

Antecedents of green purchase behavior of cosmetics products

An empirical investigation among Malaysian consumers

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Abstract

Purpose – There is a growing need to conduct more studies to understand the green purchase behavior of cosmetics products because of its increasing trend in the emerging markets. Considering this, the study aims to shed some light on the factors that affect green purchase behavior of Malaysian consumers in the context of cosmetics product purchase. More specifically, the objective of this study is to examine the effect of altruistic and hedonic values and the mediating effect of personal norm and pro-environmental belief toward green purchase behavior.

Design/methodology/approach – An online survey using judgmental sampling technique was used to gather responses from green cosmetics consumers. A questionnaire was designed to measure the study variables, which was then tested for content, and face validity and reliability prior to its administration. The structural equation modeling using the partial least squares approach (SmartPLS, version 3.7) was used to test the study hypotheses.

Findings – The results revealed that hedonic value has a significant and positive effect on pro-environmental belief. However, altruistic value did not exert any significant effect on pro-environmental belief. It is also found that pro-environmental belief positively affects personal norm, and as a consequence, personal norm affects green purchase behavior. The data also support the mediating effect of pro-environmental belief in the relationship between “hedonic value and personal norm.” Nevertheless, pro-environmental belief did not mediate the relationship between altruistic value and personal norm. Lastly, personal norm mediates the relationship between “pro-environmental belief and green purchase behavior”.

Practical implications – The findings from this study enable managers, marketers and policy makers to execute better green strategies that would boost consumers’ green purchase behavior toward cosmetics products.

Originality/value – This study contributes to the existing literature on green purchase behavior by testing hedonic value as the antecedent and pro-environmental belief as the mediator by using the



value-belief-norm theory. Moreover, this is a pioneer study to consider personal norm as the mediator of green purchase behavior.

Keywords Green purchase behavior, Hedonic value, Personal norm, Pro-environmental belief, Altruistic value, Green cosmetics industry, Cosmetics products

Paper type Research paper

Introduction

In the recent years, the notion of “green purchase behavior” has received significant research attention because of its impact on the environment. The uncontrollable consumption of goods and irresponsible treatment of the environment tremendously damage the environment and ultimately affect the balance of the ecosystem and the human lives on the whole (Chan, 2001). Being the part of this world, the human beings should be responsible to protect the earth from any exploitation of the environment in a rampant manner (Julia *et al.*, 2016). Therefore, there is a need to have a paradigm shift from conventional purchase behavior to green purchase behavior to reduce the negative impact on the environment (Quoquab and Mohammad, 2016; Quoquab *et al.*, 2019).

Due to the bad impact on health, in recent years, consumers are moving toward purchasing green cosmetics instead of chemical one. Plenty of cosmetics products are banned globally due to the usage of poisonous substances such as triphenyl phosphate, petroleum, propyl paraben, phthalates, avobenzone, mercury, tretinoin and hydroquinone (DG of Health, 2017). Malaysia also has been facing critical issues pertaining to the high usage of chemical cosmetics where more than 12,000 cosmetics products have been declared as poisonous by the Ministry of Health Malaysia (DG of Health, 2017). However, there is a lack of studies that have examined consumers’ purchase behavior toward green cosmetics products. Considering this, the present study attempts to shed some light on Malaysian consumers’ green purchase behavior toward cosmetics products.

Indeed, it is crucial to understand the green consumption behavior of the consumers because they are the members of the society and also a large stakeholder in the environmental marketplace (Paswan *et al.*, 2017). Unfortunately, the reasons for not considering green cosmetics are not fully uncovered yet. In the existing literature, a bulk of studies are focused primarily on the attitude, subjective norm and perceived behavioral control toward purchase behavior, but less attention was given to assess the notion of value, belief and norm (Kim *et al.*, 2015; Lind *et al.*, 2015). It is argued that consumers’ values play a significant role in purchase behavior (Jayawardhena *et al.*, 2016). Luchs *et al.* (2015) suggested that the green consumption behavior does not solely rely on the general attitude of consumers, but it is rather related to the sense of responsibility that displays a set of beliefs among consumers to behave environmentally. In addition, Roos and Hahn (2017) indicated that values like distal behavioral factors and beliefs about consequences, responsibility as well as personal norms are more of proximal behavioral factors that affect the human behavior. Thus, it is expected that values, belief and personal norms can be considered as the drivers of consumers’ green purchase behavior.

The advancement of technology greatly impacted on the magnitude of consumer purchase behavior. It is reported that Malaysian online shopping value has reached up to US \$15.3m, among which cosmetics products are among the major categories of online purchase that hit US\$407m of total revenue in 2013 (Hassali *et al.*, 2015). Unfortunately, in 2016, there were 300 social media websites that were involved in promoting illegal cosmetics and violated the enforced act and have been reported to the relevant agencies for sanctions and closure (DG of Health, 2017). The retailing of illegal cosmetics in social media becomes

uncontrollable when the demand from customers is increasing on a daily basis. Thus, an empirical investigation on green purchase behavior calls for a more rigorous research attention to address this issue.

Considering this, the present study aims to predict the direct and indirect effect of values, belief and personal norms in relation to consumers' green purchase behavior on cosmetics products. The rest of the paper is organized as follows. Firstly, the relevant literature is reviewed, and the conceptual framework is developed. Next, the adopted methodology is discussed. The paper is followed by the results, findings and discussion. Lastly, a conclusion is made and the implications, limitations and future research directions are highlighted.

Literature review and conceptual design

Theory of value-belief-norm

The value-belief-norm (VBN) theory emerged because of the movement of environmentalism that emphasizes the changes in the attitude and behavior among individuals (Stern *et al.*, 1999). The VBN theory suggests the link between feelings of personal obligation and individual anticipation that drives individuals to act toward supporting a particular movement or goal (Schwartz, 1977). Stern *et al.* (1999) suggest that the general movement support depends on three general elements, i.e. values, beliefs and personal norms.

Stern (2000) indicated that people who hold high values to the other species would concern more about the surroundings that threatens valuable objects. Thus, personal values are considered as the prime aspect of the green behavior. In addition, the VBN theory assumes that the personal norm is the major basis of individuals to act environmentally. In support of these views, Stern *et al.* (1995) stated that values and consequences are the causes that influence or discourage people's environmental norms. Black *et al.* (1985) concluded that the formation of the pro-environmental behavior is influenced by individuals' specific beliefs and personal norms.

Green cosmetics products purchase

Green cosmetics refer to the cosmetics products that are made by natural ingredients. Cosmetics products can be defined as a blend of ingredients intended to be placed in any external parts of the human body or teeth with a purpose of cleaning them, perfuming them, changing their appearance and/or correcting body odors and/or keeping them or maintaining their condition (Oishi, 2002). As mentioned by the Association of Southeast Asian Nations (ASEAN), cosmetics products can be classified into 13 categories such as baby products, bath preparations, eye makeup preparations, fragrance preparations, hair preparations (non-coloring), hair coloring preparations, makeup preparations, manicuring preparations, oral hygiene products, personal cleanliness, shaving preparations, skin care preparations and suntan preparations. For this study, all kinds of cosmetics products are being considered.

In Asia, the cosmetics industry has become the fastest growing market (Azmi *et al.*, 2015). As reported by Cheong *et al.* (2016), Asian countries have contributed up to three billion consumers to the cosmetics products market. The Malaysian market is dominant by the domestic manufacturers where the exported value reached RM1.124bn. Basically, synthetic ingredients are purposely used to boost the impact of cosmetics products and give instant results to consumers' body. However, in the long run, the continuous usage of this kind of synthetic ingredients likely to harm the health of consumers and impose long-term side effects such as headache, acne, hair problems, cancer, skin allergies and the like (Oishi, 2002). As such, the manufacturers of cosmetics products have changed their focus to green cosmetics by implementing raw material sourcing, green formulations and also eco-label

packaging in every product design (Sahota, 2014). The green cosmetics products use natural ingredients that are produced from renewable raw materials.

In Malaysia, the demand from consumers is the main driver to the growth of the green cosmetics industry (Osman, 2016). With the rising awareness on the green cosmetics products, Malaysia is facing major issues pertaining to the influx of artificial cosmetic products in the market. Therefore, the present study investigates the purchase behavior of Malaysian consumers from the perspective of green cosmetics purchase. This is crucial, as green purchase likely to contribute in preserving the environment, minimizing the pollutions and motivating them to consume healthy products.

Value orientations and pro-environmental belief toward cosmetics purchase

The term "value" can be defined as the conceptions of the desirable that influence the way people select action and evaluate events (Schwartz and Bilsky, 1987). From an environmental perspective, Stern (2000) defined value as the basis of environmentalism. In the VBN theory, value orientations have been classified into three aspects – altruistic, biospheric and egoistic (Stern *et al.*, 1993). The altruistic value can be described as the feelings or concerns for other people in relation to the environment (Swami *et al.*, 2010), whereas the biospheric values are derived when people have a high level of consideration toward biosphere, and their concern is on the basis of costs or benefits to the ecosystems (Schultz, 2001). On the other hand, the egoistic value reflects personal interest at the center of decision-making (Martin and Czellar, 2017).

Among these three aspects of values, most of the studies have confirmed the importance of considering altruistic value in the environmental studies. It should be noted that most of the environmental studies have considered these aspects of values, whereas there are other values that are also needed to be studied. For instance, the hedonic value had been found to be an important predictor of environmental behavior; however, it is yet to be studied with regard to the green purchase behavior (Steg *et al.*, 2014). As such, for the present study, altruistic value and hedonic value are being considered as the predictors of pro-environmental belief.

The altruistic value has been studied in various research contexts such as *organic food consumption* (Rahman *et al.*, 2016; Wei and Chen, 2012), *green lodging* (Han, 2015), *smart energy systems* (Werff and Steg, 2016), *electric car adoption* (Barbarossa *et al.*, 2017) and *wildlife* (Ojea and Loureiro, 2007). The sense of empathy among people is important to drive environmental behavior (Bryer and Medina, 2017). The individuals with high level of empathy usually participate actively in social activities (Pratono, 2019). Past studies have indicated that altruistic value is an indicator of pro-environmental belief, which in-turn positively affects personal norm (Kiatkawsin and Han, 2017; Van Riper and Kyle, 2014). Although altruistic value has been examined from various research contexts, there have been few empirical investigations on the cosmetic purchase that use altruistic value as an antecedent. Thus, the present study assumes that the consumers who have favorable altruistic value will exhibit positive pro-environmental belief toward green cosmetics purchase. Based on this assumption, the following hypothesis is developed:

H1. Altruistic value has a positive effect on pro-environmental belief.

According to Schwartz (1992), values are being classified into two dimensions, which are self-transcendence value (altruistic and biospheric) and self-enhancement value (egoistic value). Again, the self-enhancement value is classified into two: egoistic value and hedonic value (Abrahamse *et al.*, 2009). This claim is supported by Steg *et al.* (2014), stating that the hedonic value is very important in examining consumers' environmental behavior.

Therefore, Werff and Steg (2016) adapted the VBN theory by integrating the hedonic value, belief and personal norm relationship.

Hedonic value can be described as the value that individuals receive based on the subject of experience of fun and playfulness (Babin *et al.*, 1994). It can be categorized as a sensory gratification and affective experience (Cervellon and Carey, 2011). This value leads to satisfaction because of the feeling of enjoyment emerging in unique experiences while making advance purchase (Byun *et al.*, 2017). The different levels of pro-environmental behavior is strongly intertwined with basic values such as human–nature balance, and the enjoyment and happiness nature brings to people (Paswan *et al.*, 2017). Hedonic value became the attention of the past studies where the element of comfort and pleasure have been recognized as other values formed by the individuals before they want to act environmentally (Steg *et al.*, 2014). Prior studies have measured the relationship between hedonic value and particular belief such as the problem awareness and new environmental paradigm (Lind *et al.*, 2015; Werff and Steg, 2016). However, there is a dearth of research that has examined the relationship between hedonic value and pro-environmental belief. Thus, considering this gap, the following relationship is hypothesized:

H2. Hedonic value has a positive effect on pro-environmental belief.

The effect of pro-environmental belief toward personal norm

Pro-environmental belief refers to the “attitude toward the environment” (Stern, 2000, p. 252) and “the collective good that differentiates from a purely self-interested attitude” (Karp, 1996, p. 252). Ajzen and Fishbein (1977) specified that each individual holds belief, which is found to be very significant in forming the personal norms. Consumers’ pro-environmental belief has been integrated with their support for sustainable movements (Anderson, 2012; Stern, 2000). It is found that individuals who are concerned with the environment verbally support environmentally friendly products that are in favor of environmental conservation (McDonald and Oates, 2006).

In the environmental research, the positive relationship between pro-environmental beliefs such as the new ecological paradigm (NEP), awareness of consequences (AC) and ascription of responsibility (AR) and the personal norm is well documented (Kiatkawsin and Han, 2017; Onel and Mukherjee, 2015; Wynveen *et al.*, 2015). However, there is a dearth of research that has examined the relationship between pro-environmental belief and the personal norm in the context of cosmetic products purchase. Thus, considering this gap, the following relationship is hypothesized:

H3. Pro-environmental belief has a positive effect on personal norm.

The effect of personal norm toward green purchase behavior

The VBN theory suggests that pro-environmental personal norm supports the behavior that is in favor of the environmental movement such as environmental activism, environmental citizenship, policy support and private-sphere behaviors (Chua *et al.*, 2016; Stern *et al.*, 1999). This relationship has been investigated further by past studies that examined the influence of personal norm toward various types of pro-environmental behaviors such as the consumption behavior and green purchase intention (Han, 2015; Roos and Hahn, 2017). Thus, this theory justifies the personal norm and green purchase behavior link.

In the environmental research, the positive relationship between personal norm and pro-environmental behavior is well documented (Choi *et al.*, 2015; Jansson *et al.*, 2010; Van Riper

and Kyle, 2014). However, there is a dearth of research that has examined the relationship between personal norm and green purchase behavior in the context of cosmetic products purchase. Therefore, considering this gap, the following relationship is hypothesized:

H4. Personal norm has a positive effect on green purchase behavior.

The mediating role of pro-environmental belief

According to Kim *et al.* (2015), values are the major antecedents of the pro-environmental belief. On the other hand, pro-environmental belief (i.e. NEP, AC and AR) is proven to be a significant factor in explaining personal norm (Lind *et al.*, 2015). As such, the pro-environmental belief exhibits a mediating effect between value orientations and personal norm.

Past study indicated a significant mediating effect of trust in the relationship between customer orientation and repurchase intention (Izogo, 2016). In environmental study, the mediating effect of pro-environmental belief between value orientations (biospheric, altruistic, egoistic and hedonic value) and personal norm has been studied in different contexts such as, in the *textiles and apparel industry* (Kim *et al.*, 2015), *transportation industry* (Lind *et al.*, 2015), *smart energy system context* (Werff and Steg, 2016) and *eco-tourism* (Kiatkawsin and Han, 2017). However, whether or not the mediating effect of the pro-environmental belief is also applicable in the context of Malaysia's green cosmetics purchase is yet to be concluded. Therefore, considering this gap, the following relationships are hypothesized:

H5. Pro-environmental belief mediates the relationship between altruistic value and personal norm.

H6. Pro-environmental belief mediates the relationship between hedonic value and personal norm

The mediating role of personal norm

According to Schwartz (1977), pro-environmental behavior is influenced by personal norm, and the personal norm is activated by awareness of consequences and ascription of responsibility. Stern (2000) also supported this view and added the new environmental paradigm in the VBN theory that triggers the awareness of consumers. Consequently, the personal norm influences the green purchase behavior among consumers (Joshi and Rahman, 2015). As such, personal norm exhibits a mediating effect between pro-environmental belief and green purchase behavior.

Past studies found the mediating effect of the personal norm in the relationship between beliefs and pro-environmental behavior (Choi *et al.*, 2015) as well as between awareness of consequences (AR) and the intention to perform the pro-environmental behavior (Garling *et al.*, 2003). However, whether the mediating effect of the personal norm is also applicable in the Malaysian cosmetics purchase context is yet to be concluded. Thus, with the support of the VBN theory, this study considers personal norm as a mediating, and thus, the following hypothesis is developed:

H7. Personal norms mediate the relationship between pro-environmental belief and green purchase behavior.

Conceptual framework

The proposed relationships among the study variables are shown in [Figure 1](#).

Methodology

Measures

All constructs were measured using multiple-item scales and were adapted from previous studies. Green purchase behavior was measured using five items adapted from [Khare \(2015\)](#). Pro-environmental belief was measured using a three-item scale adapted from [Kim et al. \(2015\)](#). Additionally, the altruistic value was measured by using a three-item scale adapted from [Izagirre-Olaizola et al. \(2015\)](#). Moreover, the scales to measure the hedonic value (five items) and personal norm (three items) were adapted from [Ghazali et al. \(2017\)](#) and [Khare \(2015\)](#), respectively. The measurement items are shown in [Appendix](#). All items were rated on a five-point Likert scale, where 1 indicated “strongly disagree” and 5 indicated “strongly agree.” To ensure the representativeness and adequacy of the items, the questionnaire was content-validated by three renowned professors from two reputed public universities in Malaysia. The questionnaire was also piloted through online sample of 100 consumers. Based on the 73 returned responses, additional modifications were made to the arrangement of the questions and to the language used. The instrument was tested for reliability, and Cronbach’s α was found to be greater than 0.7 for all constructs used in this study ([Hair et al., 2011](#)).

Sample design and sample size

As it was impossible to get a list of all elements of the population, the present study thus used non-probability sampling, specifically the judgmental sampling technique. Using this type of sampling is a good choice because it permits a theoretical generalization of the findings ([Calder et al., 1981](#); [Mohammad et al., 2016](#); [Mohammad et al., 2018](#)). The sample size for this study was decided based on G*Power software as advised by [Cohen \(1992\)](#). The calculation of minimum sample size for two independent constructs based on achieving statistical power of 80 per cent with 5 per cent probability of error is 90 respondents. Additionally, the respondents were required to be at least 18 years old because this group is sufficiently knowledgeable to make decisions and have purchasing power ([Quoquab et al., 2018](#)).

Data collection

The data were collected through a self-administrated online questionnaire. Data collection through an online survey has the potential to collect large amount of data efficiently, economically and within a short timeframe. In this study, the survey was distributed via social media, particularly Facebook and Twitter. To ensure that all participants had prior

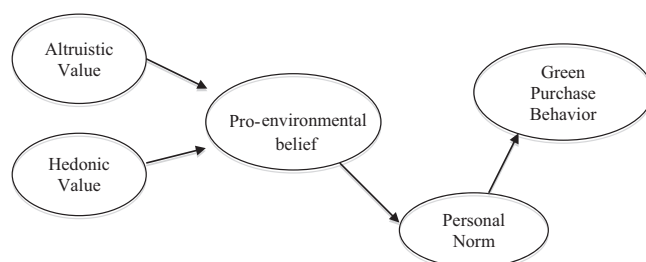


Figure 1.
Proposed conceptual framework

experience in purchasing cosmetic products, the survey began with the screen question. A total of 200 individuals participated in the study, and after deletion of outliers and missing values, 150 responses were used for further analysis. [Table I](#) provides an overview of the respondents' demographics.

Demographics	No. of respondents (<i>N</i> = 150)	(%)
<i>Gender</i>		
Male	30	20
Female	120	80
<i>Age</i>		
18-25	35	23.3
26-30	28	18.7
31-35	66	44
36-40	16	10.7
41-45	4	2.7
46 and above	1	0.7
<i>Race</i>		
Malay	142	94.7
Chinese	2	1.3
Indian	2	1.3
Iban	3	2
Dusun	1	0.7
<i>Education</i>		
PMR/SPM	7	4.7
Certificate/Diploma	22	14.7
Bachelor degree	69	46
Master degree	47	31.3
PhD	4	2.7
Post-doctoral	1	0.7
<i>Marital status</i>		
Single	60	40
Married	87	58
Divorced	2	1.3
Widowed	1	0.7
<i>Occupation</i>		
Housewife	7	4.7
Self-employed	10	6.7
Entrepreneur	7	4.7
Professional	75	50
Non-professional	35	23.3
Unemployed	12	8
Student	3	2
Part-timer	1	0.7
<i>Monthly income</i>		
Less than RM500	23	15.3
RM501-2,000	32	21.3
RM2,001-3,500	35	23.3
RM3,501-5,000	30	20
RM5,001-6,500	19	12.7
More than RM6,501	11	7.3

Table I.
Demographic profile

Profile of the respondents

As shown in [Table I](#), the majority of the respondents are female (80 per cent). Regarding respondents' age, the majority are less than 35 years old (86 per cent). With respect to participants' ethnicity, the highest percentage of the respondents belong to the Malay race (94.7 per cent). For marital status, it was found that most of the respondents are married (58 per cent). In terms of occupation, the highest percentage of respondent is from the professional group (50 per cent). Last but not least, the bulk of respondents' income is less than RM3,500 (60 per cent).

Data analysis and result

Non-response bias and common method variance (CMV)

To assess the possibility of non-response bias, the means variable score of the first and last 50 participants was compared using a *t*-test. The result revealed that no significant differences in the early and late participants; hence, no-response bias was not an issue in this study ([Pallant, 2007](#)). Furthermore, the presence of common method variance (CMV) was examined by conducting Harman's single-factor test ([Podsakoff et al., 2003](#)). Exploratory factor analysis with unrotated solution was carried out, which revealed a five-factor solution explaining 66.14 per cent of the variance, with 41.12 per cent of the variance explained by the first factor. Thus, CMV was not a serious issue in this study. In addition, a confirmatory factor analysis was conducted with a single latent factor, which revealed a poor model fit, thus confirming the absence of CMV ([Podsakoff et al., 2003](#)).

Psychometric properties of the measures

Structural equation modeling (SEM) was used to analyze the collected data. Nevertheless, before testing the hypothetical model, this study confirmed that the measures used are reliable and valid. Therefore, the confirmatory factor analysis (CFA) was conducted using consistent partial least square version 3.2.7 (PLSc) ([Ringle et al., 2015](#)). The overall effectiveness of the measurement model was examined using standardized root mean square residual (SRMR) ([Hu and Bentler, 1998](#)) and normed fit index (NFI) ([Bentler and Bonett, 1980](#)). The SRMR value of less than 0.08 indicates an acceptable fit ([Hu and Bentler, 1998](#)), and the NFI value of higher than 0.9 is considered acceptable for factor model. The measurement model was revised by removing items that has low loading (less than 0.50). After removing one item (GPB1), the measurement model showed an overall good fit. The SRMR value was 0.067, which is below than the recommend value of 0.08, and the NFI was 0.91, which is higher than the threshold value of 0.90, indicating a good fit between empirical covariance matrix and theoretical covariance matrix implied by model.

Constructs reliability. The amount of random error in the construct scores should be reasonable, that is, the reliability of the construct scores should be higher than 0.70 ([Nunnally and Bernstein, 1994](#)). This study examined the reliability of the construct scores using composite reliability (CR), Cronbach's alpha (CA) and [Dijkstra and Henseler's \(2015\)](#) reliability (ρ_A). The result of construct reliability is revealed in [Table II](#). As it can be seen, the values of CR, CA and [Dijkstra and Henseler's \(2015\)](#) reliability (ρ_A) for all constructs surpassed the cutoff value of 0.70. Thus, all constructs have sufficient internal consistency reliability.

Convergent validity. In the next step, the convergent validity was examined using CA and average variance extracted (AVE). The results of the convergent validity test are presented in [Table II](#). As it can be seen, the composite construct reliabilities were within the generally accepted range of greater than 0.70. The AVEs were all above the recommended level of 0.50. As a result, all constructs had adequate convergent validity.

Table II.
Results of
measurement model

Constructs	Items	Loadings	AVEs	CA	ρ_{A}	CR
AV	AV1	0.815	0.615	0.713	0.711	0.826
	AV2	0.827				
	AV3	0.704				
GPB	GPB2	0.890	0.676	0.838	0.847	0.892
	GPB3	0.854				
	GPB4	0.733				
	GPB5	0.802				
HV	HV1	0.737	0.706	0.895	0.902	0.923
	HV2	0.826				
	HV3	0.877				
	HV4	0.893				
	HV5	0.861				
PEB	PEB1	0.861	0.765	0.847	0.847	0.907
	PEB2	0.874				
	PEB3	0.890				
PN	PN1	0.879	0.729	0.811	0.827	0.889
	PN2	0.922				
	PN3	0.751				

Discriminate validity. Next, discriminant validity was tested to confirm whether the average variance shared between the construct and its items is larger than the variance shared between the construct and other constructs (Fornell and Larcker, 1981). The results of the discriminant validity tests are presented in Table III. As it can be seen, the square root of AVE (diagonal values) for all constructs is higher than its correlation (off-diagonal values) with all other constructs in the model. Moreover, this study used the Heterotrait–Monotrait (HTMT) ratio of correlation developed by Henseler *et al.* (2015). The HTMT is an estimate of factor correlation, particularly the HTMT should be less than 0.85 to discriminate between two factors. As it can be seen in Table IV, all HTMT values are less than 0.85; thus, discriminant validity was confirmed.

Hypothesis testing – structural model

As recommended by Hair *et al.* (2014), the structural model was assessed for collinearity issues through variance inflation factor (VIF), explanatory power of the model (R^2), predictive relevance (Q^2), effect size (F^2) and the significance of path coefficient. The PLS algorithm followed by PLS bootstrapping procedures with 5,000 subsamples were run on the full model to generate path coefficients, their significance level and their corresponding

Table III.
Results of
discriminate validity

	AV	GPB	HV	PEB	PN
AV	0.784				
GPB	0.456	0.822			
HV	0.486	0.585	0.840		
PEB	0.358	0.396	0.500	0.875	
PN	0.372	0.443	0.599	0.730	0.854

Note: Diagonal values represent the square root of AVE, while off-diagonal values represent the correlations

t-values. First, the collinearity issues need to be weeded out, and hence, the correlations between the constructs need to be evaluated. With VIF values of 1.309 and 1.307 for AV and HV, respectively, multicollinearity was not an issue in this research. Next, the explanatory power (through coefficient of determination, R^2) of the equations explaining the endogenous constructs need to be examined. The results of the structural model showed a substantial R^2 (0.268) for PEB and (0.533) for PN, and moderate R^2 (0.19) for GPB (Cohen, 1988). After that, the effect size of individual exogenous construct on endogenous construct was assessed. The results indicated that HV ($F^2 = 0.191$) has a moderate effect on PEB, whereas AV has a small effect ($F^2 = 0.023$) on PEB. Next, the model's predictive quality was evaluated by using blindfolding procedure with an omission distance of seven to obtain the Stone–Geisser's Q^2 value. The results of Q^2 ascertain the model's predictive relevance for PEB ($Q^2 = 0.186$), PN ($Q^2 = 0.366$) and GPB ($Q^2 = 0.122$).

Next, the path coefficients were assessed in term of their sign and absolute size. They interpreted as the change in the dependent variable if the independent variable is increased by one while all other independent variables remain constant (Henseler, 2017). The results of the path coefficient indicated that HV ($\beta = 0.594$, $t = 4.647$, $p < 0.01$) has a significant strong positive effect on PEB; thus, $H2$ was supported. Whereas, AV did not exert significant effect on PEB; thus, $H1$ was not supported. Moreover, the PEB ($\beta = 0.730$, $t = 14.763$, $p < 0.01$) has a significant strong effect on PN; thus, $H3$ is supported. Additionally, PN ($\beta = 0.443$, $t = 6.515$, $p < 0.01$) exert strong positive effect on GPB, and hence $H4$ is supported. For the last three hypotheses, Preacher and Hayes (2004, 2008) approach of bootstrapping the indirect effect was used to test the mediation effect of PEB and PN. Particularly, the results of the indirect effect using bootstrapping procedure with 5,000 subsamples and two-tailed test revealed that the PEB mediates the relationship between HV and PN ($\beta = 0.313$, $t = 6.4111$, $p < 0.01$, LL: 0.195, UL: 0.445), and PN mediates the relationship between PEB and GPB ($\beta = 0.139$, $t = 3.045$, $p < 0.01$, LL: 0.069, UL: 0.218). Contrary to the expectation, the mediating effect of PEB between AV and PN was not supported. The results of the path coefficient are summarized in Table V.

	AV	GPB	HV	PEB	PN
AV					
GPB	0.602				
HV	0.627	0.671			
PEB	0.469	0.471	0.573		
PN	0.495	0.537	0.706	0.836	

Table IV.
Result of discriminate validity

Hypothesis	Relationship	β	SE	<i>t</i> -value	Decision	BC 5% LL	BC 95% UL
$H1$	AV \rightarrow PEB	0.149	0.095	1.575	Not supported	0.007	0.3
$H2$	HV \rightarrow PEB	0.428	0.092	4.647	Supported	0.274	0.553
$H3$	PEB \rightarrow PN	0.73	0.049	14.763	Supported	0.323	0.549
$H4$	PN \rightarrow GPB	0.443	0.068	6.511	Supported	0.616	0.789
$H5$	AV \rightarrow PEB \rightarrow PN	0.109	0.071	1.528	Not supported	-0.05	0.225
$H6$	HV \rightarrow PEB \rightarrow PN	0.313	0.076	4.111	Supported	0.195	0.445
$H7$	PEB \rightarrow PN \rightarrow GPB	0.139	0.046	3.045	Supported	0.069	0.218

Table V.
Hypothesis testing

Discussion

The objective of this study was to investigate the factors that affect green purchase behavior among Malaysia consumers toward cosmetics products. In addressing this issue, a research framework based on the VBN theory was developed to provide further understanding on the matter in the context of green cosmetics industry. The empirical results of the study found that the AV has no significant effect on pro-environmental belief (PEB). This finding is aligned with [Rettie et al. \(2012\)](#), who opined that green behavior is difficult to determine as people only act environmentally on their favorable activities. Thus, it indicates that this value is unable to explain the choice of Malaysian consumers' purchase of green cosmetics products.

Meanwhile, this study hypothesized that hedonic value (HV) would affect the PEB among Malaysian consumers, which was supported. This result is aligned with past study that found positive correlation between hedonic value and customers' repatronage intention ([Atulkar and Kesari, 2017](#)). This result is also in line with the opinion of [Lucian \(2017\)](#) who found that consumers shop their preferred products mainly because of the feeling of pleasure and enjoyment that can provide personal satisfaction. Furthermore, the hypothesized relationship between PEB and personal norm (PN) is supported and this finding confirmed the link suggested by the VBN theory, which is PEB poses a significant, positive and strong influence on PN ([Stern et al., 1999](#)). This finding is also consistent with past study that exerts significant effect of PEB toward eco-citizenship, green consumption and green purchase behavior ([Kim et al., 2015](#)).

In addition, the direct relationship between PN and green purchase behavior shows significant relationship and thus confirms the notion of the VBN theory in explaining the value-behavior relationship. Therefore, the investigation of green purchase behavior from the perspective of value, belief and norm shed some light on understanding the consumer purchase behavior in Malaysian cosmetics industry. A possible explanation on this result can be the fact that individuals who pose high PN display strong obligation towards environment and indirectly display positive responses on the purchase of the green products.

The mediation effect of PEB between AV and PN is not supported in this study. This is in line with the findings of the past study by [Lind et al. \(2015\)](#) who also found insignificant mediating effect of new environmental paradigm (belief) between AV and PN. As supported by [Albayrak et al. \(2013\)](#), low AV among people will cause low engagement in green purchase activities. Therefore, in green cosmetics products purchase, the AV among Malaysian consumers is still low, which has caused growing use of chemical cosmetics among Malaysian consumers and this has become a major challenge to the policy makers to control this issue.

A new relationship has been hypothesized in this study, which is mediating role of PEB belief in the relationship between HV and PN. As expected, the result was supported by the data. This finding confirms the suggestion by [Steg et al. \(2014\)](#) that, HV plays a significant role in environmental studies and should be explored by future researchers. Furthermore, the findings of this study also support the mediating effect of PN in the relationship between PEB and green purchase behavior (GPB). As such, the findings of this study are in line with the notion of the VBN theory in explaining the GPB of the Malaysia consumers in the context of green cosmetics industry.

Theoretical contributions and managerial implications

This study contributes to the body of knowledge by introducing new relationships in the existing green marketing literature. More specifically, this study incorporates HV in

examining the value–behavior relationship. The VBN theory considers altruistic, biospheric and egoistic values in predicting the PEB (Stern *et al.*, 1999). Nonetheless, there is a dearth of research to examine the effect of HV in relation to PEB. Therefore, this research attempted to fill this gap in existing literature. Data support the link between HV and PEB. It shows that the feeling of pleasure and enjoyment have positive effect on consumers' belief in regard to the purchase of green cosmetics products. This indicates that the consumers do not only consider the benefit of products, the choice of products is also closely related to the hedonism displayed in their product purchase. Thus, it is suggested that this new value should be taken into consideration by the marketers to incorporate it in their promotional activities. As suggested by Cervellon and Carey (2011), by emphasizing the sensory of gratification and affective experience in cosmetics products' design, it will help marketers to penetrate into new market segment and fulfill the demand of consumers.

Furthermore, a new mediating relationship has been hypothesized, which is the high HV affects consumers' PEB and in turn it influences individuals' PN. As expected, the findings have verified this link and found that PEB fully mediates the link between HV and PN. Therefore, this finding provides insights that would enable the marketers, managers and policy makers to better strategize and effectively run green campaigns to enhance the consumption of green products. The findings from this study draws the attention to look into the individual values in stimulating the GPB. Thus, marketers should focus on these pleasant and convenient characteristics when designing their products to ensure that there will be more demands on the green cosmetic products.

This study also proposes a new link between PN and GPB. Past literature has focused on measuring the purchase behavior by adapting the theory of planned behavior (Ajzen and Fishbein, 1977). This study incorporates the VBN theory in explaining the GPB. The findings of this study contribute to the existing literatures and confirmed the view suggested by the VBN theory in explaining the GPB in the non-western context. It shows the usability of this theory, which had been developed in the western culture, is applicable to be used in the non-western culture and developing country context.

Practically, the findings of this study draw the attention of managers and marketers on the impact of GPB toward environmental protection from the perspective of cosmetics products purchase. These findings demonstrate the important role of values in formulating consumers' belief and PN that influence their purchase decision on green products (Ghazali *et al.*, 2017; Hoyer and MacInnis, 2004). Therefore, the managers and marketers in the cosmetics industry need to explore new segmentation and positioning strategy by enhancing HV and AV in developing green marketing strategy such as adapting green formulation, eco-labeling, green packaging and green promotion to influence the consumers' preference toward green cosmetics. Furthermore, it is proven that the transformation from the conventional manufacturing system into a green concept is beneficial to the businesses' growth and sustainability in the long run (Taylor *et al.*, 2013). Additionally, the findings of the study contribute to developing insight for the policy makers and practitioners to monitor and control the dumping of cosmetic products in Malaysia market. It is found that the environmental consciousness of Malaysian consumers is still at the infancy stage (Fairuz *et al.*, 2015). Therefore, a joined effort from the government and non-governmental organizations is recommended to instill the value, belief and PN in consumers' GPB.

Limitations and future research directions

The present study is not beyond of its limitations. However, the limitations addressed in this research may provide future research directions for researchers. For example, this study used quantitative methodology to investigate the research agenda, whereas future studies

can use qualitative methodology to gain marketers' views to gain further insights to this issue. Also, a mixed method approach also can be considered to gain insights from both consumers and marketers perspectives to acquire better understanding of this phenomenon.

Furthermore, as the present study's context is cosmetics products purchase, further studies can be conducted in other industry contexts such as health supplement products or nutricosmetics and can compare the behavioral trend and possible differences. It is also suggested that other variables can be included in the model as a moderator, such as gender and income level. This is because different background of consumers may exert different responses and provide further insights for the policy makers, marketers and practitioners to look into green behavior from different point of views.

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Appendix. List of items

Altruistic value

- I always consider the health aspects of my cosmetic purchases.
- While purchasing cosmetics products, I focus on environmentally friendly cosmetics.
- It concerns me that people consume high chemical cosmetic with negative environmental impact.

Hedonic value

- Buying organic cosmetic would give me pleasure.
- Buying green cosmetic would feel like doing morally the right thing.
- The use of green cosmetic can affect my well-being positively.
- I would enjoy using green cosmetic.
- I would feel relaxed using green cosmetic.

Pro-environmental belief

- I am willing to participate in preserving the environment.
- I believe that personal responsibility for environmental problems is important.
- I believe that the moral obligation to help the environment is important.

Personal norm

- I feel obliged to save environment where possible.
- I should do what I can to conserve natural resources
- I feel a strong personal obligation to use green cosmetic.

Green purchase behavior

- I usually prefer to purchase cosmetic products with reusable packaging. (e.g. reusable glass bottle for cream and cleanser products).
- If I have to buy cosmetic products, I always purchase cosmetic products with no chemical ingredients.
- I try to purchase cosmetic products with free chemical even though they are more expensive.
- I always purchase biodegradable products (which can be easily disposed after use).
- I always refrain from purchasing cosmetics products with chemical ingredients.

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