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MEASURING CONSUMER ENVIRONMENTAL BEHAVIOUR INFLUENCE ON GREEN PURCHASE BEHAVIOUR USING PLS

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Abstract

Currently public concern on environmental issue has improved tremendously and become an interest for government, societies and business provider and also grab the attention of consumer The present study identified the key antecedents of consumer behaviour that influence green purchase intention. The study used self-administered questionnaire distributed to 453 respondents in Klang Valley. Using Partial Least Square, construct validity is employed to analyses the measurement model. Surprisingly, the finding revealed that environmental attitude and environmental behaviour does not contribute to green purchase behaviour while the other six variables is significant and moderately contributed and influences the green purchase behaviour. This indicated that today's generation is less conscious with environment. With an increase of environmental issue in Malaysia, the government and all organizations should seriously take into consideration on this issue and strive at their level best to induce and support the practice of green purchase behaviour and embedding green behaviour at all tier in ensuring the sustainability of our mother earth.

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Keywords: Consumer behaviour, social influence, behaviour, self-image, government role, green purchase.

1. Introduction

Nowadays public concern on environmental issue has increased tremendously and become more important for government, societies and business provider (Khidir ElTayeb, Zailani, & Jayaraman, 2010; Kim & Choi, 2005). This serous environmental issue also got the attention of consumer (Carter & Narasimhan, 2000; Min & Galle, 2001). In a similar vein, research on green consumerism or the buying process of green and sustainable product have catch the interest of many academic (Young, Hwang, McDonald, & Oates, 2010).

1.1. Consumer Behaviour Antecedent

Authors (García-Mira, Eulogio Real, & Romay, 2005; Kaiser, Wolfing, & Fuhrer, 1999; Lee, 2007; Manzo & Weinstein, 1987; Schultz, Shriver, Tabanico, & Khazian, 2004) inferred that several variable relevant to consumer behaviour include attitude, responsibility effectiveness, protection and etc.

Social influence happen, when others is capable of affecting someone's reactions, feelings or behaviours. Montoro-Rios, Luque-Martínez, and Rodríguez-Molina (2008) contended that media play an important driver in triggering an awareness on environment which induced consumers to react by taking into consideration on natural environment. Mostafa (2007) contended that consumer behaviour towards green consumerism have effect on buying green product. Kotchen and Reiling, (2000) stressed the positive association between attitude and green environmental behaviour. Ward, Clark, Jensen, Yen, and Russell (2011) and Follows and Jobber (2000) indicated that inclination to buy green product is resulted from consumer attitudes toward environmental issues. In addition, Domina and Koch (2002) and Meneses and Palacio (2005) inferred that consumer who is environmental concerned have a tendency to practice recycle. On the other note, Krause (1993) noted that lifestyle, culture and religion, contributed significantly on consumer awareness on environment particularly for items selection that impacted the environment. Moreover, study by Lakhal, H'Mida, and Islam (2007) Dunlap, Gallup Jr, and Gallup (1993) revealed that consumer is prepared to spend extra on environmentally friendly and sustainable product.

An environment problem is known as a method of appraising and keeping information obtained about environment, which includes warm feelings, gathering of information, and an understanding the environment. There are differences between environmental consequences and perceived environmental behaviour. Ellen, Wiener, and Cobb-Walgren (1991) defined the first as an attitude concerning person evaluation or feelings about an issue assessed through consumer concerns on product impact on environment, forest depletion and energy usage (Ramayah, Lee, & Mohamad, 2010). While Schlegelmilch, Bohlen, and Diamantopoulos (1996) and Kang and James (2007) defined the later as an attribute of environmental consciousness. Chan (2001) pointed that among of the contributory factor of environment consciousness are knowledge about problems concerning environment as well as different selection of green products, perceived individual preference and the consumer aptitude toward contribute to environment effectively.

Lee (2009) revealed that female are expressively advanced in attitude and concern on environmental issue. They also pay attention on environmental problems, felt responsible and more likely exercised green buying compare with male. On the contrary, male scored higher on self-identity in environmental protection.

Lee (2008) inferred that dynamism and inducement of practising green is scattering to the Asian countries and the environmental extortions are frightening the citizen and the authority (Lee, 2008). With the accomplishment of progressive technology, state enforcement is more firm, strengthening the regulation and provide incentives and frequent inspection from numerous environmental organisations and the authority and the media play an active role. This induced the consumer to choose green products and this have improved significantly and reclaimed consumer confidence (Carrigan, Marinova, Szmigin, Gurău, & Ranchhod, 2005; Ottman, 2007). In many Asian countries the governmental and business provider has restructured their policies and business strategies focusing on sustainable developments taken into consideration protection on environment (Johri & Sahasakmontri, 1998; Martinsons, So, Tin, & Wong, 1997).

1.2. Green Purchase

Green purchase referred as purchasing behaviour that environmentally conscious and the business provider will ensure that the goods meet environment objective such as waste reduction and promoting recycle habits (Carter, Ellram, & Ready, 1998; Min & Galle, 2001; Zsidisin & Siferd, 2001). Green product is regarded as an ecological goods, avoidance use of pesticides, using material which can be recycle and simple wrapping (Ottman, Stafford, & Hartman, 2006)

2. Problem Statement

Pervious researcher (Shaw, Hogg, Wilson, Shiu, & Hassan, 2006; Vantomme, Geuens, De Houwer, & De Pelsmacker, 2005) studied green consumerism on food, cloth and household product. This is due to an increase of environmental issue such as global warming; solid waste air pollution and ozone depletion and business organization is considered the most influential sources of environmental issue (Khidir ElTayeb et al., 2010). In Malaysia, study focusing on green purchase is very limited since the concept is relatively new to Malaysian citizen and even on developed countries (Khidir ElTayeb et al., 2010; Rao, 2002). In fact, it is very alarming since Malaysian is generating waste product faster than the natural degradation process which resulted to environmental deterioration (Ramayah et al., 2010).

3. Research Questions

This study start of by examining all variables that influence the green purchase behaviour and based on previous literature, a set of questionnaires is drawn and distributed. This paper proposed to answer what are the main factors that lead to green purchase intention among Malaysian citizen.

4. Purpose of the Study

Since Malaysian is generating waste product faster than the natural process, the sustainability of our mother earth is at stake, The paper therefore aim at identifying possible elements that influence the green purchase behaviour in Malaysia setting. Even though this a common issue globally but it is relatively new in Malaysia.

5. Research Methods

Quantitative approach where used to measure all respondents' cognitive behaviour using all dimensions. Self-administered and structured questionnaire were used to gather the sample from working adult in Klang Valley. In total 500 were distributed and 453 were returned making 91.6% usable rate. To indicate the respondent degree of agreeableness, this questionnaire used seven point Likert scale and to analyse the data, The Partial Least Square – Structural Equation Modelling (PLS-SEM) is used. (Barroso, Carrión, & Roldán, 2010) contended that for PLS data must be analysed in two stages which is the measurement model and the structural model. This is intended to explain the interconnection of all variables tested by producing the standardized regression coefficients for the model (Götz, Liehr-Gobbers, & Krafft, 2010). In addition, for data exporting and descriptive analysis the study used IBM (SPSS).

6. Findings

The respondent in the survey is mostly of similar distribution with 50.6% female and 49.4% male. Most of them aged between 30 to 39 (32.2%) followed by 20-29 years (29.8%). The survey was dominated by Malay (92.7%) and most of the respondents reside in urban area (55.4%) and married (74.2%). For academic qualification, respondent are degree holder (33.6%) followed by diploma (31.6%) and secondary school (30.3%) More than half of the respondents are government employees (77.3%). For lenght of experience, most of them have worked with the organization for 5-15 years (42.4) and majority earned RM 2,001 to RM 5,000 monthly (44.4%).

Table 01. Measurement Model (Construct reliability and convergent validity)

Construct	Item	Loading	Cronbach's Alpha	Composite Reliability	AVE
Social Influence	A1	0.851	0.959	0.973	0.924
	A2	0.872			
	A3	0.863			
	A4	0.799			
Environmental Attitude	B1	0.952	0.824	0.917	0.848
	B2	0.977			
	B3	0.954			
Environmental Concern	C1	0.829	0.7	0.833	0.626
	C2	0.816			
	C3	0.723			
Environmental Problem	D1	0.891	0.833	0.867	0.623
	D2	0.824			
	D3	0.77			
	D4	0.653			
Environmental Responsibility	E1	0.839	0.826	0.896	0.744
	E2	0.887			
	E3	0.865			
	E4	0.881			

Environmental Behaviour	F1	0.896	0.891	0.924	0.753
	F2	0.945			
Self-Image	G1	0.933	0.753	0.858	0.669
	G2	0.933			
	G3	0.702			
Government Role	H2	0.83	0.852	0.9	0.694
	H3	0.776			
	H4	0.847			
Green Purchase Behaviour	I1	0.806	0.87	0.91	0.717
	I2	0.883			
	I3	0.884			
	I4	0.751			

Note: B4, B5, E5, F3, F4, H1 were removed because of low loading

AVE: Average Variance Extracted

6.1. The Measurement Model

This model is employed to analyse the reliability and validity of the construct (Roldán & Sánchez-Franco, 2012). Construct reliability for the instrument were measured using composite reliability (CR) purposely done to gauge the internal stability of the construct (Chin, 1998). Generally item with loading less than 0.4 or 0.5 is supposed to be dropped (Hulland, 1999). In Table 2, CR value range from 0.833 to 0.973, thus, it could be concluded that high level of internal consistency reliability appeared among latent variables

The evaluation of construct validity is measured using (1) convergent and (2) discriminant validity. The first is measured by evaluating the standardized loadings for each of the first order constructs where loadings bigger than 0.6 were retain (Birkinshaw, Morrison, & Hulland, 1995; Cool, Dierickx, & Jemison, 1989; Fornell & Larcker, 1981; Johansson & Yip, 1994). In reaching sufficient convergent validity as in Table 2, 6 items were deleted due to low loading of 0.5 namely B4, B5, E5, F3, F4, and H1. The factor loading of remaining items ranged from 0.653 to 0.977 is recommended (Chiang, Kocabasoglu-Hillmer, & Suresh, 2012). The later is referred to the degree to which item distinguish among the construct and it is verified by comparing the relationships among constructs and the square root of the AVE for that construct (Fornell & Larcker, 1981).

Next discriminant validity is analyses. Discriminant validity is analyses using heterotraitmonotrait ratio (HTMT) as suggested by (Henseler, Ringle, & Sarstedt, 2015). This recent approach shows the estimation of the true correlation between two latent variables. A threshold value of 0.90 has been suggested for HTMT (Henseler et al., 2015). Above 0.90 shows a lack of discriminant validity. Table 02 shows that HTMT criterion has been fulfilled as all HTMT value are below than 0.90.

Table 02. HTMT

	#1	#2	#3	#4	#5	#6	#8	#9	#10
Attitude	█								
Behaviour	0.590	█							
Concern	0.660	0.725	█						

Environmental Problem	0.499	0.536	0.612	■				
Self-Image	0.721	0.727	0.717	0.511	■			
Responsibility	0.450	0.588	0.707	0.277	0.695	■		
Government Role	0.539	0.827	0.727	0.483	0.682	0.637	■	
Green Purchase Behaviour	0.388	0.604	0.693	0.388	0.578	0.667	0.557	■
Social Influence	0.096	0.176	0.341	0.073	0.237	0.368	0.240	0.377	■

Note: Value on diagonal (bolded) is square root of the AVE while the off diagonal is correlation

6.2 The Structural model

According to Hair et al. (2013), structural model assessment include collinearity examination, assessing the significance and relevance of the structural model relationships, R^2, and predictive relevance Q2. First, before assessing the structural model, the collinearity among the variable where assess. Table 03 shows that all the VIF value for the variable are below 5, which shows that there is no multicollinearity problem among the variable.

Table 03. Collinearity using VIF

Construct	VIF
Environmental attitude	2.030
Environmental behaviour	2.498
Environmental concern	2.060
Environmental problem	1.699
Concern of self-image	2.060
Environmental responsibility	2.387
Government role	2.051
Social influence	1.165

Figure 1 represented the structural model's result Hair, Ringle, and Sarstedt (2011) suggested that PLS-SEM valuations depending on resampling methods for example the test of bootstrapping to calculate the levels of the standardized coefficient whether significance or not. To test all eight hypotheses, the path analysis was used. Table 04 indicated that only 6 hypotheses was accepted since the t-value is significant at p<0.01. They are environmental concern, environmental problem, self-image, responsibility, government role and social influence as confirmed with previous studies by Lee (2009). On the contrary, attitude and behaviour does not predict intention toward green purchase behaviour.

The general prediction strength of the model is measured through the R^2 as the good fitness is verified by a higher value of R^2 (Götz et al., 2010). The indication of R^2 is segregated as: week (0.19), moderate (0.33) and significant (0.67) in line with (Chin, 1998; Henseler & Fassott, 2010). Based on the result presented in Table 3, R^2 was found to be 0.524 which indicated that the PLS regression model can explain 52% of total variance in green purchase behaviour.

In addition, a blindfolding test (Q^2 statistic) is done as an extra evaluation of model fit in PLS analysis as the test of predictive relevance. As recommended by Geisser (1975) and Stone (1977), models with Q^2 higher than zero is regarded to have predictive relevance. The value of Q^2 is 0.331; this supported the assertion that the model has an adequate prediction quality.
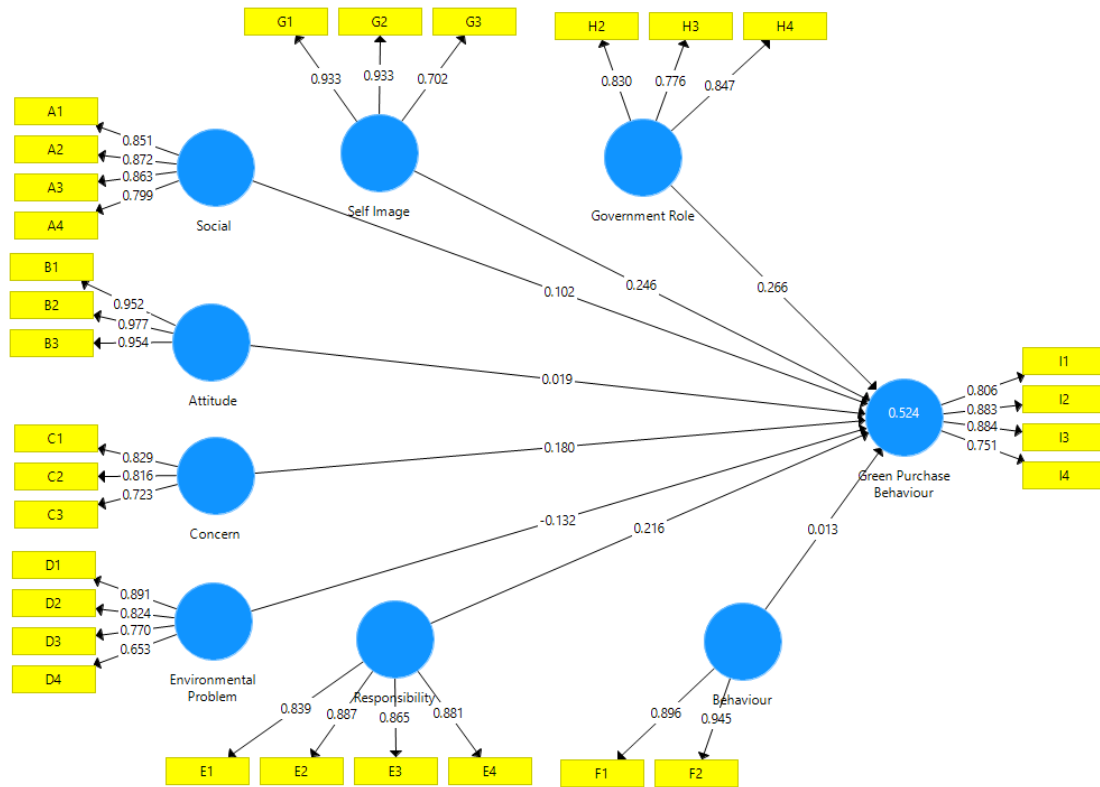
Figure 01. The Structural model

Table 04. Correlations and Discriminant validity

Hypothesis		Standard data	Standard Error	T Value	Result	R2	Q2
H1	Environmental Attitude -> GPB	0.019	0.048	0.406	Rejected		
H2	Environmental Behaviour -> GPB	0.013	0.059	0.217	Rejected		
H3	Environmental Concern -> GPB	0.18	0.057	3.178**	Accepted		
H4	Environmental Problem -> GPB	-0.132	0.039	3.416**	Accepted	0.524	0.331
H5	Concern for Self-image -> GPB	0.246	0.047	5.21**	Accepted		
H6	Environmental Responsibility -> GBP	0.216	0.059	3.642**	Accepted		
H7	Government Role -> GPB	0.266	0.056	4.771**	Accepted		
H8	Social Influence -> GPB	0.102	0.033	3.091**	Accepted		

7. Conclusion

The finding revealed that all six variables contributed to green purchase behaviour but the most significant variables are concern for self-image and government role. The other attribute such as environmental concern, environmental problem, environmental responsibility and social influence are moderately contributed to the green purchase behaviour. Surprisingly, the environmental attitude and environmental behaviour does not contribute to green product purchase and the result is contradicted with past studies. This inferred that the citizen of Malaysian is less conscious in term of attitude and behaviour

toward environment. Serious attention on environmental issue should be given since Malaysian is generating waste product faster than the natural degradation process, which resulted to environmental deterioration. Indeed, the survival of the mother earth as sustainable place of inhabitant of our future generation lies on how we care for the planet earth now.

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