INTENTION TO PURCHASE ELECTRONIC GREEN PRODUCTS AMONGST LECTURERS: AN EMPIRICAL EVIDENCE

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UNIVERSITI SAINS MALAYSIA

2008

DEDICATION

I wish to dedicate my thesis in memory of my beloved husband Associate Professor Dr. Luay Bakir Hussian who past away to gods highest heavens two months before my submission date, his love and life long support has enabled me to achieve my goals and finish what I have started. I also dedicate my thesis to my children Mohammed, Meena and Nora who helped me to be strong and continue my path for the future.

I wish to express my deepest gratitude and utmost appreciation to my beloved parents, whom I would especially dedicate my thesis to: My father Professor Khalid Abdul Qader, my mother Ibtisam Al-Obaidi and my sister Fatima and her daughter Sally and my youngest sister Mariam and my only brother Mohammed who warm-hearted genuine love and support and prayers has helped me to complete my thesis.

I wish to dedicate my thesis to my beloved uncles and their families back in Iraq especially: My uncle Yahya and his wife Hanna for their endless love and support all along the way and my uncle Tariq and his family. I also wish to acknowledge my cousins, Mohammed, Omar, Ali, Mustafa, Mahmood, Farah, and Fatima. My grateful gratitude goes to my aunty Rafah and her family and to my aunty Zainab and her family. I wish to thank them for wishing me success and bright future.

Finally, I wish to dedicate my thesis to my life –long sincere friends of twelve happy wonderful years here in Malaysia, including: Suraya and her parents Sandra and Mr.Yousif, Fareeda, Wafaa, Hanan, Marie, Helen Aida and Shima. Thank you all for being so wonderful, supportive, and believing in me all along the way.

ACKNOWLEDGEMENTS

Praise Allah Al- Mighty, by his grace and blessing this momentous journey in the pursuit of educational excellence has reached its end. I thank Allah for providing me with the mental and physical strengths in passing through the tribulations and rough waters relatively unscathed, during the three years of this program. I would like to take this opportunity to acknowledge the help of the people around me, their effort and time, in completing this thesis.

I am most privileged to have Associate Professor Dr. Yuserrie Zainnudin to be my supervisor, I wish to thank Dr. Yuserrie for always being there for me providing me with guidance, advice, support, encouragement and above all his wide knowledge and creative thinking, comments and suggestions all contributed to the completion of this thesis. Thank you Dr Yuserrie, your efforts are highly appreciated.

I would like to express my gratitude to the Vice Chancellor Y.Bhg, Professor Dato' Dzulkifli Abdul Razak, and Professor Dato' Daing Mohd Nasir Daing Ibrahim, for supporting me and offering their assistance after the sudden loss of my husband. In fact, I wish to thank all the School of Management staff and students for being by my side; especially, Dr. Anees Ali, Associate Professor Dr. Zainal Arifin for providing me with his help when I most needed it. I also wish to thank Associate Professor Dr Ishak Ismail, the Dean of our school for his generous, helpful, supportive attitude towards helping students in achieving their goals. I am grateful to Associate Professor Dr. Zameri Ahmed, for his kind support and always being there for

students providing his help when needed and solving problems, and working with students in easing the difficulties that face them.

I wish to thank Dr. Omar Amer Abouabdalla and computer engineer Salah Noori Salih from the School of Computer Science for their constant help and assistance. I would also wish to take this opportunity to acknowledge Dr. Akram Al-Ajil and thank all the iraqi community for their support, Dr. Abbas Fathil, Dr. Bassim Al-Aane, Dr. Khalid Al-Hadeethi, Dr. Esaam Ahmed, Dr. Amar Ali, Dr. Naseer, Dr. Faisal, Mr. Naif Il-Hardan, Mr. Zaid, Mr Mohamed, Mr. Ali il-shamary, Mr. Nawfal, Mr. Muthana, Mr. Muhanad and Mr. Mohamed Noori. In addition, I wish to thank my Iraqi friends here in Malaysia for their love and support, Dr. Manal, Dr. Ban, Dr. Wafaa, Reem, Zina, Nada, Sarab, Wasan, Hala, Khansaa, Tara, Nada, Isra and Arwa., thank you all for being by my side during my hard times.

Finally, I wish to thank Universiti Sains Malaysia staff from the engineering campus including: Dr. Khairoon, Dr. Hashim, Dr. Zainul, Dr. Fawzi, Mr. Badri, and specially, Mr. Tuan Bisar for his help and guidance. I also wish to thank Puan Jamalyah from the department of human resource for her help and assistance. In addition, I wish to thank the school of management office staff especially, Puan Rusnah, Puan Aton, Puan Kim and Puan Siti. I also wish to acknowledge my friends in the School of Management, who were always there for me including, Abdulah Al-Shoura, Abdulsalam, Bou Median, Ahmed Metani, Mr. Amin, Raman, and Foad.

Thank You All Very Much

Iman Khalid Abdul Qader

10 March 2008

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LIST OF ABBREVIATION

Lead	-	Lead is an alloy that is used in soldering electronic components
EPA	-	Environmental Protection Agency
FDA	-	Food and Drug Authority
RoHS	-	Restriction of Hazardous Substances
WEEE	-	Waste in Electronic Equipment
PC	-	Personal Computer
ISO 14001	-	Environmental Management Standard
WTO	-	World Trade Organization
KMO	-	Kaiser Meyer-Olkin
SPSS	-	Statistical Package for Social Science
EU	-	European Union
R&D	-	Research and Development
EA	-	Environmental Attitude
PCBs	-	Polychlorinated biphenyl is made up of more than 200 related compounds, and these manufactured substances exhibits many ideal characteristics such as fire resistance and high stability.

TUJUAN PEMBELIAN PRODUK ELEKTRONIK MESRA ALAM DALAM KALANGAN PENSYARAH: SUATU BUKTI EMPIRIK

ABSTRAK

Kajian ini bertujuan menyumbang ilmu dalam bidang niat membeli produk hijau. Bidang ini berada dalam domain pemasaran mesra alam, di mana semua aktiviti yang dibentuk untuk menghasil dan membantu sebarang perubahan diinginkan untuk memuaskan keperluan dan kehendak manusia, dengan memenuhi kepuasan keperluan mereka dengan memberi kesan buruk yang minimum kepada alam semulajadi. Oleh itu, kajian ini bertujuan mengenal pasti pengaruh empat pembolehubah bebas berikut: perundangan kerajaan, pendedahan media, kesihatan dan keselamatan yang berkenaan, serta keberkesanan diri dalam pembolehubah pengantaraan bagi sikap alam sekitar. Kajian ini juga turut mengkaji kesan pengantaraan bagi sikap alam sekitar serta pembolehubah bersandar bagi kajian tujuan pembelian produk elektronik tanpa plumbum. Justeru, para pensyarah dianggap sebagai pengguna-teramai (heavy users) produk elektronik. Oleh itu, tujuan mereka membeli produk elektronik tanpa plumbum (elektronik mesra alam) menjadi fokus kajian ini. Berdasarkan soal selidik yang diagihkan kepada 170 orang pensyarah penuh masa di USM (kampus utama dan kampus kejuruteraan), terdapatnya suatu wawasan yang ketara daripada hasil kajian ini. Dua pembolehubah bebas iaitu kesihatan dan keselamatan yang berkenaan serta keberkesanan diri, mempunyai pengaruh positif yang signifikan terhadap sikap alam sekitar dalam kalangan pensyarah. Sementara itu, pembolehubah pendedahan media mempunyai pengaruh positif secara langsung terhadap tujuan pembelian. Sebagai sikap alam sekitar bagi pembolehubah pengantaraan dalam kajian ini, ia tidak bertindak sebagai suatu pengantara di antara pembolehubah bebas dan pembolehubah bersandar bagi tujuan pembelian.

INTENTION TO PURCHASE ELECTRONIC GREEN PRODUCTS AMONGST LECTURERS: AN EMPIRICAL EVIDENCE

ABSTRACT

The purpose of this study is to contribute to the body of knowledge in the area of green product purchase intention. Within the domain of Green marketing, where all activities are designed to generate and to facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs or wants occurs, with minimal detrimental impact on the natural environment. Therefore, this study intends to identify the influence of four independent variables including; perceived government legislations, media exposure, safety and health concerns and self-efficacy on the mediating variable of environmental attitude. The study will also investigate the mediating effect of environmental attitude and the dependent variable of the study purchase intention of lead-free electronic products. Hence, lecturers are considered as heavy users of electronic products, therefore, their intention to purchase lead-free electronic products (green electronics) is the focus of the study. Through a self-administered questionnaire among 170 lecturers, working full time in USM main campus and USM engineering campus the study found some revealing insights. Through the results of this study; safety and health concerns and self-efficacy, had a significant positive influence on lecturers' environmental attitude, while media exposure had a positive direct influence on purchase intention. As for environmental attitude the mediating variable of this study, it did not act as a mediator between the independent variables and the dependent variable of purchase intention.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The use of vast amounts of hazardous materials in the high-tech industry in fueling its global expansion of the rapidly changing product lines is significantly depleting natural resources. Therefore, society is becoming more concerned with the natural environment and businesses have begun to modify their behavior in an attempt to address society's new concerns (Cannis , 2001), and some businesses have been quick to accept concepts like environmental management systems and waste minimization, and have integrated environmental issues into all organizational activities. Hence, green or environmental marketing, which is defined by Polonsky (1994) as all activities that are designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment, has become a strategic concern for the business organization.

According to Ottman (1993) it appears that all types of consumers both individual and industrial are becoming more concerned and aware about the natural environment. Australian surveys have shown that saving the environment is a high priority to most American citizens, with public concern growing faster than any other issue (Schwartz & Miller, 1991). In a 1992 study of 16 countries, more than 50% of consumers in each country indicated they were concerned about the environment. However, it is stated by Said, Ahmadun, Paim and Masud (2003), that causes of

environmental problems are related directly or indirectly to the patterns of production by industries, consumption and behavior of the consumers.

As the demand for electronic products by consumers is ever increasing, companies manufacturing high-tech electronic products are using state-of-the-art technologies to stay in the competition. However, the life-cycle of electronic products is short, therefore, technology rapidly evolves and people are constantly upgrading to new equipment and retiring their old equipment. Hence, high tech product demand worldwide has made the electronic industry today a very dynamic one and new products are launched everyday in the consumer electronics sector.

The typical electronic product may contain more than 1,000 different substances, some of which are potentially hazardous to the environment and to human health. If old equipment is not properly recycled, these substances could seep into air, soil, and water, and have a direct polluting impact on the environment and an indirect polluting impact on humans. One of these hazardous substances is lead; Lead is an alloy that is used in soldering electronic components on PCBs; it is mostly used on computer key boards, mobile phones, cameras, DVDs, etc… [Accessed on June-2006] Available from http://rethink.ebay.com/odcs/custom.

According to Wood and Nimmo (1994), lead and lead compounds have been cited by the Environmental Protection Agency (EPA) as one of the top 17 chemicals posing the greatest threat to human life and environment in the electronics industry. The lead generated by the disposal of electronic assemblies is considered as hazardous to the human health and environment because of lead's toxicity. For example, when

lead solders are disposed in landfills, lead can leach into soils and pollute ground water and rivers. When lead accumulates in the human body through drinking water and food, it can create adverse health effects. Monsalve (1984) stated that lead binds strongly to proteins in the body and inhibits normal processing and functions of the human body, causing nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, as well as reduced production of hemoglobin resulting in anemia and hypertension. When the level of lead in the blood exceeds 25 micrograms/deciliter of blood, lead poisoning is considered to have occurred (Napp, 1995).

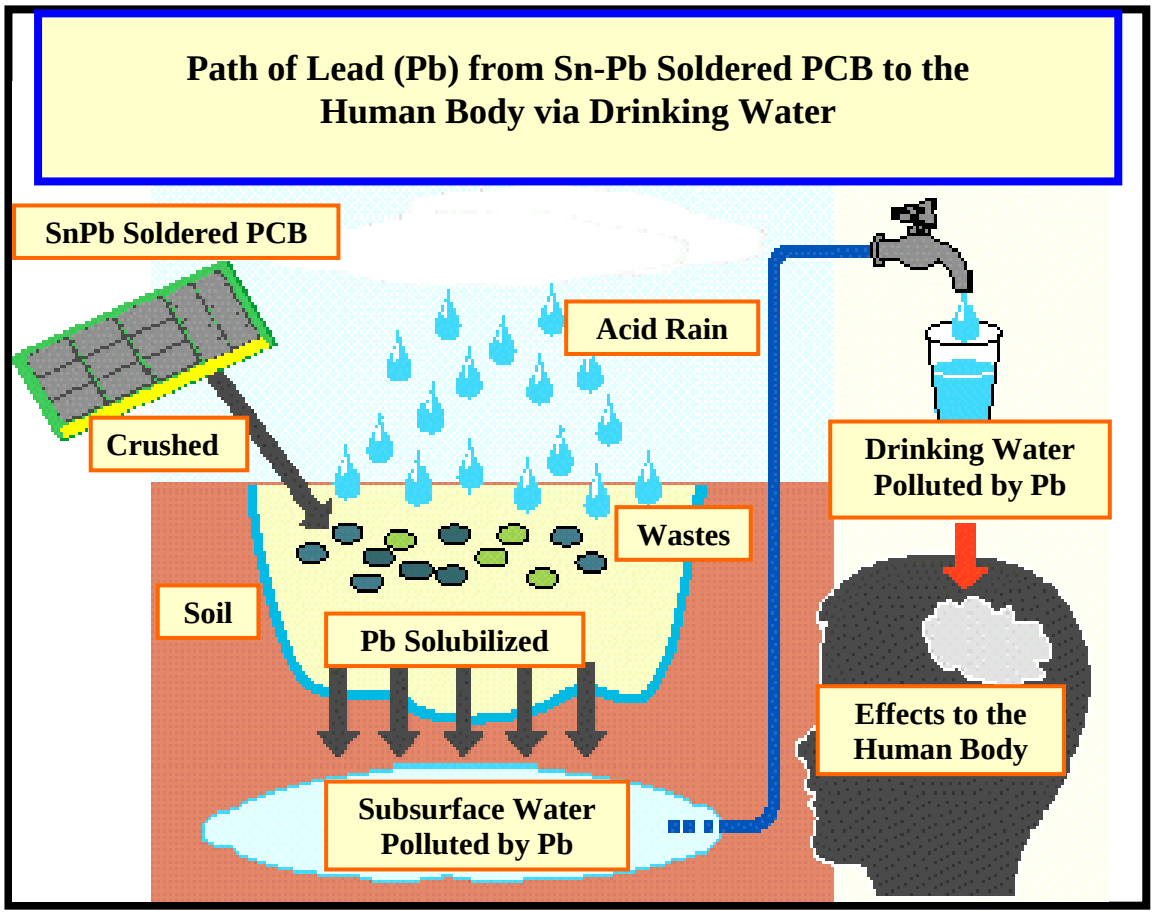

Figure 1.1 the way lead's toxicity effect human health.

Source: Napp D. (1995) Lead-Free Interconnect Materials for the Electronic Industry, In: Proceeding of the 27th International SAMPE Technical Conference.

Figure 1.1 shows lead's toxicity effects on human health. These detrimental effects have led to several legislations on the restrictions of lead usage in electrical and electronic equipments (EEE) industry today globally.

The phenomena of this study reveal the dark side of high technology; polluted drinking water, waste discharges that harm fish and wildlife, high rates of miscarriages, birth defects, and cancer clusters in another word it has a direct impact on the environment and an indirect impact on the consumer via drinking water (Napp,1995). The high-tech industry is using vast amounts of hazardous materials in fueling its global expansion of the rapidly changing product lines, and this manufacturing process is significantly depleting natural resources. Therefore, environmental concerns and new legislations are targeting the manufacturers of such products containing hazardous substance such as lead (Cannis, 2001).

History of Regulations on Lead-Free Electronic Products: New European legislation, the Restriction of Hazardous Substances (RoHS), is the first concrete step in a global trend to ban the use of lead in electronic products. Since February 2003, environmental regulations in Europe adopted a draft directive on Waste in Electronic Equipment (WEEE) which seeks to increase recycling and recovery of waste within year 2006 onwards. A majority of electronic products containing lead will be banned from sale in Europe. Countries such as Japan and the United States are also considering similar laws that will significantly impact electronics makers (Cannis 2001).

Japanese companies have provided a strong driving force for Pb-free manufacturing because Japan supplies large portion of the world's consumer electronics. In 2000, all main consumer manufacturers in Japan announced acceleration schedules for Pb-free products (Cannis, 2001).

In the **United States**, new measures are being considered in several states that would require recycling of consumer electronics. The Environmental Protection Agency has recently required industry to report discharges of pb (lead) into the environment at a much lower level (10 verses 10,000 pounds) than in the past (website; lead-free.org/legislation). However, regulations worldwide differ from one country to another; while some countries enact strict laws and bans the use of hazardous substances other countries may use other policies to control environmental pollution.

Electronic Industry in Malaysia

The Malaysian electronics industry accounts for around 60% of the country's manufacturing exports and is the leading industrial sector in terms of investment, industrial output and employment. Major export products were electrical & electronic products with a total value of US$ 69.9 billion, representing 49.6% of Malaysia's global export. In terms of products, Malaysia's main imports were electrical & electronic amounted to US$ 51 billion representing 44.5% of Malaysia's global import. (Malaysia's Global Trade accessed on-line http://www.koima.or.kr/jiran/korea/magazine , May.2006).

Evidence of PCBs in the Malaysian Environment PCBs (Polychlorinated biphenyl) are made up of more than 200 related compounds. These manufactured

substances exhibit many ideal characteristics such as fire resistance, and high stability. They also do not conduct electricity and have low volatility at normal temperature (Hatija, 2003). These and other properties have made them desirable components in a wide range of industrial and consumer products. These same properties make the PCBs environmentally hazardous, especially their extreme resistance to chemical and biological breakdown by natural process in the environment. Due to their stability, PCBs have a high potential for bioaccumulation, as it is able to accumulate in aquatic environments such as lakes and rivers.

In Malaysia the importation of PCBs were only banned in June 1998 when The First Schedule of the Customs (Prohibition of Imports) Order 1998 of the Customs Act 1967 came into effect. Therefore products that were imported or manufactured before June 1998 will contain PCBs. It is likely that the PCBs which were imported before this date are still in used by some industries, as there has not been any local study done on this. Even though there has not been any reported case of accidents related to PCBs in the country, their existence in the Malaysian environment has been well documented.

Hatija (2003) a Research Officer for Consumers Association of Penang, stated in a PCBs symposium in Malaysia, “Given the many applications of PCBs in industries, it is likely that products and equipment that contained PCBs would be disposed off as regular garbage. This is because there has not been much concern given to the disposal of hazardous household waste such as electrical equipment or products which are likely to contain PCBs in Malaysia”. As early as 1985 tests conducted on shellfish collected from sea bed around Penang island showed PCBs content to be in the range of 400 - 600 ppb.

The amount of PCBs detected exceeded the permitted level set by the Food and Drug Authority (FDA) of 300 ppb. In 1992, tests conducted on 25 rivers in Peninsular Malaysia for PCBs residue showed that the amount was higher in the rivers that flow through industrial or densely populated area. The amount of PCBs detected was found to be in the range of 2.1 - 0.9 milligram per liter. This amount exceeds the level in the Proposed Interim National Quality Standards for Malaysia, which sets a standard of 0.044 milligram per liter of PCBs in effluents (Hatija, 2003).

Table1.1 Below illustrates the existence of PCBs in the Malaysian Environment

** Results by Dr Shinsuke Tanabe - Department of Environment Conservation, College of Agriculture, Ehime University, Tarumi 3-5-7, Matsuyama 790 Japan.

Table 1.1

Existences *of PCBs in the Malaysian Environment*

Place collected	Amount of PCBs detected*
1.Pasir Puteh - Johor Bahru	250.0
2.Penang Bridge	60.0
3.Lukut Negeri Sembilan	54.0
4.Butterworth	42.0
5.Pasir Panjang Negeri Sembilan	24.0
6.Tanjung Batu Malacca	22.0
7.Pasir Panjang Negeri Sembilan	11.0
8.Trayong - Sabah	8.3
9.Kuala Penyu - Sabah	7.5
10.Sangkar Ikan Langkawi	6.0
11.Tanjung Rhu Langkawi	5.1
12.Bagan Lalang Selangor	<4.2

*Nanogram/gram of liquid weight

In a recent article in The New Straits Times (2006), it was reported that sixteen open landfills located near water intake points pose a threat to the safety and health of the Malaysian people. Deputy Prime Minister Datuk Seri Najib Razak, who is the Cabinet committee chairman of Solid Waste and Environment Management, expressed his concern over the pollution caused by leachates at open landfills and its effects on the health of people.

As for the location of these landfills, four of the landfills were in Kedah, another four in Johor, two each in Selangor, Malacca and Pahang, and one each in Negri Sembilan and Perak. The Deputy Prime Minister also stated that the government would set aside whatever financial allocations needed to overcome the problem of pollution caused by leachates at open landfills. Therefore, how legislations are perceived by the public is an important issue as this may affect their attitudes as mentioned earlier in the study. Thus, governments play an important role through legislative framework to influence how market pressures react on consumer's behavior.

Consumer Demand for High-Tech Electronics: As the demand for high-tech electronics is increasing, these results in the manufacturing of a wide variety of electronic products in the electronic sector, and personal computers (PC) are considered the most used by consumers worldwide. According to Kanellos (2004), the number of personal computers (PC) users worldwide is expected to reach 1 billion by 2010, up from about 670 million today, fueled primarily by new adopters in developing nations. There were 631.8 million PC users at the end of 2003 and 661

million now. The number will hit 953 million at the end of 2008 and cross over the billion mark in 2009.

Since the number of PC users is ever increasing, the number of the electronic waste is increasing too. Estimates by the Environment Protection Agency (2006) suggest that the amount of used electronics is large and growing, and that if improperly managed can harm the environment and human health. Data by the Environment Protection Agency (2006) suggests that over 100 million computers, monitors, and televisions become obsolete each year, and that this amount is growing continuously.

Therefore, there should be a balance between the consumption of modern technology and preserving the natural environment from technological growth. Hunt (1990) pointed out, that technology is driving growth and economic progress, and the pace of innovation is quickening, affecting everyone as it changes the fabric of the society (Edison & Geissler, 2003). Empirical studies have also shown that computer technology may have effects on the nature of office work, job satisfaction, and the quality of work life (Turner, 1984).

Sam, et al. (2005) argued, that technology is challenging the boundaries of the educational structures that have traditionally facilitated learning. Recent advances in computer technology and the diffusion of personal computers, productivity software, multimedia, and network resources over the last decade heralded the development and implementation of new and innovative teaching strategies. Educators who advocate technology integration in the learning process believe it will improve

learning and better prepare students to effectively participate in the 21st century workplace.

In Malaysia Noor and Ainin (2005) carried out a study on age and income differences to predict domestic computer users in West Malaysia, The study found differences in terms of age and income groups affected the level of computer usage. Malaysian teenagers are heavy domestic computer users in comparison to the other age categories. As expected, the high income people are also heavy domestic computer users.

Majid (1999) at the International Islamic University Malaysia carried out a study investigating the relationship between computer literacy of academic staff and their use of electronic information sources. The study revealed that computer literate academics use electronic information sources more frequently. Similarly, a significant relationship is noted between the age of academics and their use of electronic information sources.

To the best of my knowledge many studies were done about environmental attitude no direct study has investigated lecturers purchase intention towards high- tech lead free personal computers and electronic products in Malaysia. Therefore, this study intends to zoom on university lecturers and investigate the factors that influence their purchase intention of high tech lead-free personal computers and electronics such as mobile phones, digital cameras, DVDs and other products. Therefore, university lecturers will be chosen from five main perspectives; firstly, from an economic perspective, according to Noor and Ainin (2005), university lecturers have the

purchasing power, which means they can afford to purchase high-tech computers and electronics for personal use and in utilizing research grant budget to purchase electronic equipment.

Secondly, from a social perspective university lecturers are considered heavy users of computers and electronic products (Majid, 1999), either for their personal use or for teaching, involvement in research grants and consultancy. Hence, according to Hoe (2006) all academics of Universiti Kuala Lumpur Institute InfoTech MARA (UniKL IIM) are required to use the e-learning portal in their teaching activities, it is compulsory for lecturers, assistant lecturers and instructors to use at least 60 percent of the features available in the portal and upload at least 50 percent of the lecture notes to the portal. The usage of the portal contributes to 10 percent to individual achievement in the annual performance evaluation.

Thirdly, from the professional perspective university lecturers have the need for add-on peripherals such as a printer, modem, or storage system, which works in conjunction with a computer (Sam, et al. 2005). In addition, for example university lecturers in University Sains Malaysia are all given one desktop personal computer. Apart from desktop PC given by the University, some lecturers have their own notebooks bought using their own pocket money or grants. However, since the life-cycle of electronic products is short, according to information obtained from the School of Computer and Communication, USM (2007), computers given to lecturers will be changed when the technology is already backward as compared to current trend, hence, every 3 to 5 years, new computers are supplied to lecturers. Fourthly, from a political perspective, university lecturers are aware of government rules and

regulations, which can influence their use of green electronics. Finally, while environmental issues are not well known by the general public, university lecturers are considered opinion leaders, and the more opinion leaders are valued and respected, the more likely an innovation is to spread (Lars Perner, http://www.LarsPerner.com (accessed online 2006).

1.2 Problem Statement

The Consumer demand for high tech product worldwide has made the electronic industry today a very dynamic one and new products are launched everyday in the consumer electronics sector. As technology rapidly evolves, people are constantly upgrading to new equipment, and retiring their old equipment, companies manufacturing high- tech electronic products are using state-of-the-art technologies to stay in the competition.

In today's competitive environment, consumers are becoming more aware and sophisticated in their behavioral intentions to purchase a product in order to fulfill their need and satisfaction. Therefore, the consumer or the lecturer in this case is faced with the choice of whether to buy a lead-free electronic product or a non lead-free electronic product. In another word, intention to buy or not to buy is the dependent variable of the study (purchase intention).

Purchase intention can be explained through:

(1) Perceived government legislations: According to Dunlap (1991), environmental attitudes are influenced by political actions and individual responsibility. It is stated by Chandra (2001) that political, awareness is important in predicting environmental

attitudes and behavior. There also seems to be a correlation between political variables and the prediction of environmental attitude as mentioned by Nielsen (1999).

(2) Media exposure: According to Oskamp (1977) and Bern (1970), there are many ways for people to form their attitudes, and two are relevant here, media and direct personal experience. Lowe and Rudig (1987), Mitchell, (1990) Lowe and Morrison (1984) stated that individuals' knowledge of environmental problems is measured and attributed to degree of media exposure.

(3) Health and safety concerns; according to Van Liere and Dunlap (1980), Buttel, (1987) and Wall (1995) safety and health concerns are strong predictors of both attitude and behavior. Their finding lends support to those researchers who claim that increasing concern with health and safety are becoming prominent factor in shaping people's attitudes towards the environment.

(4) Efficacy/Interest: Personal sense of power and efficacy contributes to the increased levels of behavior (De young, 1986, Huebner & Lipsey, 1981). Persons with a sense of efficacy are more likely to be environmentally active than those without (Blanco, 2001).

(5) Environmental attitudes the mediating variable referring to past studies: Wall (1995) argued that attitude is affected by structural, contextual, and perceptual variables such as age, education, political beliefs, media exposure and health concerns. According to Stutsman and Green (1982) attitude includes not just the

evaluation of a certain outcome but also the estimation of the likelihood of this outcome.

To summarize the problem, this study intends to identify the influence of perceived government legislation, media exposure, health and safety concerns and self-efficacy on consumer's environmental attitude, and to investigate the mediating effect of environmental attitudes on the relationship between the four independent variables and the dependent variable (purchase intention).

1.3 Research Objectives

The objective of this study is to explore firstly, the factors that influence lecturers' environmental attitudes, which is measured by four independent variables; perceived government legislations, media exposure, safety and health and efficacy. Secondly, to examine the mediating effect of environmental attitude on the relationship between the four independent variables and purchase intention. Specifically, this study seeks to achieve the following objectives:

1- To investigate the influence of perceived government legislations on lecturers' environmental attitude.

2- To investigate the influence of media exposure on lecturers' environmental attitude.

3- To investigate the influence of health and safety concerns on lecturers' environmental attitude.

4- To investigate the influence of self-efficacy on lecturers' environmental attitude.

5- To investigate the mediating effect of lecturers' environmental attitude between the independent variables and purchase intention.

1.4 Research Questions

Having the study objectives stated above, this study seeks to answer the following main research questions:

1- To what extent does perceived government legislations influence lecturers' environmental attitude?

2- To what extent does media exposure influence lectures' environmental attitude?

3- Does safety and health concerns influence lecturers' environmental attitude?

4- Does self-efficacy influence lecturers' environmental attitude?

5- Does lecturers' environmental attitude mediate the relationship between the independent variables and purchase intention?

1.5 Scope of the Study

This study currently targets university lecturers at Universiti Sains Malaysia. This university was chosen because it is the second oldest university in Malaysia and has emerged as the country's largest university in terms of academic programs. University lecturers are considered heavy users of computers and electronic products either for their personal use or for teaching, involvement in research grants and consultancy. In addition, this study is conducted specifically in the Penang region. Penang is selected because it is metropolis of Malaysia after Kuala Lumpur and it is the focus of education in Malaysia on one hand, and on the other hand, it is an industrial city with many high tech electronic industries manufacturing electronic goods. Considering Penang an industrial city and densely populated area, tests conducted from the sea bed around Penang island showed PCBs content to be in the range of 400- 600ppb, this concludes that the amount of pollution in Penang waters exceeded the permitted level set by the Food and Drug Authority (FDA) of 300pb.

1.6 Significance of the Study:

In terms of theoretical significance: Past studies have examined how media exposure, safety and health concerns, self-efficacy, and demographic information have a certain influence on consumer's environmental attitude and how attitude influenced individual environmental behavior; which includes recycling behavior and purchase of green products. Perceived government legislations is added to the model as a governmental variable to fill in the gap in literature since the perceived government legislations hasn't been studied with this set of variables before. Therefore, the theoretical contribution of the study can be shown firstly, through examining the influence of the (governmental variable) perceived government legislations on lecturers' environmental attitude and purchase intention. The second contribution is to investigate the influence of environmental attitude as a mediating variable between the four independent variables and purchase intention. Finally, this study will contribute to the number of limited literature available in the Malaysian context on lecturers' environmental attitude and purchase intention of lead free personal computers and electronics.

In terms of practical significance: The practical importance of this study comes into view through identifying the factors that could influence purchase intention, and to help marketers gain a better insight into lecturers' purchase intention of lead free personal computers and electronics.

1.7 Definition of Variables

Table 1.2

Definition of Variables

Terms	Definition
Perceived Government Legislations	Governments establish regulations designed to control the amount of hazardous wastes produced by industries (Stanton and Futrell 1987). Applying the term to this study "the consumer's perception that governments should impose strict laws and regulations on environmental pollution.
Media Exposure	The amount and type of media coverage of environmental disasters and conflicts that helped transform many specific problems into major public issues (Lowe & Morrison, 1984; Hays, 1987). Applying the term to this study; media exposure is defined as the type and frequencey of media coverage on environmental issues that help shape consumer's beliefes.
Safety and Health Concerns	Concern for quality of life has given way, in many cases, to concern about heath issues, and life itself, for human and non-human species (Dunlap, 1991). Applying the term to this study; safety and health concerns is defined as the consumer's concern for quality of life, health issues and the environment for humans and non-human species.
Efficacy/interest	Self-efficacy expectations refer to a person's beliefs concerning his/her ability to successfully perform a given task or behavior Bandura (1977). Applying the term to this study; Self-efficacy is defined as judgment of how well one can execute required actions to deal with specific situations.
Environmental attitudes	EA have been defined as ''the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues'' (American Psychological Association, 2001). Applying the term to this study; Environmental attitude is defined as the collection of beliefs, affect, and behavioral intentions a person holds regarding environmental issues.
Purchase Intention	Behavioral intention is defined as a mental state that reflects a persons plan to engage in some action within a specified period of time Intention is thus assumed to be the immediate antecedent of behavior Miller, Glawter, and Pribram, (1960). Applying the term to this study; purchase intention as a persons plan to engage in some action within a specified period of time and the probability that he or she will perform a behavior.

1.8 Organization of Remaining Chapters

This report is organized into six major chapters. The first chapter provides an introduction and background on environmental marketing worldwide and specifically in Malaysia. This chapter will also define the problem statement of the study, set the objective of the study and outlines the research questions, highlights the significance and scope of study and define the variables.

The second chapter reviews literatures of previous studies on consumer behavior and purchase intention (dependent variable), perceived government legislation (independent variable), media exposure (independent variable), safety and health concerns (independent variable), self-efficacy(independent variable) and environmental attitude (mediating variable). Finally, an outline to the theory of planned behavior and its relation to the study are discussed at the end of chapter two.

The third chapter discusses the research theoretical framework and hypotheses development. The fourth chapter discusses the research methodology applied on this study covering research design, unit of analysis, sample of population, data collection, questionnaire design, measuring of variables, data analysis, descriptive data analysis, validity and reliability and hierarchical regression. Chapter five discusses the research results and analyses and finally, chapter six concludes with the discussions, outlines implications and limitations, and suggestions for future research. The report will end with the references used in this study followed by the questionnaire and appendix.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will review relevant literature related to the assumptions of the study. An outline on consumer behavior and consumer purchase intention of green products as the dependent variable will be discussed. In addition, perceived government legislations, media exposure, safety and health concerns, and self- efficacy, would be identified and explained as independent variables. Furthermore, the study will discuss and explain consumer attitude towards the environment as a mediating variable, through the reviewed literature. Clarification of its role in the study will also be discussed. Finally, the theory of planned behavior and its relation to the present study would be discussed at the end of this chapter.

2.2 Behavioral Intention (Dependent variable)

Behavioral intention has been defined by Azjen (2002) as human actions that are guided by three kinds of considerations; beliefs about the likely outcomes of the behavior and the evaluation of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (control beliefs). As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the persons' intention to perform the behavior in question. As for consumers' purchase decision, Kotler and Armstrong (2001) argued that, in the evaluation stage, the consumer ranks

brands and forms purchase intentions. Generally, the consumer's purchase decision will be to buy the most preferred brand. However, two factors can come between purchase intention and purchase decision, the first factor is the attitude of others and the second factor is unexpected situational factors, for example, the consumer may form a purchase intention based on factors such as expected income, expected price, and expected product benefits. However, unexpected events may change consumer's purchase intention.

According to Balderjahn (1985) environmentally concerned and socially conscious consumers appeared in the late 60's and early 70's, partly because of a general distrust in society, industry, and modern technology, partly as a by-product of the first oil-crisis. Hence, Balderjahn (1985) defined the environmentally concerned consumer as a person who knows that the production, distribution, use, and disposal of products lead to external costs, and who evaluates such external costs negatively, trying to minimize them by his or her own behavior.

Therefore, Marketing managers are routinely using purchase intentions data to make strategic decisions concerning both new and existing products and the marketing programs that support them. For new products, purchases intentions are used in concept tests to help managers determine whether a concept merits further development, and in product tests to direct attention to whether a new product merits launch. Furthermore, in planning the launch of a new product, purchase intentions help the manager decide in which geographic markets and to which customer segments the product should be launched (Sewall, 1978; Silk & Urban, 1978; Urban & Hauser, 1993).

According to Glawter and Pribram (1960) behavioral intentions are defined as a mental state that reflects a persons plan to engage in some action within a specified period of time Intention is thus assumed to be the immediate antecedent of behavior. While Behavioral intention has been defined by Alan et.al, (1999) as an outcome of socialization that may be of particular importance to advertisers because it is related to favorable and unfavorable behaviors consumers may exhibit toward a brand. For example, when consumers praise the brand and express preference for one advertiser over others, these favorable intentions may ultimately lead to increased sales of the brand, paying premium prices for the brand, spreading positive word-of-mouth for the brand, etc. Conversely, unfavorable intentions can lead to switching brands and spreading negative word-of-mouth. Purchase intentions continue to be an important concept in marketing therefore, gaining a better understanding of behavioral intentions of consumers may help marketers better communicate to this important target.

In addition, Miller (2005) identifies behavioral intention as a function of both attitudes toward a behavior and subjective norms toward that behavior, which has been found to predict actual behavior. For example, attitudes about exercise combined with the subjective norms about exercise, each with their own weight, will lead you to your intention to exercise (or not), which will then lead to your actual behavior.

However, according to Morrison (1979), a large number of studies in the past have used purchase intention. For example, Axelrod (1968) analyzed purchase intentions along with attitude measures to predict actual purchase behavior, while Smith (1965)

presented a highly readable interesting publication on the use of purchase intentions to evaluate the effectiveness of automobile advertising. In addition, Silk and Urban (1972) had purchase intention as one input for a new product model. While Bass, Pessemier, and Lehmann (1972) used purchase intentions in their well-known soft drink study. Finally, Sewall (1978) used purchase intention to segment markets for proposed new (redesigned) products. Hence, this study conceptualized purchase intention as a person who plan to engage in some action within a specified period of time and the probability that he or she will perform a behavior. Therefore, lecturers purchase intention of lead-free electronic products will be investigated through four independent variables; perceived government legislations, media exposure, safety and health concerns, self-efficacy and one mediating variable of environmental attitude.

2.2.1 Consumer Buying Behavior

Consumer buying behavior is defined by Kotler & Armstrong (2001), as the buying behavior of final consumers, individuals and households who buy goods and services for personal consumption. Consumers around the world vary in age, income, education level, and tastes. They also buy an incredible variety of goods and services. How this diverse consumer connects with each other and with other elements of the world around them impacts their choices among various products, services, and companies.

Foxall (1993) identifies consumer behavior as any response that involves the whole organism where its frequency can be systematically related to the consequences previously produced.

In analyzing consumer markets and buyer behavior, Kotler (2003) pointed to the stimulus-response model where cultural, social, personal and psychological factors are said to have most influence on consumer buying behavior. However, according to Ronald and Griffin (2003), although marketing managers know what qualities people want in a new VCR, but they are still unable to figure out why people buy a particular VCR. What desire are they fulfilling? Is there a psychological or sociological explanation for why consumers purchase one product and not another? These questions and many others are addressed in the area of marketing known as consumer behavior the study of the decision process by which customers come to purchase and consume products

2.2.2 Understanding What Motivates Consumers

Understanding what motivates consumers to make environmentally conscious purchases (i.e. to "buy green") and what discourages them from doing so is the first step in promoting green buying. In order to identify the barriers and motivations that are related to people's willingness to buy green, social scientists ask consumers questions about a variety of factors that might influence their buying behavior. Social scientists use statistical methods to determine which of these factors are linked to people's willingness to buy products that are better for the environment. Sometimes confirming evidence is part of the process by which scientists arrive at recommendations regarding health issues.

Similarly, in identifying the factors that influence green buying, it is important to look at patterns that emerge across numerous studies, rather than relying on the results from a single study. Here are some patterns that emerge from social science

research on green buying motivations. The factors below are seen to contribute to consumers' willingness to buy green:

1- Perceived Consumer Effectiveness: Berger and Corbin (1992) concluded based on findings of an environmental opinion poll of the Canadian population and a phone survey of 387 metropolitan Atlanta residents, that the more that people believe that the efforts of an individual can make a difference in the solution to environmental problems, the greater their likelihood of buying green.

2- Perceived Knowledge: Ellen, (1994) argued that perceived knowledge appears to contribute to perceived consumer effectiveness. Not surprisingly then, the greater people perceive their knowledge to be about buying recycled content and source reduced products, the more likely they are to do so.

3- Environmental Concern: According to Mainieri, et.al. (1997) the people's level of environmental concern is linked to their interest in and willingness to purchase green products. Furthermore, a survey of 201 households in western Los Angeles found that respondent' specific attitudes towards environmental consumerism predicted their likelihood of (a) buying products because of their environmental claims, (b) considering safety to the environment more strongly when making a purchase, and (c) switching products for environmental reasons or purchasing. Therefore, respondents' attitudes towards environmental consumerism were measured by the strength of their agreement with statements such as "We have a responsibility to avoid purchasing or using products that are known to be damaging to the environment" or "I believe that being environmentally conscious when buying does not directly benefit the environment". Hence, the factors that have been identified as barriers to green buying are listed below: