

# Environmentalism and Green Purchasing Behavior: A Study on Graduate Students in Bangkok, Thailand

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## ABSTRACT

There have been several studies on green purchasing behavior in the Western context, but such studies are still scarce in the Asian, particularly, the Southeast Asian context. The aim of this study is to examine the influence of environmental consciousness, environmental attitude, concern for Thailand's environment, reference group influence and demographic factors on Thai graduate students' green purchasing behavior. A total of 399 respondents participated in the survey from 14 educational institutions located in Bangkok. Five hypotheses were posited in the study which were analyzed using Multiple Regression. The findings showed that environmental consciousness, concern for Thailand's environment and reference group influence were significant predictors of green purchasing behavior. The findings showed no significant relationship between age, gender, income and green purchasing behavior of graduate students in Bangkok

**Keywords:** Environment Consciousness, Attitude, Green Purchasing Behavior, Thailand.

## บทคัดย่อ

ประเทศทางตะวันตกนั้นมีการศึกษาหลายชิ้นเกี่ยวกับพฤติกรรมการซื้อสินค้าที่เป็นมิตรต่อสภาพแวดล้อม แต่ประเทศทางตะวันออกโดยเฉพาะอย่างยิ่งในแถบเอเชียตะวันออกเฉียงใต้นั้น ยังมีงานวิจัยทางด้านนี้อยู่น้อยมาก งานวิจัยชิ้นนี้มีวัตถุประสงค์เพื่อศึกษาผลกระทบของความตระหนักในสภาพแวดล้อม ทศนคติต่อสภาพแวดล้อม ความห่วงใยต่อสภาพแวดล้อมของประเทศไทย อิทธิพลของกลุ่มอ้างอิง และปัจจัยส่วนบุคคลที่มีต่อพฤติกรรมการซื้อสินค้าที่เป็นมิตรต่อสภาพแวดล้อมในกลุ่มนักศึกษาระดับปริญญาโท งานวิจัยชิ้นนี้เก็บข้อมูลจากนักศึกษาระดับปริญญาโทจำนวน 399 คน จากสถาบันการศึกษา 14 แห่งในกรุงเทพมหานคร และใช้การถดถอยพหุ (Multiple Regression) ผลการวิจัยแสดงให้เห็นว่า ความตระหนักในสภาพแวดล้อม ความห่วงใยต่อสภาพแวดล้อม และอิทธิพลของกลุ่มอ้างอิง สามารถทำนายพฤติกรรมการซื้อสินค้าที่เป็นมิตรต่อสภาพแวดล้อมได้อย่างมีนัยสำคัญทางสถิติ ส่วนปัจจัยส่วนบุคคลไม่มีผลต่อพฤติกรรมการซื้อสินค้าที่เป็นมิตรต่อสภาพแวดล้อม

**คำสำคัญ:** ความตระหนักในสภาพแวดล้อม ทศนคติ พฤติกรรมการซื้อสินค้าที่เป็นมิตรต่อสภาพแวดล้อมประเทศไทย

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## Introduction

The Merriam-Webster Dictionary defines environmentalism as “advocacy of the preservation, restoration, or improvement of the natural environment; especially the movement to control pollution”. Environmental consciousness has gained increasing attention worldwide over the past decade. This rising consciousness can be attributed to people’s observation and widespread media reporting of environmental problems. There have been severe earthquakes and floods in many parts of the world, hurricanes, storms and advancing climate change. An environmental news report (Environmental News Service, 2011) estimated that natural disasters had killed approximately 300,000 people around the world in 2010, with 950 natural disasters recorded, nine-tenths of which were weather-related events. Of these catastrophes, 310 have taken place in Asia.

Many of these natural disasters have been caused by man-made environmental dehydration, for example, hurricanes are caused by carbon-dioxide build ups, floods and climate change can be directly linked to deforestation and development. It is not surprising, therefore, that environmental preservation has been one of the most important concerns for many agencies and governments.

### The Case of Thailand

Thailand, a south-east Asian country has made remarkable economic progress over the past three decades. This progress, however, is not without costs. Destruction of forests, rapid industrialization and urbanization have led to over use of land and water and destruction of the country’s eco system. Vehicles, power plants, factories, forest fires, agricultural burning and open cooking, all contribute to air pollution in Thailand. Knox (2009), in a report, referred to a statement made by Patcharapol Limpiyawon, former Greenpeace new media project leader and Bangkok resident, that water pollution can be attributed to careless emphasis on economic growth and Thai people’s ‘*sabai sabai*’ attitude which translates as “take it easy, no worries”. Nevertheless, Thai people’s apathy which was evident in the past toward environmental protection is now dissipating due to the awareness propagated by social groups, mass media and environmentalists.

Moreover, the Thai Government has put in place many commendable initiatives which include enacting the environmental law in 1992, phasing out lead gasoline in 1995, curbing pollution from power plants, tightening construction standards thus substantially reducing the use of ozone depleting substances (World Bank, 2002). Environmental awareness, nevertheless, is not enough. Thai People must learn to make the connection between the need to protect the environment and action that is needed – what each individual can do everyday to conserve it.

## Research Objectives

A growing concern for the natural environment among people in Thai society has caused an increase in the number of products marketed as green or environmentally friendly. The current research is important in the Thai context as the country is suffering its worst floods in 69 years which has resulted in shaving 1% or 100 billion baht off the GDP (Yuthamanop, 2011). A few years ago, TNS, a global market research firm conducted a study analyzing the green attitudes, perceptions and behaviors of people in 17 countries including Thailand. 65 percent of the Thais surveyed rated the overall condition of Thailand as fair/poor (TNS Global, 2008).

Although there have been some studies on green purchasing behavior in the Thai context, there has been no such study conducted exclusively on Thai students. The findings of studies in Western contexts have shown a variety of factors related to green marketing and green purchasing behavior. Shrum, McCarty and Lowry (1995) argued that environment related consciousness and attitude are related to the purchase of green products. Other studies have shown (Ellen, Weiner & Cobb-Walgren, 1991; Ellen, 1994; McCarty & Shrum, 2001) that environmental concern was a predictor of purchasing environmentally sound products.

This paper aims to contribute by investigating the determinants that influence green purchasing behavior among Thai graduate students. The specific research questions of the study are:

Does environmental consciousness influence green purchasing behavior?

Does environmental attitude influence green purchasing behavior?

Do reference groups influence green purchasing behavior?

Does concern for Thailand’s environment influence green purchasing behavior?

Are respondents’ demographic profiles significantly related to green purchasing behavior?

## Literature Review

### Green Marketing

There is no universally accepted definition of green marketing. One of the most popular definitions has put forward by Peattie (1992) who stated that green marketing is “the management process responsible for identifying, anticipating and satisfying the requirements of consumers and society, in a profitable and sustainable way” (p.11). Peattie (1992: 11) further argues that green marketing differs from the conventional style of societal marketing in four ways:

- 1) it has an open-ended rather than a long-term perspective
- 2) it focuses more strongly on the natural environment

3) it treats the environment as something which has an intrinsic value over and above its usefulness to society

4) it focuses on global concerns rather than on particular societies.

While Peattie's (1992) definition put emphasis on the needs of consumers and society, Charter and Polonsky (1992) stated that green marketing focuses on the promotion of products based on their environmental performance or improvement. Ottman (1996) argued that green marketing is a combination of both improved environmental quality and customer satisfaction.

### **Green Consumers**

Peattie (1992) defined green consumption as "consuming in a more sustainable and socially responsible way" (p.117). The author contended that there are various shades of green and cited the framework developed by Marketing Diagnostics:

- a) Green Activists – members or supporters of environmental organizations
- b) Green Thinkers – will look for new ways to help the environment and seek out green products and services
- c) Green Consumer Base: includes anyone who has changed their consuming behavior in response to green concerns
- d) Generally Concerned: people claiming to be concerned about green issues.

Strong (1996) has defined green consumers as those "who avoid products that are likely to endanger the health of the consumer or others, cause significant damage to the environment during manufacturing, use, or disposal, consume a disproportionate amount of energy, cause unnecessary waste, use materials derived from threatened species of environment" (p.5).

### **Green Products**

Where the definition of green product is concerned, it has been difficult to arrive at a well-accepted one because the word green is vague and can mean different things to different people. TerraChoice (2010) has defined green products as simply products that claim to offer an environmental benefit.

## **Research Hypotheses**

### **Environmental Consciousness**

Researchers have made many attempts to define the concept of environmental consciousness over the past two decades. Environmental consciousness propels people to make purchasing decisions that are greener (Peattie, 2001; Schlegelmilch, Bohlen, & Diamantopoulous, 1996). Chase (1991) argued that environmentally conscious people are more likely to change their purchasing behavior to improve the environment. If people possess environmental consciousness, their daily activities such as travel, waste disposal, shopping, the use of energy and other behavior, would change in an environmentally-

friendly direction. However, a study by Ohtomo and Hirose (2007) found that people concerned about the environment might not necessarily behave in a greener way in general, or in their purchasing behavior, for example, people might litter when others around them are doing so. This value-action gap might be due to conflict between immediate individual and long-term collective interest (Nordlund & Garvill, 2002; Pickett-Baker & Ozaki, 2008). The study therefore posits the first hypothesis:

*H1: Environmental consciousness will positively influence green purchasing behavior of Thai graduate students.*

### **Environmental Attitude**

There is no consensus regarding an acceptable definition of the concept of attitude. Ajzen and Fishbein (1980) defined attitude as "a person's general feeling of favorableness or unfavorableness for that concept" (p.54). Solomon (2007) identified attitude as "a lasting, general evaluation of people (including oneself), objects, advertisements, or issues" (p.205). Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (Eagly & Chaiken, 1993).

An individual's environmental attitude is defined as the body of favourable or unfavourable feelings toward some specific aspects of one's environment (Hines, Hungerford, & Tomera, 1987; Newhouse, 1990). Environmental attitude is also defined as a learned belief which develops from an individual's knowledge and values about the environment and governs actions to support or sustain the environment (Uitto, Juuti, Lanoven & Meisalo, 2004).

Stern (2000) contended that attitudinal factors which included values, beliefs and norms guide one's general predisposition to act pro-environmentally. Ajzen (1985) also confirmed that a person is more likely to undertake a certain behavior if he/she has a positive attitude toward such behavior. Environmental attitude also reflects peoples' tendencies to act and live in environmentally responsible ways. Bohlen, Schlegelmilch, and Admantis (1993) and Schlegelmilch et al., (1996) concluded that environmental attitude is more closely related to green purchasing behavior than either socio-demographic or personality variables. Thus the second hypothesis posited is:

*H2: Environmental Attitude will positively influence green purchasing behavior of Thai graduate students.*

### **Reference Group Influence**

Many researchers have studied the impact that aspirational and associative reference groups have on general consumer behavior. Reference groups serve as a frame of reference for individuals in their consumption decisions because they are perceived as credible sources. Informal sources, such as friends, neighbors, relatives and others that consumers meet on social network sites can have a strong influence

on a person's behavior. Schiffman and Kanuk (2010) asserted that the family remains a central or dominant reference group in providing for its members and is the major household consuming unit. Soonthonsmai (2001) in a study on Thai consumers' purchase intention for green products found that the subjective norm (family, friends, peers and relevant others) plays a major role in the intention to purchase green products. Thai society has been categorized by Hofstede (2001) as a collective society. Collective cultures conform more because nonconformity is more strongly associated with deviance (Kim & Markus, 1999). Triandis, McCuskar, and Hui (1990) reported that collectivists pay considerable attention to certain in-groups such as the tribe, the work group, the family or the nation and behave differently toward members of such groups than toward members of out-groups. In such societies, social norms are of great importance and conformity is a significant motivation to purchase products/services, especially among young people. Therefore, the third hypothesis proposed in the study is:

*H3: Reference groups will positively influence green purchasing behavior among Thai graduate students.*

#### **Concern for Thailand's Environment**

Studies show that people's extent of environmental concern is associated with their interest and willingness to purchase green products (Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997; Schwepker & Cornwell, 1991). Previous research has also shown people's stronger concern for the environment and this concern is not just apparent in developed nations such as Germany or the US (Pierre & Prothero, 1997; Ottman, 1996), but also in developing nations such as India, Philippines and Thailand. Johri and Sahasakmontri (1998) reported a higher level of environmental consciousness among Thai companies and consumers, with many environmental management initiatives being launched by different segments of society. In contrast, Panya and Sirisai (2003) argue that the general Thai public "lack a sense of personal efficacy and responsibility feeling that environmental action is outside the individual's responsibility, and that it belongs to the urban-based elite and environmental experts" (p.59). In a focus group of Thai consumers, Bobek (2010) studied their attitude toward the environment and behavior. The participants agreed that the natural environment in Thailand is worse than other countries due to pollution and poor waste management. The fourth hypothesis posited is:

*H4: Concern for Thailand's environment will positively influence green purchasing behavior among Thai graduate students.*

#### **Demographic Variables**

Several researchers have attempted to link demographic variables such as age, gender, education and income to environmental concern. Age has been

the factor most consistently related with environmental concern with studies showing young adults having more concern (Arcury & Christianson, 1990; Howell & Laska, 1992; Mertig & Dunlap, 2001). Stern, Dietz and Kalof (1993) found stronger intention for environmental action and stronger beliefs among women. Women were more likely to buy green product because of their stronger belief that the product was better for the environment (Mainieri et al., 1997). Well-educated people tend to have a moderately higher level of environmental concern than their counterparts (Mertig & Dunlap, 2001). These findings were also confirmed in a meta-analysis by Hines et al., (1987) who reported that highly educated people are slightly more likely to engage in environmentally responsible behavior than less educated people. Scott and Willits (1994) found that people who were well to do financially were more likely to behave in an environmentally responsible manner. Hockett, McClafferty, and McMullin (2004) also reported that the more highly educated individuals and those with higher incomes were more likely to behave pro-environmentally. In a Thai study on organic food purchasing behavior by Roitner-Schobesberger, Darnhofer, Somsook, and Vogl (2008), consumers with higher income and with a higher educational degree were more likely to have purchased organic food in the past. The final hypothesis posited is:

*H5: Demographic variables (age, gender and income) are significantly related to Thai graduate students' green purchasing behavior*

#### **Research Methods**

A directory issued by the Commission for Higher Education listing all universities in Bangkok that offered graduate level courses was used as the sampling frame. The list contained the names of 45 universities which offered graduate level degrees in various fields such as engineering, humanities, arts, sciences, business, education, and others. A random sample of 14 universities was drawn from the list. Permission was obtained from lecturers teaching courses in these universities for distributing the questionnaires in classrooms after their lectures. Participation was voluntary and all participants were assured confidentiality of responses.

Graduate students were the samples in this study for several reasons. First, they are at an age where they understand the implications of environmental problems. Second, they are future custodians and policy makers of environment management. Third, they are in institutes of higher learning which provide the atmosphere for disseminating knowledge on environmental issues. And finally, they have the capacity to create a strong national movement and bring people's attention to environmental problems.

A five-section and self-administered questionnaire was used. The first section, adapted from the study by Kaiser, Wölfling and Fuhrer (1999) and Roberts and Bacon (1997) measured respondents' general

environmental consciousness. Seven items and a five point Likert scale were used ranging from 1 = never to 5 = always. Subjects were asked to indicate their responses to questions such as “I carry my own bag with me when I go out for grocery shopping”; “I turn out the lights when I leave an empty room”; “I use energy saving bulbs”. Four items were adapted from Maloney and Ward (1975) and Tantawi, O’Shaughnessy, and Gad (2006) to measure respondents’ concern for Thailand’s environment. Examples of these questions were “I am worried about the state of Thailand’s environment”; “I am annoyed when I see people destroying Thailand’s environment”. To measure environmental attitude, the popular New Environmental Paradigm scale was adapted. The scale was proposed by Dunlap, Van Liere, Mertig, and Jones in 2000 and it measures the general set of beliefs or attitudes toward the environment and assesses the environmental climate among the public. A Likert-type 5 item scale ranging from 1 = strongly disagree to 5 = strongly agree was used. The NEP consists of 15 statements. Six items were adapted from Lee (2009) to measure the influence of reference groups. Examples of these items were “I learn about environmental issues from my friends”; “I share my experiences about using green products with my family”. The fifth section included four

questions on Green Purchasing Behavior adapted from Lee (2009), and Roberts and Bacon (1997). Examples of these questions were “I often buy products that are labeled organic”; “I often buy environmentally-safe products”.

#### Validity and Reliability of Research Instrument

The questionnaire was sent to three experts in a public university; two were academics in the field of environmental science and one in marketing. Based on feedback some changes were made to the wording of the questionnaire. A panel of three experts was then used to translate the questionnaire from English to Thai. Back translation assured that problematic words or phrases that did not completely capture the concept addressed by the original item were corrected.

Table 1 shows the alpha coefficient of data collected from 30 respondents which was analyzed by means of a statistical analysis software program. The statistical reliability test confirmed the alpha values of 0.649, 0.78, 0.75, 0.852 and 0.849. Hair, Money, Samouel, and Page (2006) reported that alpha estimates between 0.60 and 0.70 represent the lower limit of acceptability in quantitative research studies. Sekaran (2003) also reported that alpha coefficients less than 0.6 is poor, those in the 0.7 range is acceptable, and over 0.8 is good.

**Table 1:** Reliability Statistics

Factors	No. of items	Cronbach Alpha
Environmental Consciousness	7	.649
Environmental Concern	4	.781
Environmental Attitude	15	.756
Reference Group Influence	6	.852
Green Purchasing Behavior	4	.849

#### Findings

The demographic profile of the respondents is elaborated below:

Of the 399 student subjects, approximately two-third (61.2%) were female. More than half of the samples (58.4%) were 20-29 years old with the second largest group (28.8%) being 30-39 years old. Slightly

less than half the sample (47.9%) earned a monthly income of 10,000 – 20,000 baht, with the next largest group (18%) earning a monthly income of 20,001-30,000 baht.

Multiple Regression Analysis was conducted to test hypotheses 1-5.

**Table 2:** Regression Analysis of Predictors of Green Purchasing Behavior Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.390	.276		1.415	.158		
Gender	-.007	.053	-.005	-.134	.894	.941	1.062
Age	-.021	.038	-.024	-.547	.585	.729	1.372
Income	.029	.021	.061	1.387	.166	.746	1.341
Environmental Consciousness	.173	.050	.143	3.448	.001	.834	1.199
Concern for Thailand’s Environment	.149	.049	.135	3.065	.002	.740	1.351
Environmental Attitude	.043	.062	.030	.694	.488	.764	1.309
Reference Group Influence	.546	.040	.560	13.596	.000	.845	1.184

a. Dependent Variable: Green Purchasing Behavior

**H1: Environmental Consciousness will positively influence Green purchasing behavior of Thai graduate students**

Table 2 indicates a relationship between environmental consciousness and green purchasing,  $t = 3.448$ ;  $p < 0.5$ , thus hypothesis 1 is supported.

**H2: Environmental attitude will positively influence green purchasing behavior of Thai graduate students**

Based on table 2,  $t = .694$ ;  $p > .05$ . There is no significant influence of environmental attitude on green purchasing behavior, hypothesis 2 is not supported.

**H3: Reference groups will positively influence Green Purchasing Behavior of Thai graduate students**

Based on the information in table 2, there is a significant relationship between reference group influence and green purchasing behavior,  $t = 13.596$ ;  $p < 0.5$ , lending support for hypothesis 3.

Moreover, the results of standardized coefficient (beta) revealed that reference group influence is the most important variable contributing to green

purchasing behavior (beta = 0.546) followed by Environment Consciousness (beta = 0.173) and Concern for Thailand’s environment (beta = 0.149).

**H4: Concern for Thailand’s environment will positively influence Green purchasing behavior of Thai graduate students**

Table 2 indicates that there is a significant relationship between concern for Thailand’s environment and green purchasing behavior,  $T = 3.065$ ,  $p < 0.5$ . Thus, concern for Thailand’s environment influences green purchasing behavior. Hypothesis 4 is therefore supported.

**H5: Demographic variables (gender, age and income) are significantly related to Thai graduate students’ green purchasing behavior.**

Based on the information in table 2, the p-values for age, gender and income were higher than 0.05. Thus, there is no significant relationship between the demographic factors and graduate students’ green purchasing behavior ( $t = age$ ). Hypothesis 5 is therefore not supported.

**Table 3:** Values of R square in the Regression Analysis

Model Summary <sup>d</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.625 <sup>a</sup>	.390	.389	.516	.390	254.020	1	397	.000	1.921
2	.645 <sup>b</sup>	.416	.413	.506	.026	17.392	1	396	.000	
3	.661 <sup>c</sup>	.437	.433	.497	.021	14.970	1	395	.000	

a. Predictors: (Constant), Reference group influence

b. Predictors: (Constant), Reference group influence, Environmental consciousness

c. Predictors: (Constant), Reference group influence, Environmental consciousness, Concern for Thailand’s Environment

d. Dependent Variable: Green Purchasing Behavior

Table 3 shows the predictive powers of variables in descending order: reference group influence ( $R^2 = .390$ ), environmental consciousness ( $R^2 = .026$ ) and concern for Thailand’s environment ( $R^2 = .021$ ) The predictive power of all three variables was found to be 66% that explained the variance on green purchasing behavior.

**Discussion**

Overall, participation in various environmental conscious behavior was not overwhelmingly supportive, the mean of this variable (3.43) falling in the Agree level. Interestingly, the environmental consciousness measure showed the highest means for two statements “turning off lights when I leave the room”, and “using energy saving bulbs”, both related to energy conservation. What is not surprising is the lowest mean (2.24) obtained for the item “I take my own bag with me when I go shopping for groceries”. From this it becomes evident that the majority of respondents rely on the plastic bags meted out in large numbers

by super and hyper markets throughout the country. Bangkok Metropolitan Administration (BMA) figures show that of the city's daily 10,000 tonnes of trash, about 1,800 tonnes are plastic bags, a number projected to increase by about 20 percent each year (Corporal, 2010). The sampled graduate students’ responses toward recycling behavior (mean = 3.11) is in contrast to a study on undergraduates students in the US by Thapa (1999) who reported recycling as having the highest participation rate. Recycling implementation, according to Hallin (1995) is dependent on convenience, visible participation by others, and remuneration. It also increases on account of stricter legislation, all of which are limited in the Thai context.

Overall, the respondents were positive toward the environment as evidenced in their support for the items in the NEP scale. Seven items of the scale received over 80% (strongly agree) responses. Despite these strong descriptive scores, the attitude-green purchasing behavior association was not significant. This is consistent with previous research where the

connection between environmental attitude and behavior was weak or modest. For instance, Mainieri et al. (1997) contended that general attitude does not lead to green purchasing behavior. Pieters, Bijmolt, van Raaij, and de Kruijk (1998) argued that although many people viewed themselves as 'environmentalists', they do not translate their attitude into pro-environmental behavior. Nordlund and Garvill (2002) contended that this could be because the benefits of some behaviors (traveling by car, buying goods without considering the negative impacts to the environment, not recycling, etc.) are immediate, however the negative consequences to the environment are only evident in the long term.

The role of reference groups and their influence was more important than any of the other predictors of green purchasing behavior. This shows that the graduate students who were respondents in this study are in a position to act as initiators and influencers for products/services consumed by their family and friends. They were also likely to be receptors of information received from informal sources. The findings are consistent with a study on green purchasing behavior among adolescents in Hong Kong by Lee (2009) who found that peer influence was the top predictor, suggesting that group members have a strong need for conformity and social acceptance. As mentioned earlier, Thailand is a collectivist culture in which conformity with social norms is of crucial importance.

Although concern for Thailand's environment was found to be the third predictor of green purchasing behavior in the study, descriptive statistics showed that every item on this measure fell in the strongly agree level. This showed that the respondents cared deeply about what is happening and were truly concerned with the quality of the environment. In a study by Panya and Sirisai (2003) on environmental consciousness in Thailand, the majority of Thai interviewees showed concern about environmental problems and were aware of the decay and degradation of Thailand's natural resources. The positive association between concern for Thailand's environment and green purchasing behavior in this study showed Thai students' willingness to contribute toward making the environment better by buying environmental friendly products.

Several studies in the west have shown socio-demographic variables to have little or no influence on green consumer behaviors (Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen, 2003; Roberts, 1996). Fransson and Gärling (1999) reported that the relationship between demographic factors and environmental concern was weak and inconclusive. Similar findings are reported in the current study as none of the demographic variables measured, such as age, gender and income were found to be related to graduate students' green purchasing behavior. Some western studies have concluded that women are more environmentally concerned than men, this study found no difference between gender and green purchasing

behavior. These findings are consistent with those of Chen and Chai (2010) whose study showed no significant difference between gender and attitude toward environment and green products in the Malaysian context.

Descriptive statistics showed that all items on the measure of green purchasing behavior were supported by respondents (mean = 3.64). There were indications that respondents were willing to pay more and even to change brands in their shopping for green products (mean = 3.62). This is consistent with the findings of studies conducted on British consumers (Prothero, 1990) which showed they were willing to pay more for green products. Rice, Wongtada, and Leelakulthanit (1996) in a survey conducted among Thai consumers also found that they were willing to pay more for environmentally-friendly products. A little over a decade ago, a study by Ottman (1996) showed that 33% of American adults claimed to have avoided buying products, at least occasionally, from companies with poor environmental records.

## **Recommendations**

### ***For Policy Makers***

The study did not find overwhelming support for environmental conscious behavior among the sampled students. This behavior needs to be inculcated in students at a young age and should start with parents providing positive examples to their children as many of these behaviors, such as recycling, are learned at home. To empower students as future managers and consumers who understand the importance of sustainability, courses on environmental protection and green products should be mandatory in Thai schools. Yeung (2004) suggested that in the Hong Kong context, every school should organize activities/programs to teach students values and appreciation of personal responsibility for the environment. Such courses should also be a part of the curriculum at the undergraduate level whereby students, through hands on assignments, oral discussions and presentations, are taught the importance of personal responsibility for the environment.

In the study, Thai respondents showed a strong concern for Thailand's environment but this concern may not be translating into responsible environmental action. Thais must be able to recognize personal health threats from environmental conditions as threats to self and to others and for this, more public awareness programs are needed to educate them on the risks to personal health and wellbeing emanating from environmental disasters.

There is still a lack of awareness and understanding on the potential damage that many traditional products can do to the environment. The BMA's distribution of brochures and 5,000 fabric bags last year in Jatujak market to reduce the use of plastic bags, is a step in the right direction. The neutral responses to three of the items on the reference group influence measure in this study, "I share my experiences on using green products with my family"; "I often

discuss environmental issues with my family”; “I learn about environmental issues from my friends” might point to a lack of information dissemination on green products in Thai society.

#### **For Marketers**

Marketers should endeavor to attract Thai consumers toward green products by using infomercials and sales promotion. Once consumers have adopted green products, they become an important component in their lives and they will be willing to purchase them in larger amounts in the future. This will also lead to positive word of mouth to others.

As per the findings, reference groups have a strong influence on green purchasing behavior. Celebrity reference groups such as actors and musicians must emphasize environmental protection in their work. These celebrities play an important role as opinion leaders, especially among teenagers. Mass media and social networking is also crucial in promoting environmentalism and the use of environmentally-friendly products. On such websites, Thai consumers may exchange opinions and might promote one brand over the other in the context of a conversation. It is also possible for them to add interactive content, which makes products or services more attractive to the members of their network and increases the chances of purchasing.

Younger consumers, especially adolescents, may be moved more by emotional rather than rational approaches in the promotion of green products. Lee (2009) argued that green purchasing behavior “necessitates emotional involvement because environmental protection, by its very nature, embeds the idea of social responsibility, human nature, harmony and love for the motherland” (p. 92). Marketers, besides showing the conventional product attributes such as price, quality and features, can also create emotionally-charged messages appealing to Thais’ love of their country to attract them toward caring and protecting it by purchasing products that do not harm the environment.

The study showed that Thai respondents are willing to buy green products, however, in the current situation, the benefits, especially environmentally relevant, of these products are still not clearly perceived in the wider market. In a study by Bobek (2010), Thai participants reported that they encountered problems related to green products in terms of their cost and lack of choices. Thus it is important that marketers clearly identify the environmental and utilitarian benefits their products have to offer, as well as use incentives as rewards to attract consumers to green products. Marketers can also use tag lines such as “safer for your family”, “saving money and energy”, “creating a better Thailand”, “save the world”, to attract consumers toward purchasing and becoming loyal to green products.

#### **Limitations and Future Research**

The sample consisted of graduate students studying in Bangkok and this may not represent the Thai population. Moreover, the responses are self-reported, they may be subjected to the social desirability phenomena. It is possible that respondents might have overstated their concern for the environment in comparison to their actual green purchasing behavior. The findings showed that environment attitude was not a significant predictor. This might be because a general attitude measure was used; it might be more useful to employ a specific green purchase attitude rather than a general attitude in predicting green purchasing behavior in future studies. The study was limited to graduate students in Bangkok. Future studies should cover other provinces in Thailand. Some behaviors are performed for other reasons than protecting the environment, for instance, not driving in order to save costs. It is important to survey what other motives besides environmental concern influences such behavior. Future research on consumers’ purchase of specific green products (high to low involvement) would also be useful. Finally, comparative studies on green purchasing behavior in neighboring countries, especially in Southeast Asia, would be beneficial so that the findings could throw light on differences between Asian and Western consumers of green products.

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