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Environmental quality awareness, green trust, green self-efficacy and environmental attitude in influencing green purchase behaviour

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Abstract

Purpose – The purpose of this study is to examine the effect of green trust (GT), environmental quality awareness (EQA), green self-efficacy (GSE) and environmental attitude (EA) towards green purchase behaviour (GPB). The mediating effect of EA is also investigated.

Design/methodology/approach – Attribution theory and the attitude-behaviour gap model were used to develop the research model. Data were collected through an online survey, which yielded 321 complete and usable responses. The partial least square-structural equation modelling (PLS-SEM; SmartPLS, Version 3) technique was used to test the study hypotheses.

Findings – The analysis revealed that GT, GSE and EA affect GPB positively. It was also found that EA mediates the relationship between "environmental quality awareness and green purchase behaviour" and "green self-efficacy and green purchase behaviour". However, EA did not mediate the link between "green trust and green purchase behaviour".

Practical implications – The findings of this study provide insightful implications for social and green marketers, including an understanding of the complex customer behaviour in purchasing green products, which will eventually enable them to formulate better green marketing strategies.

Originality/value – This study is amongst the pioneers in investigating the effect of EQA in relation to GPB. Furthermore, the mediating effect of EA in the link between "environmental quality awareness and green purchase behaviour", "green trust and green purchase behaviour" and "green self-efficacy and green purchase behaviour" is also a new contribution to the literature. Finally, this study explains the drivers of consumers' GPB, thereby providing a novel understanding of the field.

Keywords Environmental quality awareness, Green purchase behaviour, Environmental attitude, Green self-efficacy, Green trust, Malaysian consumers

Paper type Research paper

Introduction

In recent years, there have been concerns over increased environmental pollution, natural resource depletion and sustainability of future generations (Chua *et al.*, 2020; Jaini *et al.*, 2020a; Quoquab *et al.*, 2021; Saleki *et al.*, 2019; Sivadasan *et al.*, 2020). Organisations and individuals are encouraged to embrace the concept of green marketing to create a green economy for the country. However, corrective measures taken by organisations and marketers have proved inadequate in reducing the environmental pollution. Although the Environmental Performance Index proved to be of enormous importance, it neither takes account of people's sensitivity level nor guarantees their

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acting on it. It has, thus become a daunting task to drive customers towards more environmentally friendly behaviour.

This issue became more prevailing due to the rapid worldwide outburst of COVID-19. It took a toll to society, economy, environment and mental, as well as physical health (Baldwin and Di Mauro, 2020; Shen *et al.*, 2020). Job loss is on the rise, gross domestic product has dropped, tourism is threatened, hunger and malnutrition have increased, population mobility has dropped which reduced the purchasing power and created a stagnant economy (Siche, 2020). Not only this but also COVID-19 negatively impacted the environment due to the hefty amount of domestic and medical litter and the lack of initiatives to recycle medical trash in fear of the surge to spread COVID-19 to the people associated with recycling (Zambrano-Monserrate *et al.*, 2020). As such, many scholars around the world started investigate issues pertaining to COVID-19 and its adverse effect on the environment. For instance, Gautam and Trivedi (2020) studied the effect of bio-aerosol on the spread of the COVID-19 virus, whereas Conticini *et al.* (2020) examined the effects of atmospheric pollution on COVID-19 mortality. Again, Wang *et al.* (2020) investigated the effect of the COVID-19 outbreak on air pollution whilst Tobias *et al.* (2020) looked into the changes in air quality in Barcelona during the COVID-19 outbreak. As such, it is utmost necessity to examine consumers' environmental quality awareness (EQA), environmental attitude (EA) on consumers' behavioural pattern.

Researchers have argued that customers' attitude does not lead to behaviour all the time (Carrington *et al.*, 2014), which has proven to be true in regard to environmental issues too (Sharma *et al.*, 2019). It has been found that most people expect others to solve environmental issues instead of making them their own responsibility (Carrington *et al.*, 2010). Another study found that 30% of self-proclaimed environmentalists do not purchase biodegradable products (Young *et al.*, 2010). Subsequently, the Jaini *et al.* (2020b) reported that consumers are not fully conscious of the importance of purchasing green products. People tend to focus on personal gain rather than on environmental welfare (Jaini *et al.*, 2020a). Indeed, it is crucial to understand the underlying factors that can affect consumers' green purchase behaviour (GPB) in bridging this "attitude-behaviour" gap.

Most of the studies that have investigated issues related to GPB have used value-belief-norm theory (Stern, 2000) and the theory of planned behaviour (Ajzen, 1991). The present study is the first to consider attribution theory to examine the underlying factors that affect consumers' GPB. Furthermore, this study is amongst the pioneers in considering EQA as the antecedent of EA and GPB. Although researchers (Chen *et al.*, 2014; Goh and Balaji, 2016; Khan, 2010; Malik and Singhal, 2017) have embarked on investigating the effect of environmental awareness on human behaviour, such studies did not consider the phenomenon "environmental quality awareness". In addition, the mediating effect of EA in the link between "environmental quality awareness and green purchase behaviour", "green trust and green purchase behaviour" and "green self-efficacy and green purchase behaviour" is a new contribution to the literature.

The Government of Malaysia has stressed on the green prospect in the 11th Malaysia Plan (Percetakan Nasional Malaysia Berhad, 2015). However, the initiatives taken by the government and industry players fall far short of driving consumers' GPB (Chen and Chai, 2010). Although green products are available in the market, GPB continues to grow slowly (Jaini *et al.*, 2020a). This study aims to shed some light on consumers' GPB and, more specifically, attempts to examine the effect of green trust (GT), EQA, green self-efficacy (GSE) and EA towards GPB. The mediating effect of EA is also investigated.

It is expected that the findings of this study will enable marketers and policymakers to understand the underlying dimensions of GPB. The rest of the article is organised as follows: in

the next section, the relevant literature is reviewed and the study hypotheses are developed. The ensuing section discusses the adopted methodology and study findings. Finally, the implications and limitations of the study are presented and future research directions outlined.

Theoretical underpinning

Attribution theory

Attribution theory was developed by Heider (1958) with a view to understanding "why a particular event, or state, or outcome has come about and the consequences of phenomenal causality" (Weiner, 2000, p. 382). Weiner *et al.* (1979) considered it a cognition-emotion process. This theory suggests that individuals always tend to assign meaning to their environment (Chakraborty, 2019). This theory is widely used in the marketing literature because of its merit in explaining how individuals arrive at causal inferences and the consequences of such inferences (Calder and Burnkrant, 1977). According to this theory, there are two types of attributions, dispositional (internal) and situational (external), which may produce certain behavioural outcomes (Folkes, 1988). Dispositional attribution is defined as an internal cause or internally motivated reason (e.g. personality, traits and beliefs) driving an action or behaviour, whereas situational attribution occurs owing to external or environmental factors that are beyond the individual's control.

In this study, attribution theory is considered as the theoretical basis that connects GT, EQA and GSE with EA and GPB. This theory holds that consumers with GT, environmental awareness and GSE are the internal attributes (dispositional causes) that will likely foster a positive attitude towards environmental well-being, leading eventually to their GPB.

Attitude-behaviour gap

There is an ongoing debate on the "attitude-behaviour gap", which suggests that although individuals have a favourable attitude towards certain aspects, they do not necessarily practice it (Carrington *et al.*, 2010; Sharma *et al.*, 2019). This commonly applies to green consumption behaviour. For instance, Chen and Chai (2010) found that GPB in Malaysia was not facilitated by a positive attitude towards the environment. Paço *et al.*, (2013) also found support for this inconsistent behaviour, namely, that environmental concern and awareness of environmental issues did not lead to GPB. Additionally, studies found that the attitude of consumers who claimed that they were pro-environmentalist was not reflected in their purchasing behaviour (Bamberg, 2003; Sinnappan and Rahman, 2011). In light of the notion of the "attitude-behaviour gap", this study attempts to test the link amongst Malaysian consumers. It is crucial to investigate whether customers who have an environmentally favourable attitude are likely to purchase green products or not.

Literature review and hypothesis development

Green purchase behaviour

Owing to environmental pollution, the issue of sustainability has now come to the fore (Quoquab, Mohammad and Sukari, 2019). GPB can be considered as one of the major contributors to environmental sustainability (Joshi and Rahman, 2016) because green products are biodegradable, recyclable and less impactful on the environment. GPB refers to consumers' actions of purchasing green products informed by environmental concern as the main focus in every purchase decision (Mostafa, 2007).

Although environmental issues are well known globally, not all consumers exhibit GPB in their daily activities (Joshi and Rahman, 2016). Studies have found that a positive attitude towards green products does not always lead to GPB (Claudy *et al.*, 2013; Mei *et al.*, 2016; Papaoikonomou *et al.*, 2011). Even though consumers hold positive intentions towards green

products, some still refuse to purchase them (Boulstridge and Carrigan, 2000; Carrington *et al.*, 2010, 2014; Sharma *et al.*, 2019) and the Malaysian market is no exception (Rahbar and Wahid, 2011). Therefore, an empirical investigation of GPB amongst Malaysian consumers calls for more rigorous research attention to address this gap.

It is important to note that most of the earlier studies used the theory of planned behaviour and value-belief-norm theory to understand consumers' GPB (Chua *et al.*, 2020; Saleki *et al.*, 2019; Jaini *et al.*, 2020a; Stern, 2000). As such, subjective norms, perceived behavioural control, values and beliefs are considered as the main antecedents of attitude and behaviour formation (López-Mosquera and Sánchez, 2012; Johnstone and Tan, 2015; Yadav and Pathak, 2017). However, possible drivers of consumers' GPB have not been fully uncovered yet. In view of this gap, the present study considered attribution theory to understand other factors such as EQA, GT and GSE that can potentially lead to consumers' EA and GPB. Indeed, this study is amongst the pioneers in conceptualising and investigating EQA as one of the major antecedents of green attitude and GPB.

Environmental quality awareness

It is suggested that individuals' awareness of environmental issues is crucial in predicting their GPB (Joshi and Rahman, 2015). Environmental awareness can be described as having a conscious awareness of the impact of environmental issues and a sense of environmental conservation (Boztepe, 2012; Chawla, 1998; Connolly and Shaw, 2006; Dunlap *et al.*, 2000; Han *et al.*, 2011; Kollmuss and Agyeman, 2002). On the other hand, EQA can be defined as an acknowledgement of the impact of environmental performance towards human health, ecosystem vitality and socioeconomic sustainability of the country (Rosli *et al.*, 2017). An individual who is driven by this awareness practises energy saving, recycling and consuming biodegradable products efficiently in their lifestyle. According to Ottman (2017), environmentally conscious individuals are likely to acknowledge the importance of environment protection.

It is suggested that green people are socially conscious customers who believe they can do something better for the environment and consider the social impact of their buying behaviour (Webster, 1975). As a result of the prominence of "being green" in social media and social movements, there has been a growing awareness of customers' purchasing or consumption behaviour (Carrigan and Attalla, 2001). Usually, the people who care for the environment are sensitive to environmental issues and commonly participate voluntarily in green movements instead of leaving the responsibility for environmental issues to the government and others (Thøgersen *et al.*, 2012). Moreover, it has been found that consumers who possess environmental awareness also show green purchasing behaviour (Kaufmann *et al.*, 2012). Yet, although socially conscious customers are expected to perform green purchasing behaviour, in reality, they may take environmental issues for granted (Ottman, 2017).

Although green awareness has been discussed in the literature, "environmental quality awareness" is comparatively new. This study assumes that individuals who have high EQA are more likely to have a positive attitude towards the environment and are likely to practice GPB. In light of this discussion, the following hypotheses are developed:

H1. EQA positively affects EA.

H2. EQA affects green purchasing behaviour.

Green trust

In general, trust refers to an individuals' level of confidence towards another party that (Hart and Saunders, 1997). GT refers to individuals' "willingness to depend on a product or service based on the belief or expectations resulting from its credibility, benevolence and ability about environmental performance" (Chen, 2010, p. 492).

Morgan and Hunt (1994) suggested that trust is an essential determinant of commitment to a relationship. It has been found that the more consumers trust certain brands or products, the more they tend to form a positive attitude towards them (Chen and Chang, 2013). Studies have shown that brand trust positively and significantly affects attitudes towards brands (Okazaki *et al.*, 2007). Iftikhar *et al.* (2017) found a significant relationship between brand trust and attitude. Trust leads customers to adopt a positive attitude towards a store and brands (Joji, 2011). According to Joji (2011), trust leads to a sense of assurance in regard to the brand and results in the formation of a strong positive belief.

Furthermore, the trust may increase the intention of consumers to get involved in the green movements (Schurr and Ozanne, 1985; Flavia'n *et al.*, 2005). Additionally, trust is found to be one of the influential drivers in buying green products (Gefen and Straub, 2004). On the other hand, the lack of trust can hamper consumers' preferences towards the purchase of green products (Singh *et al.*, 2000; Gillespie, 2008). Failing to create trust in the consumers' mind may destroy the green market in the future (Kalafatis *et al.*, 1999; Peattie, 1999; Polonsky *et al.*, 2001). Furthermore, it is evident that lack of trust may create "scepticism", which may eventually influence purchase intention negatively (Albayrak *et al.*, 2011; Obermiller *et al.*, 2005).

Most studies have so far considered trust as the antecedent of purchase intention (Lii and Lee, 2012; Liu *et al.*, 2018), and only a handful have considered it as the predictor of purchase behaviour. On the basis of earlier discussions, it is expected that GT will positively affect consumers' EA and GPB. Thus, the following hypotheses are postulated:

H3. GT positively affects EA.

H4. GT positively affects green purchasing behaviour.

Green self-efficacy

The notion of self-efficacy has been proposed by Bandura (1982, 1997) and refers to an individual's beliefs in his or her capabilities to execute or implement a course of action to produce a successful outcome. Alternatively, GSE can be referred to as the belief in individuals' ability to perform a given task to achieve environmental goals (Chen *et al.*, 2014, 2015).

Self-efficacy theory (SET) suggests that self-efficacy could be a potential predictor of attitude and behaviour. Individuals with a high sense of self-efficacy are more likely to have higher levels of performance and a greater sense of commitment to their goals (Bandura, 1993). It has been suggested that self-efficacy improves performance (Gist and Mitchell, 1992). Those who have higher levels of self-efficacy are likely to have a greater belief in their own ability to choose and develop ideas (Hmieleski and Baron, 2008).

Self-efficacy is associated with a variety of behavioural outcomes (Bandura, 1997; Schunk, 1995). Terry *et al.* (1999a) argued that people intend to perform behaviours that are consistent with their personal beliefs, norms and social roles. Consumers' self-efficacy might serve as an independent predictor of their consumption behaviour, and hence, it is assumed that there is a positive relationship between GSE and attitude and GPB. Accordingly, the following hypotheses are postulated:

H5. GSE positively affects EA.

H6. GSE positively affects green purchasing behaviour.

Environmental attitude

Attitude has been considered important in understanding human behaviour (Peter and Olson, 2010). In general, EA is referred to as individuals' affection for and judgement towards environmental protection (Jung *et al.*, 2014; Lee, 2009). In the literature, the attitude has always been considered to be predictive of behaviour (Quoquab *et al.*, 2017; Saleki *et al.*, 2019). Chan (2001) stated that EA is a determinant of consumers' ecological behaviour. Ottman (2017) also found support for this claim and proposed that individuals who have an EA are willing to change their purchasing or consumption behaviour, as well as pay much more for green products.

However, many customers take environmental issues for granted (Ottman, 2017). Kollmuss and Agyeman (2002) stated that environmental awareness does not always lead to pro-environmental behaviour. Whilst some researchers have claimed to have found a positive correlation between EA and environmental behaviour (Kotchen and Reiling, 2000), others have concluded that the relationship is either moderate or tenuous (Davis *et al.*, 2009). There are also studies that show environmental awareness does not promote sustainable lifestyles efficiently (Hobson, 2002; D'Souza *et al.*, 2006). This implies that there is environmental awareness amongst consumers but that it is not enough to influence them to practice green behaviour (Jackson, 2005). Hence, it is indeed important to examine whether EA leads to green consumption behaviour.

On the whole, EA plays a significant role in green purchase decisions. Marketers need to understand Malaysian customers' attitude towards green products and what influenced them to buy green products. In addressing this issue, the present study makes the following hypothesis:

H7. EA positively affects green purchasing behaviour.

Past studies found that environmental awareness positively affects consumers' attitude (Aminrad *et al.*, 2011; Ghosh, 2014). Saricam and Sahin (2015) found support for environmental awareness and EA amongst Turkish students. Furthermore, some studies have suggested that attitude positively and significantly affects behaviour. For example, attitude affects tourists' visitation behaviour (Lita *et al.*, 2014) and consumers' counterfeit product purchase behaviour (Quoquab *et al.*, 2017). It is, thus evident that attitude acts as a potential mediator in the relationship between awareness and purchase behaviour. On this basis, the present study assumes that EA mediates the link between EQA and GPB.

Lii and Lee (2012) suggested that consumers' trust reflects their positive attitude towards the brand. Trust refers to the consumer's expectations that the service provider is reliable and fulfils given promises (Sirdeshmukh *et al.*, 2002). Consumers develop trust towards a company when they have confidence in the firm's reliability and integrity (Morgan and Hunt, 1994). In line with this view, it suggested that individuals trust the brand or the product if they realise that it is environmentally friendly (Robinson, 1996) and that this, in turn, affects their attitude and behaviour. In this study, accordingly, it is expected that GT will positively affect EA, ultimately affecting consumers' GPB.

According to Bandura (1982), self-efficacy influences individuals' behaviour both indirectly and indirectly. High self-efficacy is related to effective goal setting, and positive thinking and feeling (Bandura, 1993; Zimmerman and Bandura, 1994). Thus, self-efficacy

contributes significantly in forming one's attitude. Wang and Xu (2015) suggested that self-efficacy positively affects tourists' attitude towards support for tourism. They also found that tourists' "attitude towards tourism impacts (both negative and positive)" mediates the relationship between self-efficacy and their support for tourism. Similarly, Ojedokun and Balogun (2010) found that EA mediates the relationship between environmental self-efficacy and responsible environmental behaviour amongst residents of high-density areas in Ibadan Metropolis, Nigeria. Based on this discussion, his study assumed that GSE would lead to consumers' EA and, in turn, affect their GPB.

It should be noted that in the literature attitude has been widely considered as the mediating variable in predicting the behaviour (Bananuka *et al.*, 2019; Domínguez-Valerio *et al.*, 2019; Quoquab *et al.*, 2017). However, this study is amongst the first to examine EA as the mediator between "environmental quality awareness and GPB", "green trust and GPB" and "green self-efficacy and GPB". In addressing these gaps in the literature, the following hypotheses are formulated:

H8. EA mediates the relationship between EQA and GPB.

H9. EA mediates the relationship between GT and GPB.

H10. EA mediates the relationship between GSE and GPB.

Conceptual framework

The proposed relationships amongst the study variables are shown in Figure 1. As explained earlier, it is expected that EQA, GT and GSE directly and indirectly affect GPB. Moreover, it is hypothesised that EA mediates the relationships between the antecedents and GPB.

Methodology

Research context

Green products are products that are not harmful to the environment and health and that allow resources such as water and energy to be conserved. It is argued that consumers' preference for environmentally friendly behaviour is likely to be context specific (Jaini *et al.*, 2020b; Quoquab *et al.*, 2020). However, what drives consumers' GPB in the context of home appliances is yet to be unveiled in the literature. Accordingly, the present study focusses on home and electrical appliances, considering that they contribute significantly to environmental degradation. There is a common belief that "good practices

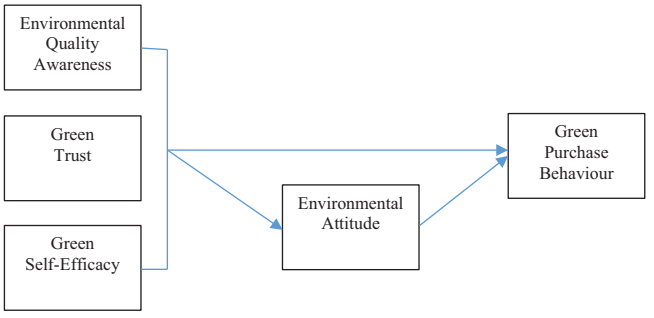

Figure 1.
Proposed relationships amongst the study variables

start from home", where individuals are motivated by their personal needs that are reflected in environmental preservation.

Overusing electricity in daily household chores can be detrimental. According to the Organisation for Economic Co-operation and Development (OECD), energy-related emissions will increase by 70% by 2050 (OECD, 2012). Most electricity is produced by burning coal and oil. This generation process causes not only air pollution due to the emission of carbon dioxide but also a decline in the availability of input minerals for the near future (Tillett, 2011). Such emissions can also accelerate the negative consequences of climate change, including higher temperatures and extreme weather events (Yang and Lin, 2016). According to the International Energy Outlook-2016 report, global demand for electrical energy will increase by 48% from 2012 to 2040 (Energy Information Administration, 2016). This energy is considered to be depleting as electricity consumption is growing faster than it can be replenished or produced. Thus, there is a crucial need to investigate individuals' GPB in using electrical household appliances, which this study attempts to address.

Choice of the methodology

This study follows the hypothetico-deductive approach. Theory plays a great role in using the hypothetico-deductive technique (Greenwald and Pratkins, 1988). In this type of research, hypotheses are formulated on the basis of theoretical assumptions and then derived hypotheses are being tested empirically (Kuhn, 1962). In the present study, hypotheses are being formulated based on attribution theory and the attitude-behaviour gap. As such, the present study has adopted the hypothetico-deductive method to achieve its research purpose.

Sample and data collection

A web-based survey questionnaire was designed to collect the data. The decision to make it web-based was based on considerations of flexibility and global reach (Evans and Mathur, 2005). Respondents received an electronic link directing them to a Google Form that contained the survey questionnaire. The link was disseminated via Facebook, WhatsApp and email. To ensure sufficient responses, the researchers sent follow-up emails. Moreover, frequent reminders were sent. Not only this but also the links were posted to Facebook and WhatsApp several times to increase the number of responses. This process yielded 327 responses, amongst which 321 questionnaires were found usable to run further analysis. Six observations were deleted owing to outlier issues.

The target population of this study consists of potential consumers who purchased electrical household appliances (a fridge, washing machine, electric kettle, water filter, bread maker, etc.) within the previous six months. Six months was considered in line with past studies, which also used this time frame as the required experience of the respondents (Cao and Mokhtarian, 2005; Nagelhout *et al.*, 2014; Nguyen *et al.*, 2018; Pappas *et al.*, 2014).

To determine the sample size, Hair *et al.* (2010) suggested that a ratio of 1:15 be considered, that is, 15 observations per statement item. This required that the minimum sample size be 270. Thus, a sample size of 321 was deemed appropriate to run the analysis.

Measurement

All scales to measure the study variables were borrowed from the literature. The GT scale was adopted from Chen and Chang (2012), whereas the GSE scale was adopted from Armitage and Conner (2001). The EA was adopted from Sinnappan and Rahman (2011) and GPB from Kim and Choi (2005). The EQA scale was adopted from Rosli *et al.* (2017). A

five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to assess the items. All the items are listed in the Appendix.

Demographic profile of the respondents

Table 1 shows the demographic profile of the respondents, the majority of whom were female (69%). Most of the respondents were between 26 and 35 years old (55.5%), and 80.4% of the respondents were Malay, followed by Chinese (9.7%), Indian (7.2%) and others (2.8%).

Table 1. Respondents' profile

Demographics	No. of respondents	(%)
Gender		
Male	98	31
Female	223	69
Age		
18–25 years old	82	25.5
26–35 years old	178	55.5
36–45 years old	25	7.8
46–55 years old	32	10.0
56 years and above	4	1.2
Ethnicity		
Malay	258	80.4
Chinese	31	9.7
India	23	7.2
Others	9	2.8
Marital status		
Single	186	58
Married	127	40
Divorced	8	2
Education		
Primary school	3	0.9
Secondary school	21	6.5
Diploma/technical	105	32.7
Bachelor degree or equivalent	158	49.2
Master degree or equivalent	29	9.1
Doctoral degree	5	1.6
Monthly income		
<RM 2,000	63	19.6
RM 2,001–RM 4,000	133	41.4
RM 4,001–RM 6,000	79	24.6
RM 6,001–RM 8,000	35	10.9
RM 8,001–RM 10,000	4	1.3
>RM 10,000	7	2.2
Profession		
Administrative and Managerial	138	43.0
Technical	38	11.8
Sales and Service	47	14.6
Executive	20	6.2
Educator	13	4.1
Student	32	10.0
Entrepreneur	31	9.7
Others	2	0.6

Furthermore, 58% of the respondents were single, and 40% were married. Most of the respondents held a bachelor's degree or equivalent (49.2%) and worked at the administrative and managerial levels (43%). The majority of the respondents (41.4%) had a monthly income between RM 2,001 and RM 4,000.

Analysis and findings

This study used structural equation modelling-partial least squares (PLS-SEM) to test the relationships developed in this research. It is an alternative to covariance-based SEM (CB-SEM) and is widely regarded as a prediction-oriented approach to SEM that relaxes the demands on data and specification of relationships set by CB-SEM (Sarstedt *et al.*, 2014). As the main concern of this study was to predict the endogenous variables and to minimise the unexplained variance, the PLS-SEM technique was used. In this regard, SmartPLS software (Ringle *et al.*, 2015) was used to analyse the data. Anderson and Gerbing's (1988) two-staged approach was considered. As such, the outer model was assessed before the inner model. To assess the significance of the loadings and path coefficient, a bootstrapping procedure of 5,000 resample was used (Hair *et al.*, 2016).

Measurement model assessment

The measurement represents the relationship between each construct. It was assessed by inspecting indicator reliability, internal consistency reliability, convergent validity and discriminant validity (Henseler *et al.*, 2016). In this regard, factor loadings, composite reliability (CR) and Cronbach's alpha coefficients were assessed at the first stage (Ringle *et al.*, 2012). All values surpassed the suggested cut-off values (Table 2). Specifically, factor loadings were greater than 0.50, CR values were greater than 0.8 and Cronbach's alpha coefficients were all greater than 0.7, as suggested by the scholars (Anderson and Gerbing, 1988; Hair *et al.*, 2016; Ringle *et al.*, 2012). Thus, the measurement model's reliability was assured.

Constructs	Items	Loadings (>0.5)	AVE (>0.5)	CR (>0.8)	Cronbach's alpha (α) (>0.7)
GT	GT1	0.879	0.739	0.919	0.883
	GT2	0.866			
	GT3	0.846			
	GT4	0.847			
EQA	EQA5	0.731	0.601	0.857	0.778
	EQA6	0.833			
	EQA7	0.781			
	EQA8	0.752			
GSE	GSE10	0.861			
	GSE11	0.871	0.722	0.886	0.807
	GSE9	0.817			
EA	EA12	0.720			
	EA13	0.865	0.652	0.848	0.729
	EA14	0.830			
GPB	GPB15	0.811	0.601	0.857	0.778
	GPB16	0.732			
	GPB17	0.818			
	GPB18	0.737			

Table 2. Assessment of measurement model

In the next stage, convergent validity was examined by considering average variance extracted (AVE) (Henseler *et al.*, 2016). The values of AVE for all constructs exceeded the suggested value of 0.50, which confirmed the convergent validity (Table 2).

Next, the discriminant validity was assessed using the Fornell and Larcker (1981) criterion and the heterotrait-monotrait (HTMT) (Henseler *et al.*, 2015) method was used to assess the discriminant validity of the constructs. In regard to the Fornell-Larcker criterion, the square root of AVE should be higher than its correlations with all other constructs in the model. Conversely, the HTMT value should be less than 0.85 (Henseler *et al.*, 2015). Table 3 shows that the square roots of the AVEs (Diagonal values) were greater than the corresponding correlations between constructs in a row and Column (off-diagonal values). Furthermore, as Table 4 shows, all HTMT values were less than the cut-off value of 0.85; thus discriminant validity was assured.

Structural model assessment

Once the validity and reliability of the measurement model was assured, the structural model was assessed. In this regard, PLS bootstrapping procedures with 5,000 resamples were run on the full model to generate the path coefficient values with their corresponding *t*-values (Hair *et al.*, 2016). A one-tail test was executed because all study hypotheses were directional.

The results in Table 5 and Figure 2 show that EQA ($\beta = 0.40$, $t = 6.297$, $p < 0.01$) and GSE ($\beta = 0.28$, $t = 4.33$, $p < 0.01$) significantly and positively affect EA and explain 25.9% of the variance. However, GT does not affect EA ($\beta = 0.05$, $t = 0.920$, $p = 0.36$). Thus, *H1* and *H5* are supported by the data, whereas *H3* is not. Additionally, GT ($\beta = 0.10$, $t = 1.774$, $p < 0.05$), GSE ($\beta = 0.37$, $t = 6.688$, $p < 0.01$) and EA ($\beta = 0.32$, $t = 6.640$, $p < 0.01$) positively and significantly

Table 3. Fornell-Lacker criterion

Constructs	EA	EQA	GPB	GSE	GT
EA	*0.808*				
EQA	0.447	*0.775*			
GPB	0.431	0.173	*0.775*		
GSE	0.319	0.187	0.518	*0.850*	
GT	0.167	0.147	0.360	0.585	*0.860*

Note: Values on the diagonal (italic) are the square root of the AVE white the off-diagonals are correlations

Table 4. HTMT method

Name of the variables	EA	EQA	GPB	GSE	GT
EA					
EQA	0.588 CI.90 (0.442, 0.725)				
GPB	0.571 CI.90 (0.45, 0.691)	0.231 CI.90 (0.144, 0.358)			
GSE	0.416 CI.90 (0.301, 0.531)	0.242 CI.90 (0.148, 0.355)	0.648 CI.90 (0.519, 0.768)		
GT	0.205 CI.90 (0.1, 0.328)	0.19 CI.90 (0.113, 0.302)	0.424 CI.90 (0.291, 0.555)	0.689 CI.90 (0.593, 0.781)	

Hypotheses	Relationship	Beta	SE	*t*-value ($t > 1.65$)	R^2	f^2	Q^2	Decision
H1	EQA → EA	0.40	0.06	6.30	0.259	0.21	0.157	Supported
H2	EQA → GPB	0.05	0.05	1.18	0.355	0.00	0.209	Not supported
H3	GT → EA	0.05	0.06	0.92		0.00		Not supported
H4	GT → GPB	0.10	0.06	1.77		0.01		Supported
H5	GSE → EA	0.28	0.06	4.33		0.07		Supported
H6	GSE → GPB	0.37	0.06	6.69		0.13		Supported
H7	EA → GPB	0.32	0.05	6.64		0.12		Supported

Notes: EQA, Environmental Quality Awareness; EA, Environmental Attitude; GPB, Green Purchasing Behaviour; SD, Standard Deviation; R^2, Coefficient of determination; f^2, effect size; Q^2, predictive relevance

Table 5.
Hypotheses test results (direct relationships)

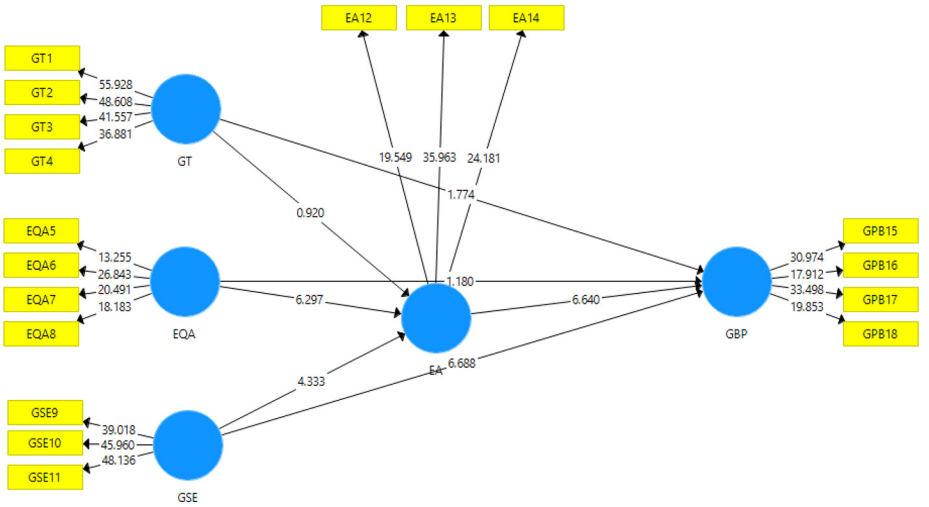

Figure 2.
Structural model

affect GPB and explain 35.5% of variance. However, EQA does not affect GPB ($\beta = 0.05$, $t = 1.180$, $p = 0.24$). This implies that *H4*, *H6* and *H7* are supported, but not *H2*.

To test the individual contributions of each exogenous variable, the effect size ($f2$) was applied (Henseler *et al.*, 2015). According to Cohen (1988), values of 0.02, 0.15 and 0.35 are considered small, moderate and large, respectively. In this study, EQA, GT, GSE and EA exert small effects (Table 5).

The predictive power of the model was examined on the basis of Stone-Geisser's Q^2. Q^2 values greater than zero demonstrate that the model has predictive importance. As Table 5 shows, Q^2 of EA and GPB are greater than zero. Thus, the structural model has predictive relevance (Fornell and Cha, 1994).

To examine the mediating effect of EA, this study bootstraps the indirect effect with 5,000 resamples, as Preacher and Hayes (2008) suggested. The result of bootstrapping procedures in Table 6 showed that the indirect effect of EA between EQA and GPB ($\beta 1 = 0.129$, $t = 4.373$, $p < 0.05$) and between GSE and GPB ($\beta 1 = 0.088$, $t = 3.461$, $p < 0.05$) are statistically significant, providing support for *H8* and *H10*. However, the mediating effect of EA between GT and GPB is not supported by the data ($\beta 2 = 0.017$, $t = 0.901$); thus *H9* is rejected.

This study also ran the importance performance matrix analysis (IPMA) to understand the factor that contributes most in driving GPB. The IPMA result and the map are shown in Table 7 and Figure 3, respectively. It shows that EA is a more impactful predictor in the model in driving consumers' GPB, followed by GSE, EQA and GT, respectively.

Discussion and conclusion

This study set out to investigate the effect of EQA, GSE, GT and EA on GPB. The data found support for the hypothesised relationships except for three links. More specifically, *H1* and *H2* postulated that EQA would positively and significantly affect EA and GPB. However, the data supported the link between EQA and EA but not between EQA and GPB. Saricam and Sahin (2015) also found support for the relationship between environmental awareness and EA. Chen (2010) suggested that the people who possess an attitude of environmental concern identify themselves as an essential part of the environmental setting. Therefore, environmental awareness positively encourages people to engage more

Table 6.
Hypotheses test results (mediating relationships)

HT	Relationship	Indirect effect	SD	*t*-value	Confidence interval		Decision
H8	EQA→EATT→GPB	0.129	0.029	4.373	0.08	0.193	Supported
H9	GT→EATT→GPB	−0.017	0.019	0.901	−0.056	0.02	Not supported
H10	GSE→EATT→GPB	0.088	0.025	3.461	0.043	0.142	Supported

Table 7.
IPMA for GPB

Variable	Importance (total effects)	Performance (index values)
EQA	0.130	90.624
GSE	0.428	64.664
GT	0.082	68.780
EA	0.492	88.079

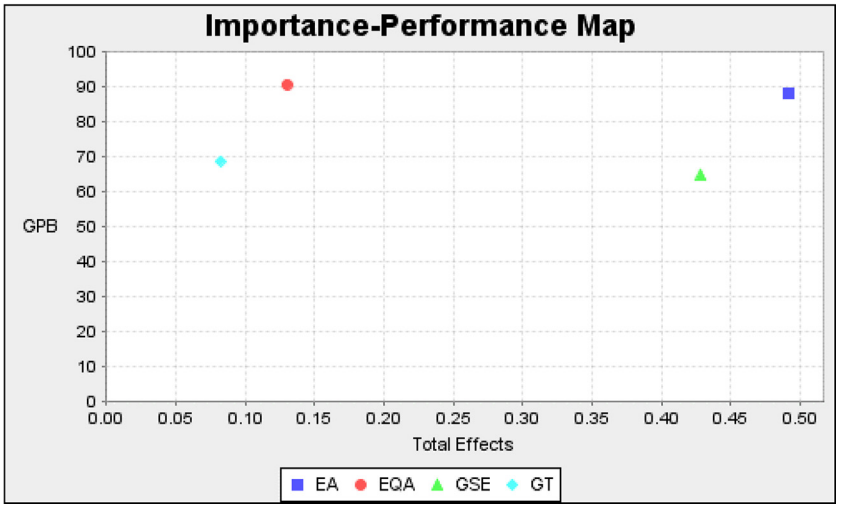

Figure 3.
IPMA map

frequently in ecological behaviours in their everyday lives (Han *et al.*, 2011). In conclusion, people who are aware of environmental quality will continuously improve their quality of life by preventing environmental scarcity.

On the other hand, evidence was also found to justify the unsupported link between EQA and GPB. For example, Jackson (2005) argued that individuals hardly change their behaviour when their lifestyle is rooted deep in a social context. Similarly, a survey by Sinnappan and Rahman (2011) showed that although consumers in Malaysia possess a high level of knowledge about green products and about sustainable issues, it does not necessarily stimulate green purchasing behaviour.

Additionally, *H3* and *H4* proposed that GT positively and significantly affects EA, as well as GPB. Data supported the link between GT and GPB but not between GT and EA. Lii and Lee (2012) found support for the link between Taiwanese consumers' trust and purchase intention in the online shopping context. Liu *et al.* (2018) also found that trust leads to behavioural intention in buying green residential buildings. However, a plausible explanation for the unsupported link between GT and EA may be that for consumers it is hard to build GT towards any green product. Perhaps, they feel that greenwashing is involved.

In *H5* and *H6* it was assumed that GSE positively affects EA and GPB, which was supported by the data. Self-efficacy measures the degree of customers' involvement and their perseverance in facing obstacles, as well as aversive experiences (Kim *et al.*, 2011). Based on Bandura (2001), individuals' persistence in looking forward is required to perform the desired behaviour. Therefore, the *H3* result is consistent with Bandura's (2006) with regard to SET, which he suggested can influence thought patterns, actions and emotional arousal to perform a specific behaviour.

H7 postulated that EA positively affects GPB and this was supported by the data. This finding was in line with past studies (Breckler, 1984; Kaiser *et al.*, 1996). Bissing-Olson *et al.* (2013) also suggested that pro-EA positively affects pro-environmental behaviour at work.

H8, H9 and *H10* considered that EA mediates the relationship between EQA, GT, GSE and GPB. Data supported the mediating effect of EA between EQA, GSE and GPB but not between GT and GPB. Past studies also found support for the mediating effect of attitude in the link between subjective norm and intention to adopt Islamic banking (Bananuka *et al.*, 2019) and between ethical aspect and counterfeit product purchase intention (Quoquab *et al.*, 2017) and between sustainable knowledge and sustainable behaviour (Domínguez-Valerio *et al.*, 2019).

However, past studies also found a weak or no relationship between attitude and behaviour, which suggests no mediating effect of attitude (Mainieri *et al.*, 1997), which can be supported by the attitude-behaviour gap (Claudy *et al.*, 2013; Papaoikonomou *et al.*, 2011). This can justify the unsupported mediating effect of EA between EQA and GPB, and it can be concluded that EQA directly affects GPB but not indirectly.

Theoretical contribution and managerial and social implications

Theoretical contribution

This study considered attribution theory and the notion of the "attitude-behaviour" gap to develop the research framework. The use of attribution theory to understand GPB is comparatively new. This study extended the understanding of how green consumers attribute their internal causes to deduce a particular outcome (i.e. GPB). Furthermore, the study found support for its position that EA leads to GPB amongst Malaysian consumers in regard to electrical home appliances. This implies that the attitude-behaviour gap does not exist all the time but might be context specific.

Additionally, in a comparatively new contribution to the literature, this study considered EQA as a predictor of EA. Furthermore, this study is amongst the pioneers in considering EA as the mediator between "environmental attitude and green purchase behaviour" and "green self-efficacy and green purchase behaviour".

Practical implications

The results of this study suggest that EQA, GT and GSE are all important predictors of EA and GPB. This suggests that social and green marketers need to consider creating proper environmental awareness amongst consumers to boost the EA. Marketers, by formulating effective communication strategies, need to convey a "green message" by promoting their products' green attributes to gain a competitive advantage in a more substantial and sustainable market.

In regard to the environmental quality concern, the implementation of environmental regulations and environmental technology (improvement) in the organisation's development is critical in stimulating environmental performance to create a green economy and a better future. Thus, it is necessary to develop an excellent reputation for being a green company that practises recycling, energy and water saving, replanting, as well as carpooling to make customers aware of how they are maintaining the green supply chain, right from the stage of raw materials to the production of the final output.

Marketers need to develop effective green marketing strategies, including improvising green advertising and green label, so as to increase customers' and GT. This will increase their green knowledge and chances of trusting the green products and potentially increase their GPB.

The IPMA analysis revealed that EA is a more impactful predictor in the model in driving consumers' GPB, followed by GSE, EQA and GT, respectively. Surprisingly, GT has a low influence in producing environmentally friendly behaviour amongst customers. Thus, the goal of changing consumers' purchasing behaviour needs critical marketing efforts in developing their trust in eco-labels and eco-brands.

In sum, it is suggested that all stakeholders such as government, social and green marketers and the community need to work together towards environmental welfare, as well as to develop sustainability policy guidelines to create a best practice in supporting people's engagement and influencing their purchasing behaviour. This is because without creating proper awareness, trust and self-efficacy, it will not be possible to motivate consumers to practice GPB and may hinder the nation's sustainable development goals.

Social implications

Environmental change is one of the biggest challenges of the twenty-first century. The COVID-19 pandemic has created a global health emergency with severe consequences for health and the economy. Worldwide, the outbreak caused by COVID-19 forced people to have limited social freedom. It contributed to serious environmental waste due to medical mobility in the environmental sense. The effects of the COVID-19 outbreak pandemic on human life have been started to be investigated from different angles. However, its effect on consumers' care for the environmental aspect remains scant, which this study attempted to address. It is expected that the findings of this study will assist the social marketers and policymakers to come up with a more fruitful action plan in addressing environmental welfare.

Limitations and future research directions

Although this study has its merits in understanding Malaysian consumers' GPB of electrical home appliances, it is not beyond certain limitations. The limitations of the study may, however, provide directions for future research. The first limitation is that the study was conducted in urban areas, and thus future studies should look at rural areas with a comparative perspective to gain better insights into the issue. Furthermore, the study used the cross-sectional survey technique, which may not be able to note behavioural changes amongst respondents. Future studies are recommended to consider a longitudinal study design to note behavioural changes accurately.

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Appendix

Table A1. Items used to measure the study variables

Variable names	Items
GT	1. Green products are reliable
	2. Green products' performance is dependable
	3. Green products' environmental claims (green products' attributes) are trustworthy
	4. Green products have assurance towards environment protection
EQA	5. I am aware that the environmental burden can affect my health and the well-being of the ecosystem
	6. I know that the quality of air and water can affect my health and the well-being of the ecosystem
	7. I believe that the water treatment system is important for maintaining my health and the well-being of the ecosystem
	8. I am aware that open burning, pollution, public transport and industrial waste can affect my health and well-being of the ecosystem
GSE	9. I have the ability to practice green purchase in my daily life
	10. I am confident that I can solve environmental problems by buying green products
	11. I am capable of contributing to the environment by purchasing green products
EA	12. It is essential to promote green living in Malaysia
	13. I strongly agree that environmental protection works are needed in Malaysia
	14. It is important to raise environmental awareness amongst the Malaysian people
GPB	15. I choose sellers who are committed to the environment
	16. I choose sellers who actively uphold their social and environmental responsibilities
	17. I have switched my purchasing habits on certain products for ecological reasons
	18. When comparing products, I choose the one that is less harmful to other people and the environment

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