

Is it Easy to go Green? Consumer Perception and Green Concept

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ABSTRACT

A series of health consciousness, environmental and animal welfare issues have brought about awareness among consumers to become conscious of their consumption behaviour. Consumers have begun to search for green products were produced under environmentally friendly conditions and considered green by nature. However, this is only the beginning of the development of the green concept in Malaysia. Thus the objective of this study is to determine the relationship between the socio demographic variables towards the consumers' perception towards the green concept. Structured questionnaire was design as an instrument to gather information on green consumer perception and 1360 submitted their responses to the questionnaire. Descriptive analysis, Chi-square and binary logistic model were used to accomplish the objectives of this study. The result shows that selected socio-demographic variables such as education level, income, age and marital status significantly influence the consumers' perception towards the green concept. The results also indicate that consumers' opinion about going green is the best way to save the environment and make green products and green practices available in Malaysia. Consumers should be aware of and understand the importance of green products and how the information related to the green concept can affect their future purchases. Therefore, government or other institutions can carry out an effective product awareness program in exhibitions, trade shows, campaigns and seminars to introduce the green concept to the markets. Food producers, processors and manufacturers should have enough knowledge and information about how to produce or process green products by following Malaysian rules and regulations as well as the international norms.

Keywords: Environmental, Going Green, Green Concept, Health, Socio-Demographic

1. INTRODUCTION

The growth of the global economy, over consumption and utilization of natural resources has deteriorated the environment. The climate change which is caused by human-induced greenhouse gas emissions and fossil fuel combustion and is now occurring and it has presented a great challenge to everyone around the world. Climate change could produce severe negative outcomes such as higher temperatures, rising sea levels, increased air pollution, loss of animal and plant

habitats, ocean circulation disruption and extreme weather conditions which severely impair output and productivity. Therefore, recognizing the seriousness of the environmental issues, consumers are steadily increasing their concern towards environmental degradation and protection of the environment has become an important issue in the society (Krause, 1993; Easterling *et al.*, 1996). According to Kalafatis *et al.* (1999), consumers' concern about the environment has been steadily increasing due awareness through mass media, impact of major industry disasters and the rise

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of environmental groups activities. Hence, the steadily increasing awareness of the consumers' towards the seriousness of the environmental issues have cause the green movement, green practices and environmentalism has gained momentum in the market place and has made an increasing number of consumers to perform green behaviour.

Malaysia was one of the first countries in South-East Asia that realized the seriousness of the environmental problems and the importance of environmental protection by enacting the Environment Quality Act in 1974. However, Malaysia is facing problems with deforestation, pollution of inland and marine waters, soil and coastal erosion, overfishing, coral reef destruction, air pollution, water pollution and the problem of waste disposal. Deforestation is the main key issue which threatens the flora and fauna in Malaysia, especially in Kelau Dam, Bukit Cherakah, Ulu Padas and Sungai Mas The Green Story, 2011. Deforestation is taking place for a variety of reasons in Malaysia due to several reasons such as housing development, timber and oil palm plantations and the construction of roads and dams. The expansion of land for oil palm cultivation has endangered animals such as elephants as they lose their natural homes, affected the orang-utan populations and other species of high conservation priority such as rhinoceros, monkeys and others which have also lost their homes. Air pollution and water pollution in Malaysia is caused by the industrial and vehicular emissions, raw sewage, deforestation and haze from Indonesian forest fires. Therefore, the massive industrial development of the recent years and rapid urbanization and vehicle use are also responsible for major environmental problems such as the disposal of hazardous and communal waste (MWM, 2010).

Malaysian government and the NGOs have made strong commitments to strengthen the sustainable development in Malaysia. By 2020, Malaysian government aims to increase the recycling quota from 5% to 22% and continues to promote and increase the awareness about 3Rs (reduce, reuse and recycle) to the public to help confront the environmental problems. National Strategic Plan for Solid Waste Management (NSPSWM) was developed in 2005 due to the environmental issues. This plan aims to ensure the reduction, reuse and recycling (3Rs) of solid waste and encourages the usage of environmentally friendly facilities and technologies Ninth Malaysia Plan, 2006-2010. Furthermore, the establishment of the Ministry of Energy, Green Technology and Water (KeTTHA) helps to improve Malaysia's environmental performance by promoting and encouraging green technology and eco-

friendly products and services to expand a sustainable economy. On the other hand, the ministry also encourages and motivates the public to develop and perform green behaviors by consuming the resources efficiently and purchasing of green products. In October 2010, the government announced that it would grant full excise duty exemptions on Hybrid cars which can help to reduce the environmental problems (Mahalingam, 2011). The Malaysia government has started "No Plastic Bag Day" campaign on every Saturday in all hypermarkets, supermarkets and petrol stations since 2011. Consumers need to pay an extra 20 cents per plastic shopping bag if they request for them.

1.1. Literature Review

Green consumers are those who are increasingly aware and concerned about the environmental issues (Soonthorsmai, 2007). However, according to Mandese (1991), green consumers are those consumers who have strong environmentally friendly attitudes, always look for opportunities to behave in such a way and often express environmental concerns like air and water pollution, the ozone layer, green house gases, excessive use of chemical fertilizers, pesticide and insecticides in agriculture. The green consumers support businesses that have an environmentally friendly operation and they are concerned about how green the products and foods that they purchase and consume are (Renfro, 2010).

Ottman (1992) defined that green products are the products that are non-toxic and made from recycled materials. In general, green products also known as environmentally friendly products or ecological products. According to Pavan (2010), green products are the products which protect or enhance the natural environment by conserving energy or resources, original grown, recyclable and reusable, reducing or eliminating use of toxic agents, pollution and waste, contain natural ingredients or recycled content, do not pollute the environment, contain approved chemicals and have not been tested on animals. However, according to Peter (2011), green products are products that guarantee that they are processed, manufactured and produced in an environmentally friendly way that minimizes a negative or damaging impact on the environment.

A significant number of studies have been carried out since 1970 on consumer behaviour towards green products. However, the green marketing studies in the Asian countries are relatively less than the Western countries (Lee, 2008). A research done by Mei *et al.* (2012), indicate that Malaysian consumers'

environmental knowledge, attitude towards the environment, the government initiative and peer pressure directly influence consumers green purchase intention. According to Teng *et al.* (2012), the major factors that influence Malaysian consumers green purchasing behaviour are peer reference, knowledge towards green concept, motivation, understanding towards green products, price of green products and the advantage of purchasing green products. Chan and Lau (2000) found that Malaysian Chinese consumers who have a higher environmental knowledge have stronger intention to perform a green behaviour. It is similar to the research done by Wahid *et al.* (2011) where green purchase behaviour of Penang green consumers were influenced by the environmental knowledge. The factors that influence consumers' attitude towards the green concept in Malaysia were subjective norm, consumers' attitude towards health, food safety and environmental concern, socio-demographic characteristic such as education and income level (Phuah *et al.*, 2012). Similarly, a study done by Rezai *et al.* (2011) indicate that educational level, income, consumers concern about food safety and the environment were significantly influenced by Malaysian consumers' green purchasing intention. Furthermore, consumers who are concerned about their health and the environment in Malaysia will most likely have a positive attitude towards going green (Abdul, 2009). According to Rezai *et al.* (2013), socio-demographic characteristics such as age and education level influence the Malaysia consumers' perception and attitude towards going green and peer reference such as environmentalists and the green society play an important role in influencing the consumers' intention to go green.

Although many green campaigns and seminars have been carried out, the green concept is still very new in Malaysia. There is only a little knowledge about the consumers' perception towards the green concept and going green in Malaysia. Despite all the efforts by the government and the NGOs, the issues here are whether Malaysian consumers know about the green concept and what is their perception towards going green. The impact of consumers' perception towards the green concept and going green is important, as the green behaviour of consumers forces them to seek products that help to save the environment. However, there is need to determine the extent to which Malaysian consumers are actually aware of the green concept, their perception towards going green and the underlying advantage to go green.

2. MATERIALS AND METHODS

Simple random sampling was used in this study and 1360 respondents were interviewed via structured

questionnaires to test their perception towards the green concept. Data was collected from the survey conducted in Peninsular Malaysia from August 2010 until March 2011 and includes Penang, Perak, Selangor, Negeri Sembilan, Johor, Kedah, Kelantan, Terengganu, Pahang, Malacca, Kuala Lumpur, Putrajaya and Perlis. Supermarkets such as Cold Storage, AEON, Tesco, Ecosave, Giant, MyDin and AEON Big were chosen to collect data because consumers from all walks of life shop there.

A pilot study of 200 respondents was first carried out to ensure that the questionnaire was easy to understand and accepted by the consumers. Seven point Likert scale of 1 to 7 (1 represent strongly disagree and 7 represent strongly agree) was used in this study to determine the degree of agreement of consumers towards green concept and going green. The questionnaire was divided into four sections which contain some straightforward questions. The first section of the questionnaire measures the consumer awareness towards the green concept and the source where they gain information about the green concept. The second section measures the consumer knowledge towards going green and the green concept. Dichotomous and open-ended questions were used in the first two sections. The third section measures the consumer perception towards the green concept and going green by using seven point Likert scale. Finally, the last section gathers the consumer socio-demographic information such as gender, age, income level, education level, race, living area, marital status and household size.

Data collected was analyzed by Microsoft excel and SPSS 20.0. A reliability test, descriptive statistic analysis, Chi-square analysis and binary logistic regression were performed to accomplish the objective of this study. Descriptive analysis was used in this study to simplify the quantitative data so that it would be easy to understand and measureable. The reliability of the study was tested by using the reliability test of Cronbach's alpha to measure the internal reliability consistency. Chi-square test was used to examine the significant difference between the selected socio-demographic characteristics and respondents' perception towards going green. The following hypotheses referring to the perception towards going green were proposed.

Hypothesis 1

There is no significant relationship between the socio-demographic factors such as gender, living area, age, education level or income and the consumers' perception towards going green with concerns about the environment.

Table 1. Explanatory variables to measure the consumers' perception towards the green concept

Explanatory Variables	Coding Systems
Gender	0. Male 1. Female
Income	0. Below RM 3500 1. Above RM 3501
Education level	0. Diploma and below 1. Above bachelor
Area	0. Urban 1. Rural
Age Household Size Marital Status	Age Household Size 0. Single 1. Married
Availability of green product	0. Green products are not always available and easy access 1. Green products are always available and easy access
Green practices	0. Difficult for me to perform green behaviour due to the lack of green practice in Malaysia 1. Easy for me to perform green behaviour due to the availability of green practice in Malaysia
Save Environment	0. Going green is not the only way to save the environment 1. Going green is the best way to save the environment
Easiness to go green	0. It is difficult for me to go green. 1. It is easy for me to go green.

Hypothesis 2

There is no significant relationship between the socio-demographic factors such as gender, living area, age, education level or income and the consumers' perception towards going green with concerns about human health.

Hypothesis 3

There is no significant relationship between the socio-demographic factors such as gender, living area, age, education level or income with the consumers' perception towards going green with concerns about animal welfare.

Hypothesis 4

There is no significant relationship between the socio-demographic factors such as gender, living area, age, education level or income and the consumers' perception towards going green with concerns about costs.

Binary logistic regression model was used to estimate the effect of the categorical explanatory variables on the consumers' perception towards the green concept. **Table 1** shows the explanatory variables which are used to measure the consumers' perception towards the green concept. Dependent variable, Y is 'consumer perception towards the green concept' which has two categories. The first category is 'consumers have a positive perception towards the green concept' which is coded as one and the second category which is 'consumers have a negative perception towards the green concept' is coded as zero. In this study, the vectors X_i consists of the following variables; gender, income level, education level, living area, age, household size, marital status, availability of green products, green practices, save the environment and easiness to go green. Specifically the binary logistic model can be stated as below:

$$\ln \frac{\pi}{(1-\pi)} = \beta_0 + \beta_1\chi_{\text{gender}} + \beta_2\chi_{\text{income}} + \beta_3\chi_{\text{education}} + \beta_4\chi_{\text{area}} + \beta_5\chi_{\text{age}} + \beta_6\chi_{\text{household size}} + \beta_7\chi_{\text{marital status}} + \beta_8\chi_{\text{availability of green products}} + \beta_9\chi_{\text{green practice}} + \beta_{10}\chi_{\text{save environment}} + \beta_{11}\chi_{\text{easiness to go green}} + e_i$$

3. RESULTS AND DISCUSSION

To measure the reliability of the study, Cronbach's alpha value was determined and the value obtained was 0.946. This showed that there was consistency among all the questions in this study. Therefore, the model is fit for this study.

3.1. Descriptive Statistic Analysis

Table 2 shows the socio-demographic profile of the Malaysian consumers. In this study, 53.7 % of the respondents are female, come from urban areas (72 %) and 60.7 % of respondents are married. The majority of the respondents have household sizes of 4 to 6 (62 %). Almost half of the respondents are between 26-40 years of age (45.8 % and only 5.9 % are above 61 years. With regard to the education level, 15.6 % of respondents have at least a secondary education, 71.3 % have a tertiary education and 13.1 % have a higher tertiary education. In terms of income distribution, 578 of the respondents (42.4 %) earned RM 3,001-RM 4,500 per month, followed by 469 respondents (34.5 %) who earned between RM 1,501-RM 3,000 per month, 126 (9.3 % earned RM 500 to RM 1,500, 100 (7.3 %) earned RM 4,501-RM 6,000 per month and only 87 (6.4 %) respondents earned above RM 6,001 per month.

Table 2. Demographic profile of respondents (n = 1360)

Characteristic	Percentage
Gender	
Male	46.3
Female	53.7
Area	
Urban	72.0
Rural	28.0
Marital Status	
Single	39.3
Married	60.7
Age	
Below 25	16.7
26-40	45.8
41-60	31.7
Education level	
Secondary	15.6
Tertiary	71.3
Higher tertiary	13.1
Income	
500-1500	9.3
1501-3000	34.5
3001-4500	42.4
4501-6000	7.3
Above 6001	6.4
Household size	
1-3	21.8
4-6	62.0
7 above	16.2

3.2. Consumers' Perception Towards the Green Concept

Table 3 shows the Malaysian consumer perception towards the green concept. The result shows that the respondents have a positive perception towards the green concept. Eighty four percent of the respondents agree that the green concept can reduce global warming and 85.7 % of respondents agree that the green concept can save the planet, help the environment and prevent global warming. Moreover, 79.3 % of respondents feel good to go green because it benefits the society. More than half of the respondents agree that the environmentalists (71.6 %) and the green movement (73.4 %) have improved their awareness towards the green concept and respect for the environment. Most of the respondents agreed on the fact that going green could improve human health because the environment has a direct impact on the human condition.

3.3. Chi-Square Analysis

Consumers' perception towards going green is different from country to country. Therefore, it is interesting to find the relationship between the socio-demographic profile of the consumers such as gender,

living area, age, education level and income with the consumers' perception towards going green.

Table 4 shows the result of Chi-square test between the respondent's socio-demographic characteristics and their perception towards going green with concerns about the environment. The result shows that only two socio-demographic characteristics which are gender and education level have a significant relationship with consumers' perception towards going green with concerns about the environment. Respondents who have higher education levels (bachelor and above) ($\chi^2 = 12.379$, $p < 0.10$) have a positive perception that going green will save the environment than the respondents with a lower level of education (Diploma and below). In terms of gender, female respondents ($\chi^2 = 7.571$, $p < 0.01$) have a more positive perception than male respondents since they think that going green can preserve the environment.

Information presented in **Table 5** shows the Chi-square results in testing the relationship between consumer socio-demographic profile and their perception towards going green with concerns about human health. The results shows that consumers who live in urban areas ($\chi^2 = 22.104$, $p < 0.01$) and have higher education levels (Bachelor and above) ($\chi^2 = 24.089$, $p < 0.01$) think that going green concerns human health because the environment and health are closely related. In term of age, respondents who are between 26 to 40 years of age have a more positive perception towards going green with concerns about human health than the other respondents ($\chi^2 = 11.895$, $p < 0.01$).

Similarly **Table 6** shows the result of the relationship between respondents' socio-demographics profile and their perception towards going green with concerns about animal welfare. The results show that living area, education level, income level and age are significantly different with consumers' perception. The result indicates that respondents who lived in urban areas ($\chi^2 = 8.843$, $p < 0.01$) and had higher education levels or bachelor and above ($\chi^2 = 41.309$, $p < 0.01$) and income level between RM3001 to RM4500 ($\chi^2 = 48.377$, $p < 0.01$) have a positive perception that going green not only concerns the environment but also it concerns the animal. Moreover, respondents who are between 26 to 40 years of age have a positive perception and think that going green concerns animal welfare ($\chi^2 = 31.325$, $p < 0.01$).

In addition, **Table 7** summarized the result of relationship between respondents' demographics characteristics and consumers' perception towards going green with concerns about the costs. The result shows that female respondents who have at least a bachelor degree ($\chi^2 = 12.557$, $p < 0.10$) and income level between RM3001 to RM4500 ($\chi^2 = 9.951$, $p < 0.05$) feel that going green is costly because green products are much more expensive than other products.

Table 3. Respondents' Perception towards the Green Concept in Malaysia

Statement	Likert Scale Score* (Percentage)							Mean
	1*	2*	3*	4*	5*	6*	7*	
Following Green Concept can reduce global warming by using renewable energy sources	0.3	2.2	3.1	10.4	22.7	39.5	21.8	5.59
Green concept helps environment, saves our planet and prevents global warming	0.6	1.4	2.8	9.5	24.4	36.5	24.8	5.64
It makes me feel good to go green because it benefits the society.	0.9	2.1	4.8	13.9	25.9	37.6	15.8	5.38
To me, going green can improve human health.	0.9	1.5	2.7	13.2	25.2	41.5	15.0	5.45
Environmentalists think that I should go green to respect the environment.	1.5	4.2	3.7	19.1	25.1	28.6	17.9	5.19
The green movement makes me aware of green concept	1.5	3.7	4.1	17.4	26.1	32.8	14.5	5.19

Table 4. Chi-square Value and Respondents' Perception towards Going Green with Concerns about the Environment

Socio-demographic variable	χ^2
Gender	7.571***
Living Area	1.198
Education Level	12.379*
Income	6.204
Age	2.511

***Significant at 1% level **Significant at 5% level
*Significant at 10% level

Table 5. Chi-square Value and Respondents' Perception towards Going Green with Concerns about Human Health

Socio-demographic variable	χ^2
Gender	2.148
Living Area	22.104***
Education Level	24.089***
Income	4.029
Age	11.895***

***Significant at 1% level **Significant at 5% level
*Significant at 10% level

Table 6. Chi-square Value and Respondents' Perception towards Going Green with Concerns about Animal Welfare

Socio-demographic variable	χ^2
Gender	2.566
Living Area	8.843***
Education Level	41.309***
Income	48.377***
Age	31.325***

***Significant at 1% level **Significant at 5% level
*Significant at 10% level

Respondents who are between 26 to 40 years of age ($\chi^2 = 18.132, p < 0.01$) also think that going green is more costly.

Table 7. Chi-square Value and Respondents' Perception towards Going Green with Concerns about Costs

Socio-demographic variable	χ^2
Gender	6.784***
Living Area	0.301
Education Level	12.557*
Income	9.951**
Age	10.981**

***Significant at 1% level **Significant at 5% level
*Significant at 10% level

3.4. Results of the Binary Logistic Regression

Binary logistic model was used to find the extent to which selected socio-demographic characteristic, the availability of green products in Malaysia, green practices, easiness to go green and consumers' feeling about going green can save the environment influenced their perception towards the green concept. **Table 8** shows the estimate logit model for consumer perception towards the green concept.

The results of this study found that consumer socio-demographic characteristics such as the education level, income level, age and marital status influence the respondents' perception towards the green concept. The finding indicated that the respondents who have at least a bachelor degree were 1.835 times in possession of a more positive perception towards the green concept because they can judge better whether the green concept could benefit the society, animals and the environment. The results also show that younger respondents (35 year olds and below) and respondents who are still single were 1.514 times and 0.761 times respectively more in possession of a positive perception towards the green concept than the older and married respondents. Consumers who have higher income (RM3500 and above) were 1.411 times more in favor of a positive perception towards the green concept than the lower income consumers.

Table 8. Estimates Logit model for Consumers' Perception towards Green Concept

Variables	Estimated Coefficient	Standard Error	Significant Level	Exp (B)
Gender	0.027	0.128	0.834	1.027
Income Level	0.344	0.161	0.033**	1.411
Education Level	0.607	0.160	0.000***	1.835
Living Area	0.204	0.145	0.158	1.227
Age	0.415	0.164	0.012**	1.514
Household Size	0.004	0.034	0.901	1.004
Marital Status	-0.273	0.161	0.090*	0.761
Availability of green product	0.084	0.042	0.047**	1.087
Green practice	0.588	0.064	0.000***	1.800
Save Environment	0.447	0.061	0.000***	1.564
Easiness to go green	0.161	0.152	0.292	1.174
Constant	-7.778	0.658	0.000	0.000
-2 Log Likelihood	1485.113	Nagelkerke R Square		0.288
Cox and Snell R Square	0.212	Hosmer and Lemeshow Test		0.117

***Statistically significant at 0.01 level, **at the 0.05 level and *at the 0.10 level

In addition, the results also indicate that the consumers who think that green products are always available and easily accessible in Malaysia were 1.087 times more in favor of a positive perception towards the green concept. Consumers who think that there are a lot of green practices in Malaysia have 1.8 times more positive perception towards the green concept because the availability of green practices will improve the consumer awareness, perception, knowledge and intention to go green. Furthermore, respondents who think that the best way to save the environment is by going green have a 1.564 times more positive perception towards the green concept than the other respondents who think that going green is not the only way to save the environment. As shown in **Table 6**, the value for Homer and Lemeshow test was 0.117 which is not significant and mean that the model fits for this study.

4. CONCLUSION

This study sought to estimate the consumers' perception towards the green concept. The results of this study indicated that there are relationships between the selected consumers' socio-demographic profile and the green concept in different aspects. The major concerns come from the consumers' age, marital status, education and income level which influence the consumers' perception towards going green with concerns about the environment, human health, animal welfare and going green costs. The results suggest that the consumers' who have at least a bachelor degree, ages between 26 to 40 and income levels between RM3001 to RM4500 have a positive perception towards going green. Moreover, consumer knowledge about the advantage of going green can save the environment, the availability of green

products and green practices in Malaysia also influenced the consumers' perception towards the green concept.

The green concept can be very popular among the consumers in Malaysia if they are more aware and concerned about the environment, animal welfare and increase in their health consciousness. Therefore, by improving the consumer awareness and perception towards the advantages of the green concept and the benefits of going green the consumers' intention to perform a green behaviour will increase. With more accessible information, knowledge and responsible monitoring, consumers can make better choices regarding their behaviour and have a better understanding of the connection between the environment and themselves. To encourage consumers to go green, a better marketing strategy should be developed by the government or the NGOs to further enhance the green concept in Malaysia. Consumers may be more inclined to adopt green behaviour due to the opinion of their reference group such as family, friends or relatives but they also need to be educated about the underlying benefits that come along when adopting green behaviour. Marketers who are involved in the green industry should get to know the consumers' demographic characteristics, culture and lifestyles, for example where they shop, what products they purchase and what their education or income levels are.

As a recommendation, to establish a positive perception of the green concept for the consumers, the government or other involved institutes can carry out effective programs at exhibitions, trade shows, campaigns, conferences and seminars to introduce the advantages and benefits of the green concept to various groups of consumers. Consumers also should be aware and understand the importance of going green which can have a major impact on the welfare of the future generations.

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