Determinants of generation Z green purchase decision: A SEM-PLS approach

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A R T I C L E   I N F O

A B S T R A C T

The purpose of this paper is to explore the Generation Z decision to purchase green products in Malaysia. Self-administered questionnaires were conducted to obtain meaningful data from 150 undergraduate students of Multimedia University that fit into the category of Generation Z from July until August 2016. Based on the analysis of SEM-PLS, the proposed model explained 90.7 percent of the variance of green product purchase decision. The results have shown positive significant effects between Generation Z attitude towards green activities, subjective norms, perceived green knowledge, and social visibility towards green purchase decision. Generally, the results from this study confirmed that the proposed model concisely explained the Generation Z behavioural action within the context of Malaysia. This study adds another literature to the area of green marketing. The research model was adapted and modified from The Theory of Planned Behavior (TPB) added with another potential variable namely, social visibility to identify the key factors that stimulate consumers' purchase behaviour. This study represents findings from developing country that can be used for future comparative studies related to green consumerism. The findings have strong implications to marketers to promote green products that are compatible with Generation Z daily lifestyle. This study brings into light the perception of young Malaysian consumers about green products and readiness to accept green products as their future way of life.

1. Introduction

The rapid development of food industry, science exploration, deforestation and massive landfill opening have often been associated with the cause of environmental impact such as air pollution, public health, scarcity of resources and climate change (Tiwari et al., 2011). These issues have been widely discussed among academicians and world leaders to discover practical solutions pertaining to the individual consumption and environmental protection. Today, green consumerism has become one of the most important aspects for environmental sustainability (Kong et al., 2014; Paço and Raposo, 2010).

Green consumerism involves a decision to purchase products that are less harmful to the human beings, animal and environment (Kong et al., 2014; Luzio and Lemke, 2013). Here, the two main issues are the availability of green products and consumers' readiness to purchase. The production of green product starts from the selection of raw materials. The standard operating procedure (SOP) is applied to minimize its impact to the environment (Chen and Chai, 2010; Young et al., 2010). On the other hand, green consumers purchasing activities can be traced based on the decision to purchase green products (Shah and Pillai, 2012). Responsible consumers always consider the impact of their consumption pattern towards environment and people (Suki, 2013). Green products help to save the environment because as of today, many environmental damages can be obviously seen due to the irresponsible consumption activities (Peattie, 2001).

Knowing the potential of green consumers market, many companies have taken initiative to produce green products (Dangelico and Pujari, 2010; Eltayeb et al., 2011). In fact, the number of consumers who are aware of the importance of environmental protection is growing. However, such awareness is not a guarantee for them to purchase

green products (Kanchanapibul et al., 2014). Some studies revealed a weak magnitude of relationship between consumers' attitude and green purchase decision (Ahmad and Juhdi, 2008; Raza, 2014). This indicates the existence of gap between consumers' behavioral attitude and behavioral action. It is noteworthy to understand that consumers' behavioral attitude is not the only dimension that describes the green purchasing activities (Chen and Chai, 2010; Tsen and Rita, 2006). Therefore, it is interesting to explore the other dimensions of such behavior.

Malaysia aims at becoming a developed nation by the year 2020 (Islam, 2010). However, the country is still struggling to promote green lifestyle among its citizens (Mansor and Harun, 2014). It was reported that the government spent more than RM100 million every year for the lifestyle campaign and medical treatment. The unhealthy lifestyle and consumption behavior were viewed as the main reasons for environmental degradation (Gilg et al., 2005; Wahid et al., 2011).

Although, the government is working very hard to promote green products and greener lifestyle, the pollution still exists and the natural resources are depleting every second (Qader and Zainuddin, 2011). Consumers overlooked the impact of their irresponsible consumption pattern towards economic and social development. Insofar, the enforcement of rules and regulations are the mechanism used by the government (Mohammad, 2011). Unfortunately, the environmental problems persist.

For years, the green purchasing behavior appears to be a very popular topic in many developed countries. The increasing numbers of non-governmental organizations (NGOs) who promote greener lifestyles through environmental campaign undoubtedly send an important message to the industry (Hosseinpou et al., 2015). Companies were urged to be more responsible when doing business while younger generation becomes a potential market segment due to their extensive exposure towards education, mass media, and prudent social interaction (Noor et al., 2013). An extensive research about the perception of young consumers towards green products is essential at this point of time. Within the context of this study, young consumer is referring to Generation Z who born between 1995 to 2012. The current world population for this group is 23 million and the numbers are growing rapidly (Williams, 2010).

2. Literature review

This study attempts to understand Generation Z green purchasing behavior. The Theory of Planned Behavior (TPB) (Ajzen, 1991) is applied to explain the relationship between individual beliefs and behavioral action (Arvola et al., 2008; Gunther, 2009; Pickett-Baker and Ozaki, 2008). Insofar, the application of TPB in green marketing studies have yet to include another individual factor that may influence Generation Z green purchasing decision, namely social visibility.

Attitude towards green activities: Consumers' attitude is one of the most important dimensions in green marketing research. According to Ajzen (1991), this dimension can be referred to as an individual cognitive evaluation about performing a particular behavior. It can be either negative or positive evaluation. Thus in green marketing, the consumers' attitude is shaped based on their rational judgment (Ganapathi and Mahesh, 2013). Studies pertaining to the attitude and green purchasing produced mixed results with different magnitude of strength (Chen and Chai, 2010; Cherian and Jacob, 2012). Therefore, it can be hypothesized that:

H1: There is a significant relationship between Generation Z attitude towards green activities and their actual purchase behavior.

Subjective norms: It is common that consumers trying to acquire opinions from their friends. The term subjective norms is referring to individual's belief about a particular behavior due to opinions given by the reference group or influential people around them (Ajzen, 1991). Previous studies revealed that many green consumers trust each other (Arvola et al., 2008). They always lead by example to influence others to purchase green products while protecting the environment. Results from the previous studies have shown that consumers value their circle very much and continue with the next course of action (Da Silva Tamashiro et al., 2013; Tarkiainen and Sundqvist, 2005). Hence, it can be assumed that:

H2: Subjective Norms have a significant influence towards Generation Z green purchasing decision.

Perceived green knowledge: This dimension indicates an individual's belief about the existence of factors that facilitate performance of a particular behavior (Ajzen, 1991). Prior green marketing studies revealed that perceived green knowledge played an important role towards the intention to purchase green products (Arvola et al., 2008). In fact, consumers who have a sound knowledge and concern about environment will portray environmentally friendly behavior such as green purchase and recycling activities (Alsmadi, 2007). Therefore, it can be hypothesized that:

H3: Generation Z perceived green knowledge has a significant effect on their decision to purchase green products.

Social Visibility: Prior studies have found that younger generation always concerned about how they are perceived by their friends, family and colleagues. They want to be seen as an up-to-date person by projecting a certain image to obtain a special recognition from social environment (Engel et al., 1990). Individuals' social visibility depends on

what product they purchase and consume (Blackwell et al., 2001). Marketing literatures have shown a significant relationship between social visibility and purchase decision (Josiassen and George, 2013). Thus, it can be assumed that:

H4: Generation Z perceived social visibility has a significant relationship on their decision to purchase green products.

3. Research methodology

This study employed a survey questionnaire to assess the relationships between independent and dependent variables. The measured items were adapted and modified from previous green marketing literatures. All measurements used a five-point Likert-type scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). Respondents were chosen based on the convenience sampling method due to its accessibility to the researchers. The probability sampling technique cannot be done due to budgetary constraint and the population size. This study was conducted among undergraduate students of Multimedia University, Melaka, Malaysia that fit into the criteria of Generation Z. The respondents were personally requested to take part in the survey. The researcher's interference remained at a minimum level in a non-contrived setting to ensure fair views by the respondents. The collection of data was done

from July 2016 to August 2016. A total of 150 valid responses were obtained for this study.

4. Analysis and findings

Fig. 1 shows the conceptual model underpinning this study. The conceptual model was tested using SMARTPLS 2.0. The data for this study were also analysed using SPSS Version 21.0. The results were then discussed and compared with the previous literature. The decision to purchase green products was regarded as a reflective construct together with the attitude towards green awareness, subjective norms, perceived green knowledge and social visibility. The measured items loadings, composite reliability, average variance extracted (AVE), correlations and discriminant validity of all reflective constructs are presented in Table 1 as follows:

Factor loadings: Analyses have shown that, all measured items loadings are greater than 0.70 hence indicating the convergence validity of the measured items (Hair et al., 2010).

Composite reliability: All composite reliability (CR) values are greater than 0.70 thus indicating an acceptable range of reliability (Hair et al., 2010).

Average Variance Extracted (AVE): This study discovered that all average variance extracted (AVE) values are greater than 0.50, suggesting the convergence validity of the construct (Hair et al., 2010).

Table 1: Measurement properties of the reflective constructs

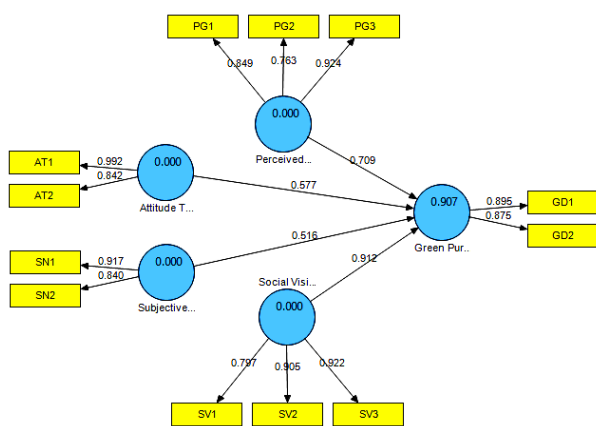| Measured Items	Factor Loading (>0.70)	Composite Reliability (> 0.70)	Average Variance Extracted (> 0.50)
AT1	0.992	0.9162	0.8462
AT2	0.842		
SN1	0.917	0.8718	0.7731
SN2	0.840		
PG1	0.849	0.8841	0.7189
PG2	0.763		
PG3	0.924		
SV1	0.797	0.9085	0.7687
SV2	0.905		
SV3	0.922		
GD1	0.895	0.8784	0.7832
GD2	0.875		

Fig. 1: Results of the proposed conceptual model using SMARTPLS

Discriminant validity: Discriminant validity measures the differences between each construct

(Hair et al., 2010). As shown diagonally in Table 2, the square root of each average variance extracted (AVE) is greater than the construct correlations. It thus indicates adequate discriminant validity for all constructs.

Table 2: Construct correlations

	AT	GD	PG	SV	SN
AT	1.000				
GD	-0.3976	1.000			
PG	-0.2874	0.6339	1.000		
SV	-0.5065	03556	-0.3489	1.000	
SN	-0.5980	0.7028	0.7019	-0.0329	1.000

Test of structural model: The purpose of this study is to discover factors affecting the Malaysian Generation Z consumers' decision to purchase green products. The underlying theory applied in this study is the Theory of Planned Behavior (TPB). The researchers have examined the relationships of the

attitude towards green activities, subjective norms, perceived green knowledge, and additional variable namely, social visibility towards green purchase decision. Overall, the model developed for this study explained 90.7 percent of the Generation Z green purchase decision. Fig. 1 indicates the results of the SEM-PLS path analysis and all four hypotheses (H1, H2, H3, and H4) were measured. The first hypothesis, H1 assumed that Generation Z attitude towards green activities has a significant effect on their green purchase decision. Table 3 indicates that a positive significant effect can be traced between the attitude towards green activities and green purchase decision (PC = 0.577, T-statistic = 15.896, CI = 0.420, 0.539, and p = 0.00). Therefore, H1 can be accepted. The second hypothesis, H2 presumed that the people around Generation Z have a significant influence on the green purchase decision. Based on the analysis, H2 can be described as significant at 0.05 where the T-statistic value is > 1.96 (T-statistic = 6.480, CI = 0.170, 0.320, and p = 0.00). Subjective norms (SN) shows the lowest beta value in this study but still significantly explained the consumers' decision to purchase green products (β = 0.319). Hence, H2 can be accepted. The third hypothesis, H3 proposed that the Generation Z perceived green knowledge significantly affect their decision to purchase green products. This study discovered that perceived green knowledge has a positive significant effect on the purchase decision (PC = 0.709, T-statistic = 17.395, CI = 0.570, 0.716, and p = 0.00). Thus, H3 can be accepted. The fourth hypothesis, H4 assumed that the social visibility significantly affect the decision of Generation Z to purchase green products. Analyses have shown that, the path coefficient and T-statistic indicate significant values (PC = 0.912, T-statistic = 26.408, and p < 0.05). The values demonstrate that social visibility green experience has a significant effect on the Generation Z purchase decision. Social visibility (SV) indicates the highest beta value (β = 1.097). This means that this variable makes a salient contribution to explain the green purchase decision (GD). Therefore, H4 also can be accepted.

Table 3: Structural estimates of the model

	PC	T-stat	CI	β	p
AT-GD	0.577	15.896	0.420, 0.539	0.658	0.00
SN-GD	0.516	6.480	0.170, 0.320	0.319	0.00
PG-GD	0.709	17.395	0.570, 0.716	0.865	0.00
SV-GD	0.912	26.408	1.086, 1.262	1.097	0.00

5. Conclusion

This study adopted, modified and validated a model related to the Generation Z green product purchase decision in Malaysia originated from the Theory of Planned Behavior. It can be claimed that Generation Z is aware of the green lifestyles and know their obligation towards environment. They have an intention to purchase and consume environmentally friendly products despite of their young age. Marketers must understand that Generation Z is ready for a better lifestyle in the future. They have portrayed their commitment through positive attitude towards green activities and knowledge about green which obtained from both formal and informal education. It can be obviously seen that the influence of family and friends are very important to stimulate Generation Z purchase decision. In the future, promotional activities should integrate green products with more emotional attachment. Apart from that, the projection of green lifestyles through social image is relevant because Generation Z likes if people around them aware of their green consumption activities. In short, they wanted to be seen as up-to-date generation. Therefore, marketers are encouraged to consider this generation as a new market segment to effectively positioning the image of green products in their mind. The findings of this study conclude that, social visibility and subjective norms must be treated as the main driver to influence Generation Z green purchase decision.

6. Limitations

This study has some limitations. Firstly, the data were collected from the Multimedia University undergraduate students in Melaka to fit with the definition of Generation Z. Thus, the generalizability of the research findings is only relevant within the context of this population. It may not represent the overall view of Generation Z in Malaysia. Secondly, this study is based on the self-reporting of Generation Z opinions. Therefore, it may cause an extreme estimation of perception which gives a substantial impact to the findings. However, this study is still relevant within the context of obtaining analytical generalization which in the end adds a significant contribution to the body of knowledge.

7. Future research direction

Future studies on Generation Z green purchase decision can be further conducted to understand another reason for purchase behaviour such as health consciousness. It is also noteworthy to study the perception of this generation across races and culture. Studies about Generation Z in the other countries are also relevant to broadening the academic horizon and green consumerism. Profiling the Generation Z based on their spending pattern would be another interesting area of research endeavour. Future studies should also examine the behavioural changes that happen within the context of this segment and predict the next course of action through in-depth structured interview. As for now, the numbers of young consumers who show their concern about environment and green products are growing. Thus, researchers can also use other models and theories such as the Theory of Reasoned Action (TRA) and Technology Acceptance Model (TAM) to predict the green products purchase decision. Lastly, it can be noted that Generation Z and green lifestyles are becoming an interesting subject to explore in the future due to their advanced

knowledge, exposure to the new technology and prudent social interaction.

References

Ahmad SRB and Juhdi N (2008). Consumer's perception and purchase intentions towards organic food products: Exploring the attitude among Malaysian consumers. In 16th Annual Conference on Pacific Basin Finance, Economics, Accounting and Management, Brisbane, Australia.

Ajzen I (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2): 179–211.

Alsmadi S (2007). Green marketing and the concern over the environment: Measuring environmental consciousness of Jordanian consumers. Journal of Promotion Management, 13(3-4): 339–361.

Arvola A, Vassallo M, Dean M, Lampila P, Saba A, Lähteenmäkia L, and Shepherd R (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. Appetite, 50(2-3): 443–454.

Blackwell RD, Miniard PW, and Engel JF (2001). Consumer behavior. 9th Edition, Harcourt College Publishers, London, UK.

Chen TB and Chai LT (2010). Attitude towards the environment and green products : Consumers perspective. Management Science and Engineering, 4(2): 27–39.

Cherian J and Jacob J (2012). Green marketing: A study of consumers' attitude towards environment friendly products. Asian Social Science, 8(12): 117–126.

Da Silva Tamashiro HR, da Silveira JAG, Merlo EM, and Ghisi M (2013). The relationship between ecological knowledge, ecological concern, ecological affection, subjective norms and the green purchase behavior in Brazil. African Journal of Business Management, 7(34): 3297–3314.

Dangelico RM and Pujari D (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. Journal of Business Ethics, 95(3): 471–486.

Eltayeb TK, Zailani S, and Ramayah T (2011). Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: Investigating the outcomes. Resources, Conservation and Recycling, 55(5): 495–506.

Engel JF, Blackwell RD, and Miniard PW (1990). Consumer behavior. 6th Edition, Dryden Press, Chicago, USA.

Ganapathi R and Mahesh N (2013). Consumer's perceived value, attitude and purchase intention of green products. Management Insight, 9(1): 36-43.

Gilg A, Barr S, and Ford N (2005). Green consumption or sustainable lifestyles? Identifying the sustainable consumer. Futures, 37(6): 481–504.

Gunther RE (2009). Peter Drucker-the grandfather of marketing: An interview with Dr. Philip Kotler. Journal of the Academy of Marketing Science, 37(1): 17–19.

Hair JF, Black WC, Babin BJ, Anderson RE, and Tatham RL (2010). Multivariate Data Analysis. Prentice Hall, New Jersey, USA.

Hosseinpou M, Mohamed Z, Rezai G, Shamsudin MN, and AbdLatif I (2015). How go green campaign effects on Malaysian intention towards green behaviour. Journal of Applied Sciences, 15(6): 929–933.

Islam R (2010). Critical success factors of the nine challenges in Malaysia's vision 2020. Socio-Economic Planning Sciences, 44(4): 199–211.

Josiassen A and George A (2013). Look at me-I am flying: The influence of social visibility of consumption on tourism decisions. Annals of Tourism Research, 40(1): 155–175.

Kanchanapibul M, Lacka E, Wang X, and Chan HK (2014). An empirical investigation of green purchase behaviour among the young generation. Journal of Cleaner Production, 66(2014): 528–536.

Kong W, Harun A, Sulong RS, and Lily J (2014). The Influence of Consumers' perception of green products on green purchase intention. International Journal of Asian Social Science, 4(8): 924–939.

Luzio JPP and Lemke F (2013). Exploring green consumers product demands and consumption processes: The case of Portuguese green consumers. European Business Review, 25(3): 281–300.

Mansor M and Harun NZ (2014). Health issues and awareness, and the significant of green space for health promotion in Malaysia. Procedia - Social and Behavioral Sciences, 153: 209–220.

Mohammad N (2011). Environmental law and policy practices in Malaysia : An empirical study. Australian Journal of Basic and Applied Sciences, 5(9): 1248–1260.

Noor MNM, Sreenivasan J, and Ismail H (2013). Malaysian consumers attitude towards mobile advertising, the role of permission and its impact on purchase intention: A structural equation modeling approach. Asian Social Science, 9(5): 135–153.

Paço AMF and Raposo MLB (2010). Green consumer market segmentation: empirical findings from Portugal. International Journal of Consumer Studies, 34(4): 429–436.

Peattie K (2001). Towards sustainability: The third age of green marketing. The Marketing Review, 2(2): 129–146.

Pickett-Baker J and Ozaki R (2008). Pro-environmental products: marketing influence on consumer purchase decision. Journal of Consumer Marketing, 25(5): 281–293.

Qader IKA and Zainuddin Y (2011). The influence of media exposure, safety and health concerns, and self-efficacy on environmental attitudes towards electronic green products. Asian Academy of Management Journal, 16(2): 167–186.

Raza HA (2014). A study on the relationship between consumer attitude, perceived value and green products. Iranian Journal of Management Studies, 7(2): 315–328.

Shah R and Pillai P (2012). Consumer's environmental concern and its influence on their purchase intention: SEM approach. Opinion-International Journal of Business Management, 2(1): 24–31.

Suki NM (2013). Green awareness effects on consumers' purchasing decision: Some insights from Malaysia. International Journal of Asia-Pacific Studies, 9(2): 49–63.

Tarkiainen A and Sundqvist S (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. British Food Journal, 107(11): 808–822.

Tiwari S, Tripathi DM, Srivastava U, and Yadav PK (2011). Green marketing - emerging dimensions. Journal of Business Excellence, 2(1): 18–23.

Tsen C and Rita M (2006). Going green : A study of Consumers' willingness to pay for green products in. International Journal of Business and Society, 7(2): 40–54.

Wahid NA, Rahbar E, and and Shyan TS (2011). Factors influencing the green purchase behavior of penang environmental volunteers. International Business Management, 5(1): 38–49.

Williams S (2010). Welcome to generation Z. B&T Magazine, 60(2731): 12-12.

Young W, Hwang K, McDonald S, and Oates CJ (2010). Sustainable consumption: Green consumer behaviour when purchasing products. Sustainable Development, 18(1): 20–31.