in increasing the number of consumers involved in green marketing or green purchases.

5.5 Limitation of the Study and Suggestion for Future Research

There are several limitations of the present study. Firstly, this study is based on cross-sectional data collected from students at universities located in Selangor at one point of time only. For these reasons, the findings of the present study can not generalized to all consumers all over Malaysia. Thus, future research should sample a broader population, be focused on a broader spectrum of age groups, and be longitudinal.

The second limitation is the simple random sampling technique that used in this study. The present study obtained important data related to students from the respective universities. However, the complete updated lists of the population may not be constantly present at all times. However, surveying the entire population could become unmanageable and pricey even though it has less bias and provides a high level of generalizability (Sekaran, 2003).

The present study only focused on four variables that were found to influence green purchasing intention, yet many other, additional

variables could be used to study the green purchasing intention. In addition, the present study did not involve any variable as moderator or mediator because the present study was carried out to evaluate the direct relationship between a dependent variable and a group of independent variables.

Ling's (2013) study used willingness to pay as a moderating variable towards green purchasing intention. According to Barnard and Mitra (2010), product price and quality seen to be the main dimensions in influencing consumer willingness to pay more for green purchases. Therefore, future researchers could use willingness to pay with the dimensions of products' price and quality as a moderator variable for green purchasing intention.

Peoples concerns about the quality of green products and green services keep increasing (Chang & Fong, 2010). Therefore, future study should focus on green labelling, green values, green packaging and green service that may contribute towards green purchasing intention among consumer because little study has been on these factors to date.

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