Antecedents of Green Purchasing Behavior among Malaysian Consumers

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Abstract: The purpose of this study is to examine the factors that influence green purchasing behaviors of Malaysian consumers and observes if the factors affecting green purchasing behavior differ by demographic profile. Respondents in this study were consumers from various age groups, education level, ethnic group, type of occupation and income level. The results shows that the best predictor for green purchasing behavior is environmental attitude followed by perceived environmental responsibility; environmental concern, perceived seriousness of environmental problems, perceived effectiveness of environmental behavior and government's role. While for demographic variables, only age group is significant in explaining the environmental factors. The result of the research can serve as a guideline for firms to strategize their marketing approaches that caused buying behavior while analyzing the demographic characteristics would give firms better knowledge towards targeting these groups of people. This study also offers practical guidelines to marketers who are planning to target the Malaysian market. The understanding on the changing consumption pattern of Malaysian consumers and the value of attachment, they gave to the environment provides useful insights that are especially pertinent to an improved understanding of green purchasing behavior in the South East Asia context.

Key words: Consumer behavior, green marketing, environmental factors, green purchasing, ethnic group, Malaysia

INTRODUCTION

The consumers' spending pattern has been growing over the past decades. The manufacturing, processing and consumption of goods involve the usage and damage of natural resources such as air, timber, fossil fuels ore and water. High consumption and exploitation of the nature have caused environmental deterioration. The more things people purchase, the higher their contribution to the environment. The use of goods themselves creates toxic waste which becomes the pollutant to the land. All environmental problems have sources, several effects and the most prominently, a resolution. Therefore, the awareness of environmental problems and the respond to these issues without delay is absolute necessary.

Malaysia is one of the earliest countries in the world that have taken a serious consideration regarding the environment by enacting the Environment Quality Act way back in 1974. Besides enacting acts about environmental protection, the government has also formed the Ministry of Energy, Green Technology and Water, recently in order to cater the rising need and importance of green technology towards sustainable advancement. The ministry has enacted the National Green Technology Policy right after the formation of the

ministry (Malaysia Green Forum, 2010). The government has taken a holistic approach which is known with the acronyms of AFFIRM for the sustainability of the environments. AFFIRM stands for Awareness, Faculty, Finance, Infrastructure, Research, development and commercialization and Marketing. This acronym is mainly designed to obtain commitment from all stakeholders in committing towards the environmental protection in Malaysia (Malaysia Green Forum, 2010).

The consumers' preferences are changing over time. Although, people now-a-days are more aware of the environmental issues some might have unpleasant perception towards environmentally friendly goods and less readiness to pay more for eco-friendly products. Firms need to be responsive to this socio-demographic change in order to remain competitive in the market place. An important challenge that marketers are facing now is thorough understanding on consumer's behavior regarding green marketing and green purchasing.

While the demand is increasing, there have been very few studies conducted on green purchasing behavior (Tanner and Kast, 2003; Soonthonsmai, 2007; Lee, 2008; Cheah, 2009). Apart from this, the result varies either due to different countries were set as the origin or different samples were used. Together, the green marketing studies

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in Asian countries are relatively less compare to Western countries (Lee, 2008). Thus, it is important to perform a study in the context of Asian country such as Malaysia to understand their green purchasing behavior. Studies performed by Cheah (2009) and Chen and Chai (2010) found an increased demand for green products in the Malaysian market. Their studies has offered understanding on green purchasing behavior however, limited to only a few determinants influencing consumers towards positive green purchasing behavior. In fact, their studies which focused on young consumers have caused a query regarding other age groups perception and attitude towards green products.

Generally, consumers who are aware of the environmental issues tend to have a positive attitude towards green purchasing. However, a variety of factors typically can influence them. A number of individual drives and external factors could be the determinants of such behavior. Therefore, this study is conducted to narrow the gap by studying the factors that influence green purchasing behaviors of Malaysian consumers and the weight of these factors. Together, it is important to study if the factors affecting green purchasing behavior differ by demographic profile.

Literature review
Green consumerism and green marketing: A green consumer is defined as consumers who are conscious of and interested in ecological issues (Soonthonsmai, 2007). They consider that all products and services have environmental impact and their initiative is to reduce them to the minimum. Consumer purchases green products when their prime requirement for quality, performance and easiness were achieved and when they realized how a green product could facilitate to answer environmental tribulations. The knowledge gap or skepticism towards the usage of green products would stop consumers in engaging themselves to any buying decisions. Poor description about green claims would always put the green consumers in question and this will lead to switching to better green products.

According to Renner (2002) consumers are requesting for more reliable information about the society and ecological effect of the goods that they are purchasing besides the information that the product is environmentally friendly. Companies which are improving indicates that they are revising their policies and updating themselves with regards to the current environmental issues and fulfilling the changing needs of green consumers.

Green marketing is the practices of advertising products or services by referring on their ecological

advantages. It can be defined as the actions taken by firms that are concern about the environment or green problems by providing the environmentally sound goods or services to build consumers and society's satisfaction (Soonthonsmai, 2007). Santesmases defined traditional marketing as a mental position an attitude a way of conceiving the exchange relationship by the firm or entity offering their products to the market. Where else, green marketing was defined as the way to conceive exchange relationships that goes beyond the current needs of the consumers, considering at the same time the social interest in protecting the natural environment (Chamorro and Banegil, 2005). According to them, green marketing involves three players: the firm, consumers and the environment.

Antecedents of green purchasing behavior: Factors influencing green purchasing behavior have been carried out especially in a develop countries. However, dominant factor that affect the green purchasing behavior in one country might be different in another due to the differences in cultural and socio-economic conditions of each countries. In fact, variables used as antecedents of green purchasing behavior are vary from one study to another. From the review of the literature, this study have identified and tested eight antecedents of green purchasing behavior, namely; social influence, environmental attitudes, environmental concern, perceived seriousness of environmental problems, perceived effectiveness of environmental behavior, perceived environmental responsibility, concern for self-image in environmental protection and the government's role.

Theory of Reasoned Action (TRA): TRA was established by Fishbein and Ajzen (1975) is used to argue that consumer's attitudes and subjective norm towards environmental issues can influence their behavior and action towards green purchasing. This theory includes consumers attitudes how these attitudes are formed and how other people could influence their behavior. This theory is also being used by many researchers from different fields in order to analyze human's behavior. Relating to marketing researches, TRA is used to explore purchasing intention or behavior of consumers (Mostafa, 2007; Cheah, 2009). The research framework is as follows (Fig. 1). The eight identified antecedents towards green purchasing are tested through eight hypotheses.

Social influence: The social dynamic in which individual associate with other people by presenting similar qualities
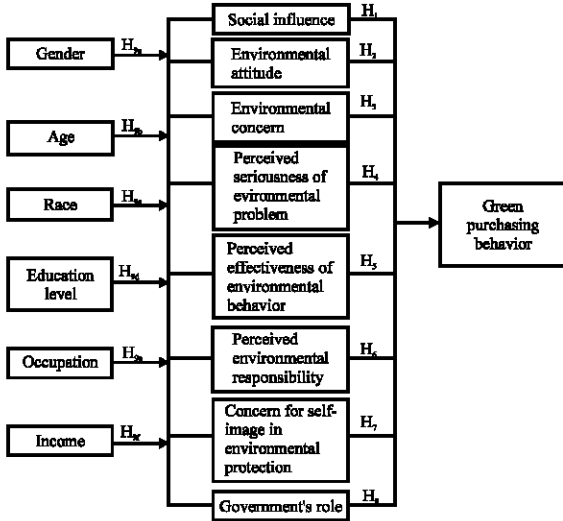
Fig. 1: Research framework

is identified as homophily (Ryan, 2001). In different words, it can be known as situations that an individual shares the same values, thoughts and beliefs as the person that they are communicating with. In a study done by Chen-Yu and Seock (2002), they had found that conformity by peers is an important factor for purchasing certain clothing among adolescents. The same result was obtained by Lee (2008) in which the peer influence was the most important factor for Hong Kong's adolescents green purchasing behavior compare to other factors. Thus, the hypothesis that is developed for this variable is as follow:

H_1: There is a significant relationship between social influence and green purchasing behavior in Malaysia

Environmental attitude: Lee (2008) stated that environmental attitude refers to the individuals value judgment and it taps the individuals cognitive assessment of the value of environmental protection. Some studies have identified a positive relationship between environmental attitude and environmental behavior (Kotchen and Reiling, 2000). To date, a study was done by Mostafa (2007) among Egyptian consumers and he has found that consumer's attitude towards green purchase can influence their green purchase intention and directly affects their actual green purchase behavior. Referring to this, it can be posited that:

H_2: There is a significant relationship between environmental attitude and green purchasing behavior in Malaysia

Environmental concern: Environmental concern can be known as affective traits that can signify an individual's worries, consideration, likings and dislikes about the environment (Yeung, 2004). Few studies were done on environmental concern (Barr *et al.*, 2003; Milfont and Duckitt, 2004). Mostafa (2007) has indicated in his study that environmental concern would be an essential factor for marketers as they can easily target environmentally conscious consumers. High level of environmental concern is expected due to the health issues (Said *et al.*, 2003). Meanwhile, young consumer in Hong Kong believes that environmental concern is the 2nd top predictor of green purchasing behavior (Lee, 2008). By referencing the existing literature on environmental concern, it is hypothesized that:

H_3: There is a significant relationship between environmental concern and green purchasing behavior in Malaysia

Perceived seriousness of environmental problems: People in Asian countries rate environmental problems as more severe than those who reside in Western countries (Lee, 2009). It is also believed that media plays a major role in educating the seriousness of environmental problems to consumers (Moser and Uzzell, 2003). Lee (2008) found that teenagers perceived the seriousness of environmental problems as the least important factor in influencing the green purchasing behavior. The reason behind this was known due to desensitization in which adolescents respond negatively to repetitive exposures. However, the result might be different in different context of study. Thus, the hypothesis for this variable is defined as:

H_4: There is a significant relationship between perceived seriousness of environmental problems and green purchasing behavior in Malaysia

Perceived environmental responsibility: Lai (2000) has reported that citizens in Hong Kong have attained more environmental knowledge and thus they are really aware of the environmental problems. However, their perceived environmental responsibilities were generally weak. Lai (2000) has also identified that the consumers are looking for better policies to solve the environmental problem and yet they are reluctant to get themselves engaged with those policies. Additionally, the study done by Lee (2008) among Hong Kong's young consumers revealed that the perceived environmental responsibility factor was found to be the fourth important predictor of green purchasing behavior. Thus, this study proposes that:

H_5: There is a significant relationship between perceived environmental responsibility and green purchasing behavior in Malaysia

Perceived effectiveness of environmental behavior: Perceived effectiveness of environmental behavior is related to a person's perception that if each individual's involves himself in pro-environmental behaviors, he would contribute a lot to the environment. This perception might be true and this factor was the fifth predictor of green purchasing behavior among young consumers in Hong Kong (Lee, 2008). Lee (2008) further stressed the perception that one's action could make a difference is another important factor in influencing adolescent consumers' decision to buy green products or not. By this, the hypothesis is derived as:

H_6: There is a significant relationship between perceived effectiveness of environmental behavior and green purchasing behavior in Malaysia

Concern for self-image in environmental protection: In studies about adolescence, identity formation is found to be the most important factor (Sharp *et al.*, 2007). Waterman (2004) found that individuals are likely to engage in activities that portray their actual identities. This is related to the studies done by Mannetti *et al.* (2004) in which a person's self-image of environmentally responsible has significant relationship with the intentions to engage in recycling. Together, the factor of self-image in environmental protection was also found as the influencer of green purchasing intention among adolescents (Cheah, 2009). Lee (2008) also found that this factor was the third predictor of green purchasing behavior among the Hong Kong young consumers. Thus, it is posited that:

H_7: There is a significant relationship between concern for self-image in environmental protection and green purchasing behavior in Malaysia

Government's role: A lot of people believe that protecting the environment is the responsibility of the government even though when they have portrayed high environmental concern (Tsen *et al.*, 2006). Ministry of the Environment (2007) has reported that the government is playing a major role in endorsing green purchasing in Japan and thus, increases the production and consumption of environmentally friendly products. In contrast to Taiwan, even though there was a strong support from the government for green marketing, the consumption of green products has decreased due to

poor quality (Lee, 2004). The Malaysian government has taken serious action towards environmental sustainability through various programs and establishments. Contrasting results between Japan and Korea with regards to government role towards green purchasing make it necessary to investigate this issue within the context of Malaysian consumers. Therefore, it is hypothesized that:

H_8: There is a significant relationship between government's role and green purchasing in Malaysia

Demographic profile: The identification of demographic variables on consumer behavior would be helpful for marketers to perform segmentation or targeting their consumers. Soonthonsmai noted that consumer's green purchase intention has positive correlation with different age and income group but education was found does not influence the intention to purchase green products. Studies done by Ottman *et al.* (2006) found that younger generations accept new or innovative ideas better compare to older people. Result from several studies have revealed that male and female have significant dissimilarity in environmental attitude in which female showed more positive attitude compared to the males (Tikka *et al.*, 2000; Zelezny *et al.*, 2000; Stern *et al.*, 2005; Lee, 2009). However, this is contradict to a study done recently by Chen and Chai (2010) who found there is no significant differences among males and females in environmental attitude or green purchasing behavior. They have also indicated that demographic variables have less explanatory power compare to psychographic variables. However, studies by Chen and Chai (2010) only focused on undergraduates students. Working adults with dissimilar gender could be different in terms of green purchasing behavior. Therefore, demographic variables such as gender, age, ethnic group, education level, occupation and income level will be considered in this study. Thus, the hypotheses are derived as:

H_{9a}: Attitudes towards antecedents of green purchasing behavior vary by gender

H_{9b}: Attitudes towards antecedents of green purchasing behavior vary by age

H_{9c}: Attitudes towards antecedents of green purchasing behavior vary by ethnic group

H_{9d}: Attitudes towards antecedents of green purchasing behavior vary by education level

H_{9e}: Attitudes towards antecedents of green purchasing behavior vary by occupation

H_{9f}: Attitudes towards antecedents of green purchasing behavior vary income level

Table 1: Summary of questionnaire

Variables	Total items	Items
Part A		
Social influence	4	1-4
Environmental attitude	5	5-9
Environmental concern	3	10-12
Perceived seriousness of environmental problems	4	13-16
Perceived environmental responsibility	5	17-21
Perceived effectiveness of environmental behavior	4	22-25
Concern for self-image in environmental protection	3	26-28
Government's role	5	29-32
Green purchasing behavior	4	33-36
Part B		
Demographic profiles	6	37-42

MATERIALS AND METHODS

Research instrument: The sampling design that is used in this study is non-probability sampling where the elements do not have a known or predetermined chance of being selected as subjects (Sekaran, 2003). The questionnaires that were used are structured close-ended questions and they were distributed within Peninsular Malaysia. This questionnaire is designed with questions for each variable and it is divided into two parts: part A and B. Part A contains statements relating to antecedents of consumer's green purchasing behavior. The items were adopted and modified from studies done by Lee (2008) and Chen and Chai (2010). Five point likert scale ranging from 1 strongly disagree to 5 strongly agree were used. Table 1 shows further the variables and total items used for each variable. Meanwhile, part B requests the respondents to provide some details about themselves. This generally covers the demographic profile of the respondents such as gender, age, ethnic group, education level, occupation and income level.

Data collection: The method of data collection that was practiced in this study was personally administered questionnaires. At the end of data collection period, a total of 204 usable questionnaires were used for data analysis.

RESULTS AND DISCUSSION

Reliability analysis: Table 2 shows the groupings of items for the variables and its reliability score. The reliability of the items used to explain the nine variables are all above the minimum recommended threshold of 0.6 and thus, no items were deleted to improve the internal consistency.

Bivariate pearson correlation analysis: This analysis (Table 3) is <0.6. The results obtained from this analysis are used to indicate the effect of multicollinearity among independent variables. The result also explains that six factors out of eight factors seem to have positive relationship and are vital in explaining the green purchasing behavior. The initial correlation test indicate the predictor for green purchasing behavior would be environmental attitude (r = 0.955) followed by perceived environmental responsibility (r = 0.913), environmental concern (r = 0.821), perceived seriousness of environmental problems (r = 0.725), perceived effectiveness of environmental behavior (r = 0.293) and government's role (r = 0.212). The remaining two variables namely social influence and concern for self-image were insignificant and therefore were eliminated in the following analyses.

Multiple regression analysis: This analysis was conducted to test hypothesis 1-8 hypothesis. Results indicate that the six independent variables have significant relationship in explaining the consumers green purchasing behavior (r = 0.972) in which 94.5% of the variance of dependent variable can be explained by the variance of the independent variables (r^2 = 0.945) (Table 4). The equation for the estimated regression can be written in a standard format as follows (Table 5):

$$Y = -0.893 + 0.628X_1 + 0.135X_2 + 0.121X_3 +$$
$$(-5.651)\ (14.187)\ (4.141)\ (3.613)$$
$$0.202X_4 + 0.053X_5 + 0.063X_6$$
$$(5.926)\ (2.850)\ (2.466)$$
$$R^2 = 0.945,\ F\ statistic = 566.076\ (p\ value < 0.05)$$

Where:
Y = Green purchasing behavior
X_1 = Environmental attitude
X_2 = Environmental concern
X_3 = Perceived seriousness of environmental problems
X_4 = Perceived environmental responsibility
X_5 = Perceived effectiveness of environmental behavior
X_6 = Government's role

t-test and one-way ANOVA: These analyses were used to test hypothesis nine (relationships between demographic variables and antecedent of green purchasing behavior). Based on the results obtained only age group (Table 6) seemed to be significant in explaining the environmental factors. In other words, different age group has different perceptions on the environmental factors. By looking at the computed means (Table 7) respondents who were <20 years old (adolescence) appeared to explain that the factors are highly important to them compared to adults. By this, H_{9a}, H_{9c}, H_{9d}, H_{9e} and H_{9f} are rejected while H_{9b} is accepted.

Table 2: Reliability analysis

Variables	No. of Items	Cronbach's, α
Social influence		
I learn so much about environmental products from my friends	4	0.831
I learn so much about environmental issues from my friends		
I often buy environmental products with my friends		
I often share information regarding environmental products with my friends		
Environmental attitude		
It is essential to promote green living in Malaysia	5	0.847
I strongly agree that more environmental protection works are needed in Malaysia		
It is very important to raise environmental awareness among Malaysian people		
Environmental protection issues are none of my business®		
It is unwise for Malaysia to spend a vast amount of money on promoting environmental protection ®		
Environmental concern		
Malaysia's environment is my major concern	3	0.821
I am emotionally involved in environmental protection issue in Malaysia		
I often think about how the environmental quality in Malaysia can be improved		
Perceived seriousness of environmental problems		
I think Malaysia's environmental problems are worsening	4	0.800
Malaysia's environmental problems are threatening our health		
I think Malaysia's environmental problems need to be dealt urgently		
Malaysia's environmental problems are threatening the reputation of Malaysia		
Perceived environmental responsibility		
Environmental protection starts with me	5	0.901
I think I should have so much responsibility in protecting the environment in Malaysia		
I have taken responsibility for environmental protection since I was young		
I am willing to take up responsibility to protect the environment in Malaysia		
Environmental protection is the responsibility of the environmental organization, not me ®		
Perceived effectiveness of environmental behavior		
I think if I carry out some pro-environmental behaviors in my everyday life, I would contribute a lot to our environment	4	0.819
I think my participation in environmental protection would influence my family and friends to participate too		
The environmental quality of Malaysia will stay the same even if I engage in some pro-environmental behaviors ®		
Even if I recycle and reuse things, the environmental quality of Malaysia will remain as it currently is ®		
Concern for self-image in environmental protection		
Supporting environmental protection makes me more socially attractive	3	0.807
Supporting environmental protection makes me special		
I will be perceived by others as 'out-dated' if I do not support environmental protection		
Government's role		
Environmental protection is the responsibility of the Malaysian government, not me ®	4	0.774
Schools should require all students to take a course dealing with environment and conservation problems		
The government should subsidize research on technology for recycling waste products		
Government should enforce environmental rules and regulations		
Green purchasing behavior		
When I want to buy a product, I look at the ingredients label to see if it contains things that are environmentally damaging	4	0.861
I prefer green products over non-green products when their products qualities are similar		
I choose to buy products that are environmentally-friendly		
I buy green products even if they are more expensive than the non-green ones		

Note: ® refers to items that are reverse coded

Table 3: Pearson correlation analysis among variables

	SI	EA	EC	PSEP	PER	PEEB	CSI	GR
Social Influence	1							
Environmental attitude	0.112	1						
Environmental concern	0.026	0.542*	1					
Perceived seriousness of environmental problems	0.065	0.479*	0.407*	1				
Perceived environmental responsibility	0.169*	0.432*	0.544*	0.478*	1			
Perceived effectiveness of environmental behavior	0.054	0.257*	0.133**	0.249*	0.250*	1		
Concern for self-image	0.084	0.076	0.129**	0.040***	0.069**	0.132***	1	
Government's role	0.131***	0.165*	0.051	0.154**	0.236*	0.009	0.030	1
Green purchasing behavior	0.100	0.955*	0.821*	0.725*	0.913*	0.293*	-0.072	0.212*

*Significant at $p<0.01$, **Significant at $p<0.05$, ***Significant at $p<0.1$. SI = Social Influence; EA = Environmental Attitude; EC = Environmental Concern; PSEP = Perceived Seriousness of Environmental Problems; PER = Perceived Environmental Responsibility; PEEB = Perceived Effectiveness of Environmental Behavior; CSI = Concern for Self-image; GR = Government's Role

This study has mainly fulfilled the research objectives. It has identified the factors that could contribute towards green purchasing behavior and the demographic characteristic that plays an important role in influencing the factors that are affecting the green purchasing behavior. The result obtained shows some differences when compared to previous studies. This is possibly due to the different sample used as most of

Table 4: Model summary and ANOVA

Model summary		ANOVA	
R	R²	F	Significant
0.972	0.945	566.076	0.000

Table 5: Regression coefficients

Dependent variables	Independent variables	Unstandardized coefficients, B	t	Sig.
Green purchasing behavior	Constant	-0.893	-5.651	0.000
	Environmental attitude	0.628	14.187	0.000
	Environmental concern	0.135	4.141	0.000
	Perceived seriousness of environmental problems	0.121	3.613	0.000
	Perceived environmental responsibility	0.202	5.926	0.000
	Perceived effectiveness of environmental behavior	0.053	2.850	0.005
	Government's role	0.063	2.466	0.015

Table 6: ANOVA measuring the effect of age on the factors affecting green purchasing behavior

Environmental factors	F	Significant
Environmental attitude	6.703	0.000
Environmental concern	5.989	0.000
Perceived seriousness of environmental problems	3.047	0.011
Perceived environmental responsibility	7.381	0.000
Perceived effectiveness of environmental behavior	17.356	0.000
Government's role	3.538	0.004

Table 7: Descriptive of ANOVA measuring the effect of age on the factors affecting green purchasing behavior

A G	N	Mean					
		EA	EC	PSEP	PER	PEEB	GR
<20 years old	31	4.1097	4.2903	4.2177	3.6903	3.6458	4.4667
20-25 years old	24	3.4167	3.6111	3.8750	2.8667	3.2339	4.0833
26-30 years old	30	3.6400	3.9333	3.9833	3.0667	3.4333	3.9000
31-35 years old	30	3.7200	4.0222	4.1167	3.1600	3.0333	4.1048
36-40 years old	39	3.3590	3.6496	3.8077	2.7333	2.3974	4.1859
>40 years old	50	3.9880	4.2400	4.1500	3.5640	3.4300	4.1700
Total	204	3.7284	3.9837	4.0331	3.2098	3.1703	4.1569

AG = Age Group; N; M = Mean; EA = Environmental Attitude; EC = Environmental Concern; PSEP = Perceived Seriousness of Environmental Problems; PER = Perceived Environmental Responsibility; PEEB = Perceived Effectiveness of Environmental Behavior; GR = Government's Role

previous studies (Lee, 2008; Cheah, 2009; Chen and Chai, 2010) which only focused on adolescents. Among the eight independent variables suggested in this study, environmental attitude was found to be the top predictor of green purchasing behavior (r = 0.955).

Referring to Lee (2008), this variable was only ranked as second last predictor as she believes that adolescents have higher emotional attachments compared to rational attachments. However, the result of this study is in line with Peattie (2001) who acknowledged the need and the importance of rational or attachment towards green marketing. Environmental attitude reflects the consumers' value finding and how it taps their cognitive assessment of the value of environmental protection (Lee, 2008). Theory of Reasoned Action (TRA) has also pointed out that an individual will always behave in foundation to his attitude.

Perceived environmental responsibility is the second top predictor of green purchasing behavior (r = 0.913). This shows that the consumers in Malaysia are aware of their responsibility in protecting the environment for healthy living. Without the individual's own perceived responsibility, it is impossible to create positive green purchasing behavior. The collective impact of consumer's consumption pattern which increases the damage to the environments creates a sense of responsibility among them. At the same time, consumers also believe that the responsibility should not be portrayed only by the citizens but it is the responsibility of everyone in which it highly includes companies that produces goods. This creates a demand for environmentally friendly products. The 3rd top predictor of green purchasing behavior is environmental concern (r = 0.821). This result is consistent with Lee (2008) who found environmental concern as the second top predictor of green purchasing behavior. Concern can be highly related to worries and consideration (Yeung, 2004). Consumers who relatively have high concern on the environment often consider on how the quality of the environment can be improved and they would definitely engage themselves in buying environmentally friendly products. This is mainly because they would know the reason for the environmental issues such as pollution and how it can be resolved easily. Thus, behavioral practices related to environment can be achieved if the individual believes the country's environmental quality is his main concern.

Among the remaining factors, perceived seriousness of environmental problems is the 4th predictor of green purchasing behavior (r = 0.725). This factor showed a positive correlation with green purchasing behavior and this implies that if an individual perceive, the environmental problems to be very serious they would highly engage in purchasing green products. This result is contradict to Lee (2008) who found negative relationship and believes that it is due to desensitization in which depressing visuals on the environmental problems would create high ignorance among adolescents in Hong Kong. However, this study reveals that consumers in Malaysia would really take severe action if it involves their health. Thus, the ordinary technique of highlighting the seriousness of the country's environmental problems would create a positive behavior

among the Malaysian consumers. The 5th predictor that explain the green purchasing behavior is perceived effectiveness of environmental behavior (r = 0.293). This is related to a person's perception that if each individual's involves himself in pro-environmental behaviors he would contribute a lot to the environment. As known, an individual's consumption pattern is highly inseparable with the production of waste materials. Thus, those who believe that they can provide significant difference by engaging in environmental protection they would purchase green products to reduce the amount of waste. Consumers believe that rather than assuming the environmental protection is an individual's attempt, it would be better if it is known as collective effort.

Lastly, government's role is another predictor of green purchasing behavior (r = 0.212). Besides individual's responsibility in protecting the environment, consumers believe that the government also plays an important role in building green purchasing behavior among its people. This result is similar to Tsen *et al.* (2006) who suggested that although the consumers have high environmental concern but they still consider that government plays a major role. Government can ban products that are hazardous to the environment and also to the health of the public. Enforcing rules and regulation will also promote for higher concentration by companies on production of green products. At the same time, campaigns and environmental education that are given to the public would enhance their green purchasing behavior.

Contradict to studies by Lee (2008), Cheah (2009) and Wahid *et al.* (2011), social influence in this study was found to be insignificant towards green purchasing behavior. This is mainly because of the sample frame used by them. Adolescence seems to give much importance on social marketing in influencing their peers to purchase products that are environmentally friendly (Cheah, 2009). As different age groups have been included in this study, it seems to be irrelevant as adults do not get influenced by friends easily compare to the younger generations. The same result was obtained for concern for self-image variable as it is insignificant towards green purchasing behavior. Adolescence seems to perceive self-image as an important criterion when they make a purchase and they are highly involved in identity-and-approval-seeking (Lee, 2008).

In contrast, adults are more focused in decision making that involves rationality and cognition (Peattie, 2001). Therefore, it can be said that this factor seems sensitive to age groups in predicting consumer's green purchasing behavior. Age group seemed to show a significant relationship with antecedent of green purchasing behavior. Younger generations who are the adolescence have stronger perceptions on the environmental factors compared to the adults. Other demographic variables such as gender, ethnic group, education level, occupation and income level did not show any relationship towards the factors that are affecting green purchasing behavior. This implies that irrespective to these demographic variables, everyone has equal perceptions towards the environmental factors.

Implications of the study: Marketers, basically are facing a lot of challenges in convincing the consumers towards purchasing the green products. In order to be successful in this, it involves an understanding of the route that shifts the environmental factors to green purchasing behavior. By getting themselves prepared on this, marketers would be able to create successful marketing strategies. At the same time, those manufacturers and producers can also get benefits out of the result obtained in this study.

Understanding that environmental attitude is the main predictor, closing the gap would lead towards higher intention to consume green products. According to Baker and Ozaki (2008), consumers have highly engaged in recycling of waste materials such as bottles and studys as they are consistently provided with information about recycling and its benefits. This signifies that information is highly important to change the attitude of consumers towards green purchasing behavior. Schiffman and Kanuk (2010) stated that consumers basically have a strong need to know and enthusiasm about things that they encounter. They have also indicated that fulfilling the need to know interest would develop the consumers attitude towards the products. Thus, the knowledge function can be known as one of the best strategy to change the attitude of consumers towards a favorable green purchasing behavior.

As the consumer's are well educated and informed about the importance of preserving the environment, a sense of responsibility need to be incorporated in the marketing efforts of the company. Lee (2008) has given a suggestion to express a message such as each of us is responsible to save our earth. By doing this, the marketers can create a feel of high involvement among consumers towards the message and further increases the intention of personal contribution and importance of engaging in particular purchase decision.

At the same time, environmental concern which is highly known as emotional appeals or affective component need to be integrated in the marketing efforts to increase the consumer's sense of responsibility and involvement in buying decision of environmentally
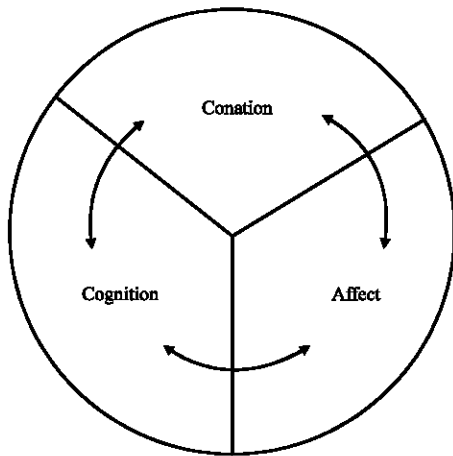
Fig. 2: A simple representation of Tricomponent attitude
        model

friendly products. Schiffman and Kanuk (2010) have
mentioned that emotional cues are important in enhancing
positive or negative experiences that would later affect
what comes to the mind of the individual and how the
individual acts. Referring to the above ideas, the
marketing efforts and messages that need to be conveyed
to consumers can be best explained using the
Tricomponent attitude model. The marketer should
include both cognitive (rational) and affective (emotional)
cues in their messages. The combination of these two
cues would increase the likelihood that the consumers will
have favorable intention towards green purchases and
this reflects the conative component of the model.
Figure 2 shows the Tricomponent attitude model.

Looking at the next predictor, perceived seriousness
of environmental problems would also induce green
purchasing behavior. This allows the marketers to identify
the current environmental problems that need to be dealt
urgently and produce products that could somewhat
reduce the problem. This involves product development
based on current environmental problem. A simple
example can be used to further explain this suggestion.
The usage of polystyrenes in food packaging seems to be
seriously, affecting the country as it is not biodegradable
and also hazardous to the health. Thus, any packaging
that is eco-friendly and could replace polystyrenes would
be highly demanded by consumers.

Next is perceived effectiveness of environmental
behavior. This indicates how much difference that one
individual believes that he could contribute towards the
environment by engaging in pro-environmental behavior.
Thus, what marketers can do is by educating them on the
benefits of their products and how much each individual
would contribute to the surroundings especially when the
product is used frequently. For example, there are many

companies that are producing goods from recycled waste
materials such as recycling rubbers and produce goods
such as glove, flippers, doormat and shoes. At such
situation, consumers who purchase these goods would
indirectly encourage recycling of waste rubbers and
reduce the usage of raw rubbers. By this, marketers can
conduct campaigns and exhibitions to educate the
consumers about their products. Together, sales
promotions can be carried out to stimulate purchasing
intention.

Malaysian government has also involved in
stimulating green purchasing behavior among the
consumers. Through holistic approach like AFFIRM
(Awareness, Faculty, Finance, Infrastructure, Research,
development and commercialization and Marketing), the
government is involving all stakeholders in the country to
make it a realization. The financial incentives proposed by
the government encourage the companies to produce
environmentally friendly products. Malaysian government
also encourages the manufacturers within the country to
partner with foreign green institutions for mutual benefit
(Malaysia Green Forum, 2010). Lastly, younger generation
believes that the environmental factors are very much
important in inducing green purchasing behavior compare
to the adults. This shows that the adolescence are highly
informed and educated about the importance of protecting
and preserving the environment for the benefit of all. This
also explains that this group of people is the future
prospect for green products.

CONCLUSION

Integrating both cognitive and affective elements in
the messages conveyed to consumers would make them
to be socially responsible. At the same time,
understanding the seriousness of the environmental
problems that the country is facing to produce
eco-friendly products would very much attract the
consumers towards positive intention of purchase.
Consumers also need to be taught on the importance of
each individual's contribution to the environment as
through such ways, collective effort can be achieved.
Without good education, they will not understand how
the green products are benefiting them and their
surroundings. As government's strategic decision are
also influencing consumers towards green purchasing,
companies could take advantage of the incentives and
policies established by government to better serve their
customers according to their needs and wants. By
considering the environmental factors, the green market
is found to be growing while providing opportunity for
new entrants. As segmenting and targeting always move
together with marketing strategies, green market can also

be segmented and targeted. Different age groups have different perceptions towards the environmental factors. Adolescence has indicated a bigger market to be penetrated in the future.

Lastly by understanding, the environmental factors that have high tendency to influence consumers green purchasing behavior, marketers will be able to create the intention towards the purchase. Together, other elements such as price, quality, designs and high performance need to be integrated to reach the actual purchasing decision.

RECOMMENDATIONS

This study has investigated the general view of consumers towards the purchases of green products. Thus, future research can be focused on consumer's green purchasing behavior in regards to eco-label, green packaging, biodegradable materials and hazardous metal-free utensils. This can be done either by focusing on the industry such as food, agriculture and household appliances or studying on the specific type of green products such as fertilizers, unleaded petrol, biodegradable paint, mercury free batteries and hybrid cars. Other than that as age group seemed to have significant differences in how they perceive the factors affecting green purchasing behavior, future study can be focused on age differences in consumer's green purchasing behavior. Age group can be treated as moderating variable on the relation between environmental factors (independent variable) and green purchasing behavior (dependent variable). This will be very helpful for the marketer to plan their marketing strategies according to their target market who comprises of different age groups.

This study has used cross-sectional designs in which it identifies the past or current behavior of consumers regarding green purchases. However, the behavior might change over time and thus, longitudinal designs might be appropriate to detect the changes. By this, the theoretical framework used in this study would provide more information if it is applied in the longitudinal designs.

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