

Green Purchase Behavior: Examining the Influence of Green Environmental Attitude, Perceived Consumer Effectiveness and Specific Green Purchase Attitude

¹Booi-Chen Tan and ²Teck-Chai Lau

¹Faculty of Management, Multimedia University, Malaysia

²Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman, Malaysia

Abstract: The paper examines the influence of general environmental attitude, specific green purchase attitude, and the perceived consumer effectiveness on green purchase behavior (GPB). A total of 201 completed questionnaires from undergraduate students in a private university in Malaysia were obtained. The result indicated that all the variables were significantly correlated to GPB with green purchase attitude showing the highest correlation with GPB. Analysis from the stepwise regression highlighted that only green purchase attitude and perceived consumer effectiveness were significant predictors to GPB with 11.2% and 5.8% respectively. Environmental attitude however was not a significant contributor. The findings confirmed the notion that specific attitudinal variable is a better predictor than general attitudinal variable in explaining specific consumer behavior. Theoretical and managerial implications were discussed.

Key words: Green marketing, environmental attitude, perceived consumer effectiveness, green purchase attitude and behavior

INTRODUCTION

With an increasing pressure of environmental deterioration affecting numerous businesses, many firms have taken the step to become more socially responsible through developing products that meet the demand of environmentally conscious consumers. These companies are interested in finding the determinants of green purchase behavior in order to implement their green marketing strategies. However, this is a challenging tactic as study has shown that consumers who are environmentally conscious do not always end up purchasing environmentally friendly or green products (Mainieri *et al.*, 1997). The poor attitude-behavior consistency could be due to the lack of specificity in the attitudinal measures used in past research (Weigel and Newman, 1976; Roberts and Bacon, 1997). Previous studies have shown that results in one research often contradicted with another study on the matter of predicting the environmental attitude on green purchase behavior (Kim 2002; Kim and Choi, 2003; 2005).

Furthermore, researchers have also reported that consumers are unlikely to engage in pro-environmental behavior if they believe that their action or effort are not making any difference in achieving a positive environmental outcome (Kim and Choi, 2003).

This leads to an extensive attention to focus on the concept of perceived consumer effectiveness (PCE) in predicting the pro-environmental behavior of consumers. PCE refers to an extent to which an individual believes that he or she can be effective in pollution abatement (Kinnear *et al.*, 1974). Studies have shown that consumers need to be empowered or to be convinced that their effort in performing any pro-environmental behavior would be able to minimize environment deterioration. It is therefore important that environmental behavior be examined separately as the determinant might have different influence on each specific types of pro-environmental behavior (Kim and Choi, 2003).

Numerous studies have been conducted in the past on recycling behavior. However, studies to understand the attitude and behavior of green purchase among consumers are still lacking. The current research is important especially in the Malaysian context as the country is facing great challenges in ensuring a good balance between development and environmental sustainability. Hence, the objective of this research is to examine the influence of three independent variables (i.e., general environmental attitude, specific green purchase attitude, and perceived consumer effectiveness) on the green purchase behavior (GPB) of Malaysian consumers.

Corresponding Author: Teck-Chai Lau, Faculty of Accountancy and Management, Department of International Business, Universiti Tunku Abdul Rahman, Malaysia.
E-mail: lautc@utar.edu.my

The paper begins by providing theoretical background of the relevant literatures. Thereafter the methodology and the results from the quantitative study were presented. Finally, theoretical and managerial implications from the results, limitations and directions for future research were discussed.

Green Marketing and Green Consumers:

The adoption of green marketing is one of the major trends in competitive modern business (Kassaye, 2001). Soonthonsmai (2007) defined green marketing as the process and activities taken by firms by delivering environmentally sound goods or services to create consumers satisfaction. Other definition by Peattie (1995) and Welford (2000) stated that green marketing is the management process responsible for identifying, anticipating and satisfying the requirements of customers and society, in a profitable and sustainable way. Marketing scholars have used the term green marketing interchangeably as social marketing, ecological marketing or environmental marketing. Firms that embraced green marketing encountered numerous challenges such as the variability of demand, unfavourable consumer perception and high cost of production involved (Gurau and Ranchhod, 2005).

Green consumers are those who are aware of and interested in the environmental issues (Soonthonsmai, 2007). They would usually organised petitions, boycotted manufacturers and retailers and actively promote the preservation of the planet (Fergus, 1991). The key concern lies in understanding the characteristics to these green consumers to enable firms to develop new targeting and segmentation strategies (D'Souza *et al.*, 2007). Ottman (1992) reported that consumers were willing to accept green products when their primary need for performance, quality, convenience and affordability were met. Furthermore their level of acceptance would also increase when they understood how a green product could help to solve environmental problems.

Green Purchase Behavior:

Green product can be categorised as a product that will not pollute the earth or deplete natural resources and can be recycled or conserved (Shamdasani *et al.*, 1993). Some examples of these products are "household items manufactured with post-consumer plastics or paper, recyclable or reusable packaging, energy-efficient light bulbs and detergent containing ingredients that are biodegradable, non-polluting and free of synthetic dyes or perfumes" (Mostafa, 2007, p.220). Common terms normally used by companies promoting green products are "eco-friendly", "environmentally safe", "recyclable", "biodegradable" and "ozone friendly".

Pro-environmental behavior can be defined as the action of an individual or group that contributes to the sustainable use of natural resources (Halpenny, 2006). It can be classified into green purchase behavior (Tarkiainen and Sundqvist, 2005; Kim and Choi, 2005; Gupta and Ogden, 2006; Mostafa, 2007; Mohamed and Ibrahim, 2007), energy saving (Kim, 2002; Kim and Choi, 2003), waste and recycling behavior (Kim, 2002; Barr and Gilg, 2007) and participation in any nature-related activities (Aini *et al.*, 2003; Haron *et al.*, 2005). Green purchase behavior refers to purchasing and consuming products that have minimal impacts on the environment (Mainieri *et al.*, 1997). There are different terms used interchangeably with green purchase behavior, such as green buying behavior (Kim, 2002; Kim and Choi, 2003; 2005), pro-environmental purchase behavior (Soutar *et al.*, 1994; Tilikidou, 2007) and environmentally responsible purchase behavior (Follows and Jobber, 2000).

General and Specific Attitudes:

Weigel (1983, p. 257) defines attitude as "an enduring set of beliefs about an object that predisposes people to behave in particular ways toward the object". It refers to the "psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagle and Chaiken, 1993, p.1). The Theory of Reasoned Action (Fishbein and Ajzen, 1975) is the most popular theory used to discuss the attitude-behavior relationship. According to them, specific attitude is a relatively strong predictor of a single behavior on a particular attitude object, while a general attitude explains the general tendency engaged in relevant behaviors on a category of attitude objects. Nevertheless, they warned against the use of general attitudes to predict specific behavior and suggested that a specific attitude is better than general attitude in predicting specific behavior. It means that the more specific the attitude measure, the stronger is its correlation with the behavioral action.

In the context of environmental studies, Hines *et al.* (1986-1987) divided the environmental attitudes into "attitudes towards the environment" and "attitudes towards a specific environmental behavior". They revealed that the lower attitude-behavior correlation was found when attitude was operationalized as a general environmental attitude compared to when it was operationalized as a specific attitude towards environmental behavior. Schultz *et al.* (2004) stated that environmental attitude as "the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues". It refers to the

degree that an individual perceives himself or herself to be an integral part of the natural environment (Schultz and Zelezny, 1999). Most environmental sociologists referred to the attitude towards natural environment as “environmental concern” (Vining and Ebreo, 1992). The Revised New Environmental Paradigm (NEP) scale, which consists of 15 items, has been used extensively to measure environmental attitude (Dunlap *et al.*, 2000). NEP scale has been validated in numerous environmental studies across different countries (e.g., Schultz and Oskamp, 1996; Thapa, 1999; Schultz and Zelezny, 1999; Kim, 2002; Nordlund and Garvill, 2002; Kim and Choi, 2003 and 2005; Bedrous, 2007).

Mainieri *et al.* (1997) revealed that green purchase behavior was significantly related to specific environmental belief (specific attitude), but not to the general environmental concern. More specifically, Chan (2001) reported that green purchase attitude of consumers are significantly related to their green purchase intention. Their research was a longitudinal study as the researchers contacted the respondents a month after the interview in order to examine the relationship between green purchase intention and behavior. Findings by Mainieri *et al.* (1997) and Chan (2001) were consistent with the suggestion by Ajzen and Fishbein (1975) that there were higher correlations when behavior and attitudes were measured in the same level of specificity. However, the relationships between environmental attitude and behavior were still found to be significant in various environmental studies, such as in general environmental behavior (Straughan and Roberts, 1999; Kim and Choi, 2002; Lopez and Cuervo-Arango, 2008), green purchase behavior (Aoyagi-Usui, 2001; Kim and Choi, 2005; Tilikidou, 2007) and apparel purchasing behavior (Shim, 1995; Butler and Francis, 1997). The above findings supported the predictive power of general environmental attitude on both the general and specific environmental behavior. Thus far, the contrasting results reported in the past merit further study in the future.

Perceived Consumer Effectiveness:

Kinnear *et al.* (1974) described perceived consumer effectiveness (PCE) as a measure of individual belief that he or she is an effective contributor to pollution abatement. Initially, PCE was measured as an element of personality variable to predict ecological concern (Kinnear *et al.*, 1974) and ecological consumption responsible patterns (Balderjahn, 1988). Ellen *et al.* (1991) distinguished the measure of PCE from environmental concern and highlighted its predicting power on certain pro-environmental behavior. In other words, attitude and PCE can be modelled as two distinct constructs in the environmental studies. According to Berger and Corbin (1992), attitude can be defined as an evaluation of an individual’s beliefs or feeling about an issue, and PCE refers to a self-evaluation in the context of the environmental issue, for instance, pollution abatement. It was found to have a direct and positive relationship with environmental attitudes (Kim and Choi 2003; 2005). It means that people who have exhibited higher PCE are likely to be more environmentally concerned than those who have lower PCE. However, Ellen *et al.*, (1991) reported that the interaction between PCE and concern was not significant. The relationship between PCE and environmental concern is far from conclusive.

Ellen *et al.* (1991) also warned against the use of PCE to predict generalised pro-environmental behavior by stating that “if an individual believes that an environmental problem can be solved by a specific activity, then this belief should strongly influence the individual’s willingness to engage in that specific activity but not his or her willingness to engage in other pro-environmental actions”. This proposition was in line with the suggestions revealed in the past studies that specific attitude measurement should be used to predict specific pro-environmental behavior (Fishbein and Ajzen, 1975; Vining and Ebreo 1992). Ellen *et al.* (1991) reported that PCE was found to be a significant contributor to the purchase of ecologically safe products, recycling, and contribution to environmental groups, but was not a significant factor in the individual’s membership in environmental groups and communication with public officials on environmental issues. The results of their findings were consistent with the findings from Balderjahn (1988), where significant direct linkages were found between PCE and energy saving and purchase of non-polluting products, but was unrelated to home insulation, support for an environmental organisation and ecologically responsible use of cars. In short, PCE exerted different impacts on different types of pro-environmental behavior.

Straughan and Roberts (1999) examined PCE as an attitudinal variable to predict environmental behavior. They found that PCE was a strong attitudinal variable to predict ecologically conscious consumer behavior (EECB) which explained 33 % of the variation in ECCB. The finding was consistent with an earlier discovery by Roberts (1996) that demonstrated 32.8 % of the variance in ECCB could be explained by PCE. It provides greater insight on the roles of PCE on ECCB. In both studies, PCE was measured as one of the attitudinal variables in predicting the behavior and was found to be a better predictor than environmental concern in predicting ECCB.

According to Lee and Holden (1999), there are two types of environmental behavior, high and low cost behavior. PCE was found to be positively related to high cost consumer behavior but was not related to the low-cost consumer behavior. Kim (2002) also reported that PCE was a significant predictor of energy saving, green purchases, and recycling behavior. In addition, Kim and Choi (2003) concluded that PCE have different impacts on different types of pro-environmental behavior and an indirect effect on green purchase behavior via environmental attitudes. It supported the notion proposed by Ellen *et al.* (1991) that PCE should be used to predict specific types of pro-environmental behavior and not the general pro-environmental behavior. Further research by Kim and Choi (2005) also confirmed the role of PCE as a predictor on green purchase behavior. Webb *et al.* (2008) reported that when consumers believed that their actions made a difference; they would be more likely to be influenced by the environmental impact in their purchase and usage decisions to recycle. In their study, the PCE scale was found to be a key variable associated with socially responsible behavior. In a follow up research, Joonas (2008) conducted a survey among 213 members of environmental organization in the US to investigate the role of PCE on information search. A significant positive relationship between PCE and search for information in relations to environmentally friendly goods and services was reported. About 19 % of the variation in search for information was explained by PCE, while 6 % accounted for by income. This supported the past findings that PCE is a better predictor than demographic variables. As a result, consumer marketers need to intensify efforts to strengthen PCE among consumers to encourage them to search for information on environmentally friendly goods.

Based on previously cited theoretical and empirical literatures, the following three hypotheses were proposed.

Hypothesis 1: There is a significant and positive relationship between environmental attitude and green purchase behavior.

Hypothesis 2: There is a significant and positive relationship between green purchase attitude and green purchase behavior.

Hypothesis 3: There is a significant and positive relationship between perceived consumer effectiveness (PCE) and green purchase behavior.

MATERIALS AND METHODS

Data Collection:

The questionnaires were administered using convenience sampling to 220 undergraduate students from a private university in Malaysia. Ferber (1977) explains that using students sample is considered valid for exploratory studies. Respondents completed the survey during class time and were assured anonymity. Participation was voluntary and no remuneration was offered. The participants were undergraduate students from the business disciplines, consisted of both sexes and come from different countries. A total of 201 completed questionnaires were obtained in which 65% were female and 35% were male. The response rate of 91% was deemed sufficiently complete to be useable for this study.

Instruments:

In order to obtain reliable information from the respondents, established and validated scales were selected for data collection. In this study, the survey instrument of environmental attitude (15 items) was adopted from Dunlap *et al.* (2000); green purchase attitude (2 items) from Mostafa (2007); the perceived consumer effectiveness (8 items) from Ellen *et al.* (1991); Kim (2002); Kim and Choi (2003; 2005). The respondents were asked to rate each item on a 5-point Likert scale from "strongly disagree" (1) to "strongly agree" (5). The survey instrument of green purchase behavior (8 items) was adopted from Kim (2002); Kim and Choi (2003; 2005). The respondents were asked to report the frequency with which they perform the activities included in the questions along a 5-point scale from "never" (1) to "always" (5).

RESULTS AND DISCUSSION

Reliability Coefficient:

Alpha values were calculated to evaluate the internal consistency reliabilities of the scales. Schuessler (1971) stated that a scale is considered reliable if it has an alpha value greater than 0.60. Hair *et al.* (2006) mentioned that reliability estimates between 0.60 and 0.70 represent the lower limit of acceptability in quantitative research studies. Alpha value greater than 0.60 for reliability estimates is considered adequate as the current study is exploratory in nature. Table 1 indicates the reliability level obtained for each of the variables.

Table 1: Reliability Analysis

Construct	No. of Items	Alpha Coefficient
Environmental Attitudes	15	0.675
Green Purchase Attitudes	2	0.730
Perceived Consumer Effectiveness	8	0.704
Green Purchase Behavior	6	0.855

Correlations:

Subsequent analysis looks at Pearson correlation of green purchase behavior and the three independent variables. From the results indicated in Table 2, all the variables have significant correlation with green purchase behavior with PCE ($r = 0.326$, $p\text{-value} = 0.000 < 0.05$), environmental attitude ($r = 0.213$, $p\text{-value} = 0.002 < 0.05$) and green purchase attitude ($r = 0.335$, $p\text{-value} = 0.000 < 0.05$). Green purchase attitude was shown to have the highest correlation with green purchase behavior.

Table 2: Correlation of Each Variable with Green Purchase Behavior (N=201)

	PCE	Environmental Attitude	Green Purchase Attitude
Green Purchase Behavior			
Pearson Correlation	0.326	0.213	0.335
Sig. (2-tailed)	0.000	0.002	0.000

** Correlation is significant at the 0.01 level (2-tailed).

Hypotheses Testing:

Next, multiple regression analysis was performed to test hypotheses 1 to 3 on the three independent variables (environmental attitude, green purchase attitude, PCE) on green purchase behavior.

Table 3: Result of Multiple Regression Analysis

Dependent variable: Green Purchase Attitude			
Model	Standardized Coefficient (beta)	t-value	Sig.
Constant		1.243	0.215
PCE	0.228	3.176	0.002
Environmental Attitude	0.068	0.956	0.340
Green Purchase Attitude	0.255	3.735	0.000
R Square = 0.174	F-Value = 13.831		
Adjusted R Square = 0.161	Significance = 0.000		

Table 3 highlighted that all the independent variables (PCE, environmental attitude and green purchase attitude) were simultaneously significant to the dependent variable (green purchase behavior). This means that at least one of the three-predictor variables can be used to model green purchase behavior. From the value of R square ($R^2 = 0.174$), 17.4 % of the variation in green purchase behavior can be explained by all the three variables (or accounted for by) the variation in perceived consumer effectiveness, environmental attitude and green purchase attitude. From the analysis, PCE ($p\text{-value} = 0.002$) and green purchase attitude ($p\text{-value} = 0.000$) were found to significantly affect green purchase behavior. Hence, hypotheses 2 and 3 were supported. As the environmental attitude was not related to green purchase behavior ($p\text{-value} = 0.340 > 0.05$), therefore, hypothesis 1 was not supported.

In addition, the result of standardized coefficient (beta) revealed that green purchase attitude was the most important variable that contributes to green purchase behavior ($\beta = 0.255$) followed by PCE ($\beta = 0.228$). The results of tolerance and VIF value were displayed in Table 4. Each variable tested the different dimensions clearly and without any multi-collinearity problems as indicated with the tolerance rate of more than 0.1 and $VIF < 5$ (Hair *et al*, 2003).

Table 4: Collinearity Statistics (tolerance and VIF value)

	Tolerance	VIF
PCE	0.813	1.230
Environmental Attitude	0.837	1.194
Green Purchase Attitude	0.902	1.108

Environmental attitude was not a significant predictor. Therefore stepwise regression analysis was conducted to find out the %age contributions by the other two predictors. From the results in Table 5, we can conclude that green purchase attitude alone explains 11.2 % of the variation in green purchase behavior. The inclusion of PCE explains an additional 5.8 % in green purchase behavior. Green purchase attitude and PCE together explain 17% of the variation in green purchase behavior (compared to 17.4 % by all three predictors).

Table 5: Results of Stepwise Regression Analysis

Model	R	R square	R square change	F change	Sig. F change
1	0.335 (a)	0.112	0.112	25.105	0.000
2	0.412 (b)	0.170	0.058	13.870	0.000

a Predictors: (Constant), GBA

b Predictors: (Constant), GBA, PCE

Discussion:

In the case of hypothesis 1, the result indicated that there is no significant relationship between environmental attitude and green purchase behavior. This means that consumers green purchase behavior is not facilitated by the positive attitude of consumers towards the environment. This finding was consistent with the result by Mainieri *et al.* (1997) that general environmental attitude will not lead to green purchase behavior. However it contrasted with studies by Grunert and Juhl (1995); Shim (1995); Aoyagi-Usui (2001); Kim and Choi (2003; 2005) and Tilikidou (2007) that green purchase behavior was affected by the environmental concern as claimed by consumers.

As for hypothesis 2, the result shows that there is a significant relationship between green purchase attitude and green purchase behavior. Green purchase attitude was measured as a specific attitude towards the specific types of environmental behavior, which in this instance it refers to the green purchase behavior.

Hypothesis 2 was supported and this finding was consistent with the result from Mainieri *et al.* (1997). From the stepwise regression analysis, it was shown that green purchase attitude had the highest predicting power on green purchase behavior as compared to PCE or environmental attitude. This was a contradiction with several past findings on the predictive power of environmental attitude on green purchase behavior. In addition, the current study further confirmed theoretical and empirical research on the need to use specific attitude measure such as green purchase attitude that will result in a stronger correlation and relationship between attitude and behavior. However, the specific types of green purchase attitude such as the importance of buying or the inconvenience of buying green products in Malaysia were not explored in this research.

Lastly, hypothesis 3 was supported in the study in which PCE was significantly related to green purchase behavior. PCE was distinguished from other variables such as environmental attitude. It means that respondents who were engaged in buying environmentally friendly products do so because they believed that their actions or efforts of purchasing such products were able to help minimise the environment from further deterioration. This is supportive of previous findings that PCE can be used as a strong predictor on pro-environmental behavior (Ellen *et al.*, 1991; Berger and Corbin, 1992; Roberts, 1996; Straughan and Roberts, 1999; Lee and Holden, 1999; Kim, 2002; Kim and Choi, 2003; 2005). However, most importantly, besides acting as a predictor, several researchers have also confirmed its moderating roles between attitude and behavior (Berger and Corbin, 1992; Kim, 2003; Gupta and Ogden, 2006; Laskova, 2007). However, the moderating role of PCE was not tested in this research.

The summary of the results in relation to the research hypotheses is shown in Table 6.

Table 6: Summary of results in relation to the research hypotheses

No	Hypothesis	Finding
H1	There is a significant and positive relationship between environmental attitude and green purchase behavior.	Not supported
H2	There is a significant and positive relationship between green purchase attitude and green purchase behavior.	Supported
H3	There is a significant and positive relationship between perceived consumer effectiveness (PCE) and green purchase behavior.	Supported

Theoretical and Managerial Implications:

Results from the current study confirmed theoretical and empirical research on the need to use specific attitudinal measure to predict specific behavioral patterns. In this case using specific attitude measure such as green purchase attitude resulted in a stronger correlation and relationship between attitude and behavior. The findings also support the notion that PCE is a strong predictor on pro-environmental behavior. Marketers and companies promoting green products would be in a better position to market their products if they could consider specific consumer attitude such as green purchase attitude rather than a general attitude in predicting consumer behavior in purchasing their products. It also would be helpful for companies to do more advertising and awareness campaign to convince consumers that their action in purchasing the companies green products would make a difference in improving the environment from further deterioration. Consumers need to be made to feel that their contribution matters. Only then would they be willing to contribute in purchasing green products.

Limitations and Future Research:

The study used convenience sampling of students in a private university and this might not be representative of the Malaysian population. Future research should consider using probability sampling method and to include a cross sectional survey that reflects the Malaysian population. A larger sample size would also be more useful in assessing the stability and dependability of the findings. There is a need to replicate the study to other countries especially to the South East Asian nations. Consumers in this market have not been fully exposed to variety of green or environmentally friendly products as compared to consumers in the western countries. Therefore there is a lot of potential to discover the attitude and behavioral patterns of these consumers. Future research should also consider exploring the specific types of green purchase attitude such as the importance of buying or the inconvenience of buying green products in Malaysia. Lastly, several past researchers have confirmed the moderating roles of PCE between attitude and behavior (Berger and Corbin, 1992; Kim, 2003; Gupta and Ogden, 2006; Laskova, 2007) and this need to be further investigated.

Conclusion:

This paper examines the influence of general environmental attitude, specific green purchase attitude, and the perceived consumer effectiveness on green purchase behavior (GPB). The results from this study would be of interest to companies promoting green products in Malaysia. By being sensitive to the specific attitude of green purchase among consumers, companies would be able to better predict the behavioral patterns of these consumers. Furthermore, corporations also need to be aware that consumers would only act if they believe that purchasing green products make a difference in saving the environment. So, convincing the green consumers and changing the mindset of pre-believers would be crucial. These would be some of the challenges that companies in green market need to consider in promoting their products.

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