A STUDY OF SOCIO-DEMOGRAPHIC AND PERSONAL-PHILOSOPHICAL VALUES ON ENVIRONMENTAL CONSCIOUSNESS

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Research report in partial fulfillment of the requirements for the degree of Master of Business Administration

MAY 2006

Dedicated to my late-advisor, Allahyarham Dr Mohamed Benbrahim,

for his courage and thoughtful inspirations.

May peace be upon your soul.

For my mom, Sa'diah Binti Darus,

as a promise to be fulfilled.

APPENDIX 1

October 10th, 2005

Dear Respondent,

<u>Re : MBA Research Project –A Study of Socio-Demographic and Personal-Philosophical Values On Environmental Consciousness</u>

This research is undertaken as part of the fulfillment of the academic program of the Master of Business Administration (MBA) in Universiti Sains Malaysia (USM). The purpose of this survey is to determine the level of Malaysian consumers' environmental consciousness and behavior.

I seek on your kind cooperation in completing this questionnaire based on your honest opinion. There is no right or wrong answer and it should take you not more than 10 minutes to complete. All information provided is deemed confidential and will be used only for the purpose of this academic research.

Should you have any queries or if you are interested to know the outcome of this study, please do not hesitate to contact me at 012-4907179 or email : sitihaslina@gmail.com Alternatively, you may contact my project supervisor, Dr Norizan Mat Saad, lecturer of School of Management, USM at 04-6533888 ext. 3354.

Many thanks for your valuable time and assistance in completing this questionnaire. Your participation and assistance is highly appreciated in making this study successful.

Siti Haslina Md Harizan   Dr Norizan Mat Saad
MBA Student   Project Supervisor
School of Management   School of Management
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ACKNOWLEDGEMENT

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ABSTRAK

Kajian tentang segmentasi pengguna hijau dan kesedaran alam-sekitar dijalankan dengan meluas di negara-negara Barat. Di Malaysia, kajian sebegini masih di peringkat permulaan dan terhad bilangannya. Kajian ini dijalankan mengikut keadaan semasa dalam negeri dan bertujuan mengkaji sosio-demografi, nilai-nilai falsafah diri, dan tahap kesedaran alam-sekitar terhadap perilaku pembelian mesra alam-sekitar. Kajian ini berlandaskan model-model yang diubahsuai daripada kajian lalu, menerangkan hubungan di antara komponen-komponen kesedaran alam-sekitar; sikap terhadap alam- sekitar, pengetahuan tentang alam-sekitar, dan perilaku pembelian mesra alam-sekitar. Penyelidikan dijalankan ke atas 100 sampel orang dewasa bekerja, di dalam kawasan USM, Pulau Pinang. Model Diamantopoulus et.al. (2003) yang mengkaji perbezaan di antara sosio-demografi dan komponen-komponen kesedaran alam-sekitar tidak disokong sepenuhnya kerana hanya golongan wanita dan golongan telah berkahwin sahaja didapati berbeza pada segelintir komponen kesedaran alam-sekitar. Model nilai-nilai falsafah diri dan kesedaran alam-sekitar turut tidak disokong memandangkan komponen materialistik dan berfikiran terbuka tidak mempunyai hubungan yang signifikan dengan komponen kesedaran alam-sekitar. Sikap dan pengetahuan terhadap alam-sekitar menjelaskan 18% variasi dalam pembelian mesra-alam. Hasil kajian menunjukkan terdapat perbezaan signifikan di antara sosio-demografi dan segelintir komponen kesedaran alam-sekitar. Golongan berpengetahuan dalam alam-sekitar signifikan dalam menjangkakan perilaku pembelian mesra alam-sekitar. Di akhir kajian, implikasi kajian terhadap strategi pemasaran dan cadangan kajian akan datang turut dibincangkan.

ABSTRACT

The research on green market segmentation and environmental consciousness has been conducted extensively in Western countries. However, in Malaysia, such studies are still in the early stage and are very limited. This study is conducted in local context to analyze green consumer, based on socio-demographic, personal-philosophical values, and environmental consciousness, towards environmental purchase behavior. This study is based on adapted models in previous studies, which explained the relationship of environmental consciousness; environmental attitude, environmental knowledge and environmental purchase behavior among consumer. A survey was done on 100 working adult sample within USM, Penang. Diamantopoulus et.al. (2003) model that examines differences between socio-demography and environmental consciousness components was only partially fulfilled since only female and married person showed significant differences in some components of environmental consciousness. The model that studies personal-philosophical values and environmental consciousness was not supported since both materialism and open-mindedness had no significant relationship with any of the environmental consciousness components. Both environmental attitude and environmental knowledge explained 18% variations of environmental purchase behavior. However, only environmental knowledge played a significant role in determining the extent of environmental purchase behavior showing that the model which examines the relationship among environmental consciousness components was only partially supported. At the end of this study, implications of findings on marketing mix strategies and suggestions of future research are discussed.

Chapter 1

INTRODUCTION

1.1   *Introduction*

There has been a growing awareness of widespread environmental degradation facing current and future generations during the past decade (Grove et.al., 1996). The concept of "green marketing" has become a familiar buzz phrase in recent years as organizations have targeted the environmentally conscious consumer and have begun to respond to the increasing likelihood of stricter environmental regulations.

According to National Consumer Policy, one of the proposed policies by Malaysian government is to encourage the use of eco-label products besides enhancing the attitude of recycling to ensure the conservation of the environment and best quality of life for Malaysian consumers (Ruzian, 2002). Therefore, this chapter will explore on a brief overview on local eco-label program, current needs to measure environmental consciousness among Malaysians and how marketers can take advantage from this current phenomenon.

1.2   *Background*

As a part of environmental aspect, the awareness or consciousness of environmentally labeled products has grown steadily as an important factor in purchasing a product (Linden & Thelander, 1999). This is due to the amount of labeled products that

have increased tremendously during last ten years, and thus, make the environmentally purchase behavior easier to perform (Linden & Thelander, 1999). Products and services which carry environmental labels boost their image and help consumers make better purchasing choice (New Straits Times Press, 2004).

Eco-label is increasingly demanded in most developed countries, whereby its citizens are better exposed to and protected with it. For example, EU countries had placed certain trade regulations that require all exports and goods to be provided with eco-label on its packaging (MATRADE, 2005). Given this opportunity, most Malaysian exporters viewed it as a way to maintain their products' global competitiveness and to avoid losing their international market share since eco-label distinguishes a product from competitor who cannot support their environmental assertions (News Straits Times Press, 2004). If consumers exhibit a high degree of ecological concern and channel it into some eco-friendly purchasing acts, it is likely that profit-driven enterprises will be strongly motivated to adopt the concept of green marketing in their operations (Chan & Lau, 2000). Therefore, consumers and businesses alike have a role to play in ensuring that Malaysia achieves its goal in becoming a developed nation without jeopardizing the environment.

Malaysia national environmental labeling program, *Eko-Sirim* (*Eco-labeling Scheme)* was officially launched on September 17th, 2005 by the Standards and Industrial Research Institute of Malaysia (SIRIM). The task of certification is carried out by SIRIM's fully-owned subsidiary, SIRIM Quality Assurance Services (SIRIM QAS) International Sdn. Bhd. As a pilot program, the scheme is offered to manufacturers, retailers, importers and exporters which allow them to use the SIRIM *Eco-label* mark to

declare their products' environmental benefit. Product and service need to be independently tested and verified against pre-set product criteria before they are allowed to use the label on their products, packaging, and letterhead. As a start, the *Eco-labeling Scheme* will consist of claims on 4 categories of products – recycled paper, biodegradable cleaning agents, environmentally degradable and non-toxic plastics packaging material, and hazardous metal-free electrical and electronics equipment components and parts (News Straits Times Press, 2004).

Figure 1. SIRIM Eco-label (SIRIM, 2005).

In September, 2005, a plastic-packaging company was first certified with *Eko-Sirim* by SIRIM QAS, while other 14 companies are still in the process of getting the certification in this pioneering program (The Star, 2005).

1.3   *Problem Statement*

Many of the earlier studies failed to investigate the linkage between socio-demography and all components of environmental consciousness; namely attitude, knowledge and behavior (Diamantopoulus et.al., 2003). Besides, it would be worthwhile to include other categories of influences to gain more comprehensive pattern of the extent to which environmental behaviors are due to these influences. Kotler (2003) also reported

that customers within the same demographic group can exhibit very different psychographics characteristics. Therefore, a further study on green consumers should be done in terms of psychographics variables. This is also aligned with Grob (1995)'s suggestion in his future study, of which socio-demography is one of the suggested factors beside personal-philosophical values that were analyzed in his previous study of environmental behavior. As suggested by Schlegelmilch et.al. (1996), in its future research, the replication of its model should be tested in other countries in order to gain an overall understanding of environmental consciousness domain that affecting a specific environmental purchase behavior. This would be applicable to predict the extent of eco-label products purchase behavior by Malaysian consumers using the measures of entire environmental consciousness domain. Further, among the components of environmental consciousness, both environmental attitude and environmental knowledge prove to predict environmental behavior, such as eco-label purchase behavior. This entire basis can be applied in identifying the appropriate market segment of eco-label products. The question is:

To what extent do socio-demography, personal-philosophical values, environmental knowledge, and environmental attitude could explain the characteristics of green consumer by affecting environmental purchase behavior across the region?

Therefore, this study is the continuance from suggested future research of Grob (1995), Schlegelmilch et.al. (1996) and Diamantopoulus et.al. (2003). Previously, there has been no study yet on specifically segmenting environmental product market in Malaysian context. Therefore, this study will close the gap by studying the Malaysian perspective. Various background and characteristics of Malaysians make environmental

product market segmentation even more complex. However, green consumers may have certain similar characteristics in terms of socio-demographic, psychographics (values), environmental attitude and environmental knowledge. This present study will further explore on how to identify the characteristics of green consumers in respect of these dimensions. The characteristics of green consumer would aid enterprises to better strategize their marketing mix and make efficient use of their resources; by manipulating factors that influences the environmental product purchase behavior that prevails in that segment. The identified segment may be referred to, as a basis to further expand into larger segments, both domestic and international.

1.4   Research Objectives

The objectives of this research are:

1.   To examine the differences between socio-demographic characteristics of consumer and environmental consciousness components.

2.   To analyze the relationship between personal-philosophical values of consumer and environmental consciousness components.

3.   To analyze whether environmental consciousness components of knowledge and attitude can significantly predicting the extent of environmental purchase behavior.

1.5   Research Questions

From the research objectives, several questions are intended to be answered in this present study:

1.   Is there any significant difference between socio-demographic characteristic of consumer and their level of environment consciousness?

2.   Is there any significant relationship between personal-philosophical values of consumer and their level of environment consciousness?

3.   Does higher environmental consciousness component of knowledge significantly predict more of environmental purchase behavior?

4.   Does higher environmental consciousness component of attitude significantly predict more of environmental purchase behavior?

1.6   *Significance of the Study*

This study is significant since previous, large majority of environmental studies focusing on socio-demographic characteristics are US-based (Diamantopoulos et. al., 2003). This may not reflect the same situation settings in Malaysia. Study by Diamantopoulos et.al. (2003) shows that this is of particular concern, given that country-specific factors (levels and type of pollution, the availability of green products, environmental legislation, or cultural influences) have been found to influence the socio-demography make-up of green consumers, and therefore, the US results may not hold in other settings. As in Marguerat and Cestre (2004), no attention was given to the possible purchase or post-purchase link for environmental products yet, and therefore, several issues remain to be addressed or further investigated, particularly, the determinants of environmental products purchase. We should also investigate consumer behavior since it is the behavior, not the expressed concern that will help correct the problems currently facing the environment and create markets for environmental products and services.

Psychographics model is a more effective segmentation tool for green consumer (Roberts, 1996; Straughan & Roberts, 1999). Therefore, it is suggested that mixed model (including both demographics and psychographics) should be preferred to traditional demographic profiling methods. Personal-philosophical values as one of psychographics factors, will be associated with environmental consciousness characteristics that influence the purchase of environmental products.

Enterprises will spend a lot on marketing strategy and eco-label certifications, if they are to adopt this attribute in their products. Therefore, a study should be performed as a basis to create a robust environmental segmentation tool. The findings would lead to a better planning of marketing strategy for environmental products. Environmental labeling might even dictate the conduct of future business.

1.7   *Organization of Remaining Chapters*

Basically, Chapter 1 introduces the topic of study. In Chapter 2, there will be more literature review on variables of study and a theoretical framework is developed to show the interconnections between variables. Next, several hypotheses are constructed to be tested. In Chapter 3, the methodology of studies is elaborated, involving research design, variables operated, population and sampling method, questionnaires, data collection and data analysis. Results of the study will be presented in Chapter 4. Chapter 5 discusses and concludes the findings from the study. References and appendices will follow suit at the final part of the study.

1.8   *Definition of Key Terms*

Table 1.1
Definitions of key terms

Key terms	Definition(s)	Sources
Eco-label	1. A label which identifies overall environmental preference of a product (i.e.. good or service) within a product category based on life cycle considerations, and such labeling of the products attracted consumers who were looking for ways to reduce adverse environmental impacts through their purchasing choices.	1. Global Eco-labeling Network (GEN), (2004)
	2. Labels with wide range of environmental considerations, such as recycled content, biodegradability, toxic emissions, waste generation, harm to wildlife, etc.	2. Banerjee & Solomon (2003)
Environmental	Aspects and consequences of behavior which reduce damages on nature and climate from an ecological point of view	Linden & Thelander (1999)

Environmental consciousness	A multi-dimensional construct, consisting of cognitive, attitudinal and behavioral components of environmental domain	Schlegelmilch et.al. (1996)
Green consumer	*See socially conscious consumer, socially responsible consumer*	
Personal-philosophical values	Post-materialistic beliefs and readiness to adopt new attitudes (openness)	Grob (1995)
Socially conscious consumer	A consumer who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change.	Webster (1975)
Socially responsible consumer	A person basing his or her acquisition, usage, and disposition of products on a desire to minimize or eliminate any harmful effects and maximize the long-run beneficial impact on society	Mohr et.al. (2001)

Chapter 2

LITERATURE REVIEW

2.1   Introduction

In this chapter, a background study is performed to review all the literature behind the topic of study. A theoretical framework will be presented, which shows the linkages and associations between variables of interests and finally, hypotheses are developed to be tested at the end of this chapter.

2.2   Review of the Literature

This will cover the review of major variables like market segmentations (socio-demographic and personal-philosophical values), environmental consciousness domains on knowledge, attitudes, and behavior. Initially, all these variables are discussed based on general context, which will be narrowed down to a more specific context in elaborating each variable further.

2.2.1   Consumer Market Segmentation

A market segment consists of a group of customers who share a similar set of wants (Kotler, 2003). Market segment is derived from market segmentation, which is the process of dividing large heterogeneous markets into smaller, homogeneous subsets of people or businesses with similar needs and responsiveness to marketing mix offerings (Kinnear & Bernhardt, 1990). Each segment requires different mix of marketing strategies

to satisfy its special consumer needs (Lin, 2002). This smaller target market is a homogeneous segment of the market to which marketers direct a specific marketing program. A company can also create a more fine-tuned product or service offering and price it appropriately for the target segment, while easily select the best distribution and communication channels, besides having a clearer picture of its competitors. (Kotler, 2003).

Variety of segmentation variables had been attempted to profile green consumer; namely geographical measures (Samdahl and Robertson, 1989; Chan & Lau, 2000), cultural measures (Webster, 1975), personality measures (Kinnear et.al., 1974) and socio-demographic characteristics (Webster, 1975; Van Liere & Dunlap, 1981; Samdahl & Robertson, 1989; Roberts, 1996; Straughan & Roberts, 1999; Diamantopoulus et.al., 2003).

According to Lin (2002), an effective market segmentation technique depends on selecting the relevant segmenting bases and descriptors. Straughan and Roberts (1999) too, suggested a mixed model associating a range of both demographics and psychographics variables in providing stronger profiles of green consumption. This would lead to multi-segmenting method on environmental products' market. Multi-segmenting method of adopting both psychographics and demographic segmentations will provide complete marketing segmentation information useful for deciding product positioning and increasing target market share (Lin, 2002). Marketers too, are increasingly combining several variables in an effort to identify smaller and better-defined target groups of multi-attribute segmentation called geo-clustering (Kotler, 2003). Geo-clustering is able to

capture the increasing diversity of Malaysian population in defining an environmental product market segment.

This present study will identify green consumer using a combination factors of socio-demographic and psychographics. This unique feature of segmentation will be analyzed to determine a better green segment for environmental products.

2.2.1.1 Socio-Demographic Segmentation

Socio-demographic segmentation is where the market is divided into groups on the basis of variables such as age, family size, family life cycle, gender, income, occupation, education, religion, race, generation, nationality, and social class (Kotler, 2003). This will elicit demographic data, which is a beginning point in measuring market segments and trends in the marketplace, and essential foundation of market analysis (Engel et.al., 1995).

Many studies found that socio-demography profiling of green consumer provides inconsistent and limited or ambiguous results (Van Liere & Dunlap, 1981; Balderjahn, 1988; Samdahl & Robertson, 1989; Roberts, 1996; Diamantopoulus et.al., 2003; Bui, 2005) in identifying green consumers segment. In other words, socio-demographic segmentation of green consumer is reported to be unstable (Straughan & Roberts, 1999) or "schizophrenic" (Roberts, 1996). Diamantopoulus et.al. (2003) reported that socio-demographic has a weak explanatory power on environmental consciousness and possess limited use in profiling green consumer in UK. Roberts (1996) found that inconsistent results may be due to the overuse of borrowed scales from other discipline, non-separation

operations of the socially responsible consumption as dependent variable, poor scale construction and testing, and lack of replication. Therefore, all these shortcomings hinder the understanding of potentially valuable segment of society (Roberts, 1996). Green consumer studies also seem to yield only few major findings (Marguerat & Cestre, 2004). Demographics too, are less important than knowledge, values, and attitude in explaining environmentally friendly behavior (Webster, 1975; Chan, 1999).

However, to some extent, socio-demographic variables can be used to profile consumers towards environmental knowledge and attitudes even though this is limited in use as behavioral aspects of environmental conscious components are concerned (Diamantopoulus et.al., 2003). Demographic profiling is the simplest segments to identify green consumers segment and this explains the relatively high volume of research done on demographic segmentation of green consumers (Webster, 1975; Van Liere & Dunlap, 1981; Samdahl & Robertson, 1989; Roberts, 1996; Straughan & Roberts, 1999; Diamantopoulus et.al., 2003). A previous study by Meffert and Bruhn (as cited in Diamantopoulos et.al., 2003), found that, segmentation analysis enable companies to effectively target green consumers. Many consumers' products and services companies focus primarily or even completely on demographics because socio-demographic variables, compared to other segmentation measures, are more readily available and can be applied to segmentation problems with relative ease (Diamantopoulos et.al., 2003). From a practical perspective, socio-demographic is often the best way to start segmentation studies because a lot of published information is available and easily obtainable (Diamantopoulos et.al., 2003). Moreover, Diamantopoulus et.al. (2003) also reported that demographics are often used to enhance the accessibility of segments for

subsequent profiling and targeting strategies, since the corresponding media usage profiles are usually available. Socio-demographic approach to consumer research, (i.e. the aggregation of consumers by demographics for market segmentation) has survived only because of the absence of more appropriate frameworks (Schultz et.al., 1992).

Consistently, most studies found that female, more educated individuals, or high income earners (Roberts, 1996; Bui, 2005) tend to be ecologically conscious consumer and these characteristics were the only significant demographic predictors of ecologically conscious consumer behavior (Roberts, 1996). Although the typical profile for green consumers are young, mid-to high-income, educated, urban women is totally dependent upon demographic profiling, the effectiveness of demographic profiling as well as its easiness as a way to discriminate between green consumer and non-green consumer are still in questioned (Straughan & Roberts, 1999).

Overall, the relationship between socio-demography characteristics and environmental consciousness measures are found to be relatively complex and thus, an accurate profile of the green consumer cannot be identified without giving attention to the whole aspects of the environmental consciousness construct (Diamantopoulus et.al., 2003). Often in psychological or sociological research, socio-demographic variables represent independent variables through which dependent variables are explained (Wagner, 1997). Findings from many studies on demographic profiles of green consumers are found to be relatively mixed or inconsistent, with some demographic characteristics showing more consistent results than others.

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2.2.1.2 Psychographics Segmentation – Personal-Philosophical Values

People within same demographic group can exhibit very different psychographics profiles (Kotler, 2003). This is so since the easiness of demographic profiling of green consumers may be offset by the stronger relationship between psychographics variables and green consumption (Straughan & Roberts, 1999). Psychographics research tact into individual traits, values, beliefs, and preferred behavior patterns that characterize a market segment (Engel et.al., 1995). Some of more frequently used psychographics dimensions used by Hawkins et.al. (1980) are demographics, attitudes, values, personality traits, activities of interest and product usage rate.

Values are important factor of psychographics. Grunert and Juhl (1995) interpreted values as the cognitive patterns by which individuals orientate themselves in their environment and thus, a criteria used to select and justify actions and to evaluate people, including the self, and events. Values can be self-centered and social-centered between individual and the society interactions (Grunert & Juhl, 1995). Gilg et.al. (2005)'s study claimed that sustainable consumption is influenced by individual value priorities.

Segmentation by core values is based on the belief systems that underlie consumer's attitudes and behaviors (Kotler, 2003) and determine, at a basic level, people's choices and desires over the long term. It is believed that by appealing to people's inner selves, it is possible to influence their outer selves (Kotler, 2003). According to Hoyer and MacInnis (2001), value segmentation means the grouping of

consumers by common values and it is very useful in understanding what attributes consumers within a market segment are likely to find important in a product and thus, what may motivate them to buy one brand over another and can be associated with features of product to be marketed (Kotler, 2003).

Grob (1995) proposed a model to predict environmental behavior using a multivariate relationship between environmental awareness, emotions, personal-philosophical values and pro-environmental behavior. Personal-philosophical values components includes materialism and open-mindedness or readiness to adopt new attitudes. Materialism is a kind of personal-philosophical values that is important in predicting green purchase behavior (Grob, 1995; Laroche et.al., 2001). Materialism means a set of belief structures that sees consumption of material goods, which may promote materialism (Pollay & Mittal, 1993). Materialism often reflects the importance a consumer attaches to worldly possessions and are common traits present in individuals across subcultures and cultures (Griffin et.al., 2004). Materialism is a common value between the two studies of Grob (1995) and Thrane (1997) and also included in values components of this present study. Overall, environmentalist tends to place little emphasis on wealth or materialism (Gilg et.al., 2005). Grob (1995) proposed that the more materialistic a person's values, the less appropriately a person will behave towards the environment, meaning, having negative relationships in terms of attitude, knowledge and behaviors towards environment.

Another personal-philosophical values in Grob (1995)'s study is open-mindedness. Calantone et.al. (2002) defined open-mindedness as the willingness to critically evaluate

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the organization's operational routine and to accept new ideas. Open-mindedness is one of the personal attributes that affecting individual information-processing ability, which is needed in learning (Wang & Chan, 1995). Open-minded person in one area is likely to be open-minded in other areas (Wang & Chan, 1995). The study also hypothesized that more open-minded individuals were likely to seek out and accept information that is inconsistent with their beliefs. Grob (1995) also proposed that the more creative or open-minded a person is in solving problems, the more appropriately the person will behave. Gilg et.al. (2005) also agreed that environmentalists were more likely to be open to change.

Like socio-demographic, psychographics segmentation of values is also facing stability issue. The relative stability of values is one of its attractive features for market segmentation. However, this only prevails at the level of societies while an individual society varies over time within the overall system (Straughan & Roberts, 1999). Vlagsma et.al. (2002) study on stability of value systems within segments, reported that switching among segments happened within 3 years period of study. Therefore, even though psychographics profiling is more effective than demographics (Straughan & Roberts, 1999), the stability of psychographics profiling is still need to be further studied.

2.2.2   *Environmental Consciousness*

Environmental consciousness is defined as environmental domain which consists of theoretical dimensions, knowledge about green issues, attitudes towards environmental quality and environmentally sensitive behavior. (Diamantopoulus et.al., 2003). Besides

being considered as part of environmental consciousness components, environmental knowledge and environmental attitude may also be part of segmentation group criteria known as behavioral segmentation (Kotler, 2003).

Studies of measurements on environmental consciousness had been done in a wide range of social science disciplines such as psychology (Maloney & Ward, 1973; Grunert & Juhl, 1995), political science (Jackson, 1983), environmental studies (Van Liere & Dunlap, 1981; Thogersen, 1996), business research (Balderjahn, 1988; Synodinos, 1990; McCarthy & Shrum, 1994) and marketing (Ling-yee, 1997; Kilbourne et.al., 1997).

Many studies had been conducted in America (Webster, 1975; Van Liere & Dunlap, 1981; Samdahl & Robertson, 1989; Diamantopoulus et.al., 2003) and UK (Diamantopoulus et.al., 2003; Schlegelmilch et.al., 1996). Studies had also been conducted in Germany (Balderjahn, 1988; Schahn & Holzer, 1990), Australia (Polonsky & Ottman, 1998), France (Arbuthnot & Lingg, 1975), Switzerland (Marguerat & Cestre, 2004), Greek (Chryssohoidis & Krystallis, 2005), Denmark (Grunert, 1991), and Malaysia (Aini Mat Said et.al., 2003). Measurements instruments also differ in terms of the substantive issues used in their development, i.e., they vary in the extent to which they incorporate different green issues. For example, some studies have focused on concern about recycling issues (Marguerat & Cestre, 2004; Aini Mat Said et.al., 2003), pollution (Gallarotti, 1995), organic food (Grunert, 1991; Fotopoulus & Krystallis, 2002, Chryssohoidis & Krystallis, 2005), and eco-label (Truffer et.al., 2001; Teisl et.al., 2002; Banerjee & Solomon, 2003; Bjorner et.al., 2004; Marguerat & Cestre, 2004; Bui, 2005). Besides, there is also an instrument to measure environmental consciousness developed

by Bohlen et.al. (1993), and widely used in many researches (Schlegelmilch et.al., 1996; Diamantopoulus et.al., 2003). This scale is popular since it captures the entire domain of environmental; knowledge, attitude and behavior (Diamantopoulus et.al., 2003), besides considering country's specific issues (Schlegelmilch et.al., 1996). Environmental Consciousness Scales by Bohlen et.al. (1993) is able to measure individual level of consciousness towards environmental in general and green products specifically. The scores are derived from the combination of individual knowledge, attitude and behavior scores towards environmental domains (Schlegelmilch et.al., 1996; Diamantopoulus et.al., 2003).

Within environmental consciousness components, consumer knowledge and attitudes are found to be important determinants of behavior (Engel et.al., 1993). Further elaboration on these two predictors in determining the extent of environmental purchase behavior will be presented next.

2.2.2.1 Environmental Knowledge

Knowledge is recognized in consumer research as a characteristic that influences all phases in the decision process (Laroche et.al., 2001). Ecological knowledge means the amount of knowledge about ecological issue (Maloney & Ward, 1973). Knowledge is a strong predictor of behavior (Hawthorne and Alabaster, 1999; Laroche et.al., 2001). Martin and Simintiras (1995) also suggested that environmental knowledge was a good predictor of environmentally sensitive activity. Environmental knowledge has been found to be linked to environmentally responsible behavior in a study by Hawthorne &

Alabaster (1999). Research by Grunert (1991), reported a significant positive relationship between ecological knowledge and purchase behavior, which in the case of 'green' or organic food. Therefore, knowledge items that capture individuals' level of factual information about specific or general aspects of environmental should be contained within any operationalization of environmental consciousness constructs (Diamantopoulus et.al., 2003).

According to Engel et.al. (1995), knowledge can be measured objectively or subjectively. Objective knowledge assesses contents of memory directly, which may be represented by questions of various consumers' product purchase and usage knowledge aspects. Subjective knowledge taps on consumers' perceptions of their own knowledge ability and consumers are asked to rate themselves in terms of their product knowledge or familiarity.

Knowledge can be explained in several dimensions, namely awareness analysis and image analysis (Engel et.al., 1995). Environmental awareness components include factual knowledge about the environment and recognition of environmental problems (Grob, 1995). In his model, the environmental awareness component is represented by environmental knowledge and the recognition of environmental problems. This is also supported by Schlegelmilch et.al. (1996), Chan (1999), Chan and Lau (2000), and Diamantopoulus et.al. (2003). Image analysis is likely to have a set of associations between symbols, persons, advertising campaigns, slogans, logos and etc. with other bits and pieces of information that are stored in memory (Engel et.al., 1995). Eco-label logo or symbol can be associated with image analysis.

Eco-label knowledge or eco-literacy measures the respondent's ability to identify or define a number of ecologically-related symbols, concepts and behaviors (Laroche et.al., 2001). Eco-literacy was also found to be correlated with some attitudes and behavior toward the environment. Many researchers have found that consumers are confused due to inappropriate labeling (Bui, 2005). In the same study, Bui (2005) also reported that consumers do not always understand environmentally-friendly labels attached to product. These labels are usually unfamiliar or unknown to consumers (Bui, 2005). Marguerat and Cestre (2004) found that merely recognizing a label does not mean that one understands the meaning of that label. The study too, stated that consumers were unable to identify eco-labels among alternatives.

Further studies by Thogersen (as cited in Marguerat & Cestre, 2004), shows that consumers' decision to buy an environmental product was influenced by their ability to recognize and understand an eco-label. This is supported further by Marguerat and Cestre (2004), whereby eco-label recognition and comprehension have a strong impact on purchase behavior, and therefore the study suggested that companies developing eco-labels should make an effort to provide labels with a clear message, in making sure that consumers could recognize it at first sight and understand it easily. The study also found a low percentage of respondents who could recognize and gave a correct definition of the eco-label.

2.2.2.2 *Environmental Attitude*

Attitude is an overall evaluation that expresses how much we like or dislike an

object, issue, person or action and attitudes are learned and tend to persist overtime (Hoyer & MacInnis, 2001). Whilst that, Kinnear and Bernhardt (1990) claimed that attitudes are only tendencies to perceive and act; while the behavior of consumers, however, may be more influenced by the particular situation.

Many models found that attitudes can strongly predict behavior (Homer & Kahle, 1988; Grob, 1995; Schlegelmilch et.al., 1996; Hawthorne & Alabaster, 1999; Laroche et.al., 2001; Diamantopoulus et.al., 2003). Laroche et.al. (2001) reported that attitude showed the most determinant power for consumer's willingness to pay more for environmentally friendly products. Some consumers are translating their environmental attitude into actively purchasing green products (Martin & Simintiras, 1995). Even people may not be environmentally knowledgeable; people may appear to exhibit relatively stronger attitude towards ecological issues (Chan & Lau, 2000).

Affect is a kind of attitude that involves closely with environment (Grob, 1995; Schlegelmilch et.al., 1996; Diamantopoulus et.al., 2003). Ecological affect is defined by Maloney and Ward (1973) as the degree of emotionality toward ecological issue. According to Hawthorne and Alabaster (1999), emotionality, or affect, is the degree of emotionality felt by individuals regarding environmental issues and the study also found a relationship between affect and behavior. In his model, Grob (1995) added that emotion component of attitudes includes the emotional value which the individual places on aspects of the environment and the disturbances resulting from him or her perception of the discrepancy between ideal and actual environmental conditions. In other words, the more intense the emotion with which individuals reacts to a worsening state of the

environment, the more appropriately they will behave. Grob (1995) also proposed that an emotional involvement (attitude) is one of the important predictor of environmental behavior. However, his finding was not significant.

Environmental attitudes scale is the most consistent predictor of environmental purchasing behavior (Schlegelmilch et.al., 1996). This is certainly in keeping with the foundations of behavioral research as in Fishbein and Ajzen study, as reported in Straughan and Roberts (1999). Environmental Attitude Scale is originated by Bohlen et.al. (1993), which was then popularized by Schlegelmilch et.al. (1996) and Diamantopoulus et.al (2003). This scale is used to construct Environmental Consciousness Scale, which comprises of Environmental Attitude Scale and Environmental Knowledge Scale. These scales will then determine the scores of individual's green purchase behavior (Schlegelmilch et.al., 1996). Schelgelmilch et.al. (1996) also reported that most people scored higher in verbal commitment and affect, but lower in actual commitment and knowledge.

Analysis of attitudinal alone may not accurately predict actual behavior (Tarrant & Cordell, 1997). Weak linkages between attitudes and behavior have often been noted in the environmental and societal marketing literature (Webster, 1975; Van Liere & Dunlap, 1981; Samdahl & Robertson, 1989; Diamantopoulus et.al., 2003). This can be seen as a gap between attitude toward ecology and ecological behavior (Marguerat & Cestre, 2004). Targeting a category of conscious consumers is thus much harder than marketers expected and the findings are still inconclusive in regards to the impacts of attitude and behavior (Bui, 2005).

2.2.2.3 Environmental Behavior

Behavior means the observation of an individual's choice in a situation (Ryan & Bonfield, 1975). Hawkins et.al. (1980) stated that consumer is viewed as a problem solver – a decision-making unit (individual or family) that takes in information and processes that information in light of the existing situation, and takes the action that will hopefully achieve satisfaction and enhance lifestyle.

One aspect of environmental protection that has been of great interest is conservation behavior, or consumer preservation of natural resources (Hoyer & MacInnis, 2001). This consists of behaviors that are friendly to the environment. Hawthorne and Alabaster (1999) defined environmental behavior as the 'overt and observable actions taken by a person in response to comprehension of environmental issues to which he or she has had an emotional reaction'. In other term, ecological behavior is defined as an actual commitment to ecological issue, which consists on actions like recycling behavior, politically-motivated activities that mitigate environmental degradation and green purchase behavior (Diamantopoulus et.al., 2003). Green purchase behavior means the individual's purchasing habit of environmentally-friendly product (Schlegelmilch et.al., 1996).

Environmental behavior is measured by people self-reported on a scale which ranks from never to always (Linden & Thelander, 1999). The study also proposes that buying environmentally labeled products got quite good figures in proportion of people buying products regularly. This is reported in the case done in Sweden, whereby almost