Sosyoekonomi

2024, Vol. 32(59), 11-30

RESEARCH ARTICLE

ISSN: 1305-5577
DOI: 10.17233/sosyoekonomi.2024.01.01
Date Submitted: 24.03.2023
Date Revised: 17.10.2023
Date Accepted: 05.11.2023

Cultural and Generational Differences in Predicting Green Consumption: A Mediated Moderation Model

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Yeşil Tüketimin Tahmin Edilmesindeki Kültürel ve Kuşaksal Farklılıklar: Aracı Düzenleyici Modeli

Abstract

This study aimed to examine the effects of the antecedents of the theory of planned behaviour and environmental concern on green purchase intention. It also examines the mediating role of attitude and the moderating roles of generation and culture in these relationships. Using an online survey, the study collected primary data from 446 international students at Tekirdağ Namık Kemal University. As a result of structural equation modelling, it was determined that attitude, subjective norms, perceived behavioural control and environmental concern increased green purchase intention. In addition, it was determined that attitude partially mediated the relationship between environmental concern and green purchase intention and that this relationship was stronger in Western culture.

Keywords : Green Consumption, Environmental Problems, Theory of Planned Behaviour, Mediated Moderation Model.

JEL Classification Codes : D11, Q5, C1.

Öz

Bu çalışmada öncelikle planlı davranış teorisinin öncüllerinin ve çevresel kaygının yeşil satın alma niyeti üzerindeki etkilerinin incelenmesi amaçlanmıştır. Ayrıca söz konusu ilişkilerde tutumun aracılık rolü ile kuşak ve kültürün düzenleyici rolünün incelenmesi de hedeflenmiştir. Araştırmada çevrimiçi bir anket kullanılarak Tekirdağ Namık Kemal Üniversitesindeki 446 uluslararası öğrenciden birincil veri toplanmıştır. Yapısal eşitlik modellemesi sonucunda; tutum, öznel normlar, algılanan davranışsal kontrol ve çevresel kaygının, yeşil satın alma niyetini artırdığı tespit edilmiştir. Bunun yanında, çevresel kaygı ile yeşil satın alma niyeti arasındaki ilişkiye tutumun kısmi aracılık ettiği ve söz konusu ilişkinin batı kültüründe daha güçlü olduğu belirlenmiştir.

Anahtar Sözcükler : Yeşil Tüketim, Çevresel Problemler, Planlı Davranış Teorisi, Aracı Düzenleyici Model.

1. Introduction

The gradual decrease of natural resources essential for life, the increase in environmental pollution, the disappearance of biological diversity, and global warming are among the environmental problems currently experienced worldwide. On the other hand, with the development of environmental awareness, people now pay greater attention to environmental issues (Bartels & Onwezen, 2014; Moslehpour et al., 2023). Their increased understanding of environmental problems also makes them worried about future generations and the world's future, leading to green movements in societies (Akehurst et al., 2012; Paul et al., 2016). Seeing the problems that threaten environmental sustainability, people have also changed their consumption habits with greater consumer attention to environmentally friendly products and altered purchasing behaviours. Now, people prefer products that do not harm the environment while benefiting themselves and the future rather than providing instant gain (Kaufmann et al., 2012; Samarasinghe et al., 2013). These developments have resulted in a new trend of green consumption in which consumers are sensitive to the environment, have environmental concerns, and therefore look for green products (Paul et al., 2016).

Environmentally sensitive and recyclable products that do not harm nature or consume natural resources are considered "green" (Canoz, 2022; Paul et al., 2016). This concept includes the steps in almost all processes, such as raw material supply, production, storage, packaging, transportation, and distribution. Green products have been developed to prevent or reduce environmental impacts due to the development, production, use, and disposal of products and services. Thus, a green product can perform the same functions as the equivalent conventional product while less harmful to the environment throughout its life cycle (Junior et al., 2015). Green consumers are socially responsible consumers concerned about the public consequences of their private consumption and seek to influence social change through their purchasing power (Joshi & Rahman, 2015; Nova-Reyes et al., 2020). To reduce the environmental impact of their consumption patterns, green consumers consider the environmental impacts of their consumption patterns and modify their behaviours accordingly. Furthermore, green consumers tend to engage in green purchasing behaviour, i.e., they purchase products that do not harm the environment and are labelled as "green" to minimise the environmental impact of their consumption (Ritter et al., 2015).

Green purchasing behaviour refers to consuming environmentally friendly, recyclable, environmentally sensitive products while avoiding products that harm society (Jaiswal & Kant, 2018; Zeynalova & Namazova, 2022). Green purchasing behaviour, which differs from purchasing behaviour, has a special place in consumer behaviour. Purchasing behaviour only relates to the consumer's perception of the product's benefits and costs, whereas green purchasing behaviour is more future-oriented and produces social benefits rather than short-term gain or satisfaction. In green purchasing behaviour, social use is generally weighted more than the individual benefit when determining personal benefit preferences (Kim & Choi, 2005; Kaufmann et al., 2012).

The growing tendency of consumers to buy green products has attracted researchers' attention, while unsustainable environmental problems have increased the importance of their studies (Shao & Unal, 2019). Drawing on the theory of planned behaviour (TPB), which tries to explain the individual's intention to perform a particular behaviour (Ajzen, 1991), many studies have examined the determinants of green purchasing behaviour, especially in recent years (Leary et al., 2014; Karatu & Mat, 2015; Yadav & Pathak, 2016; Hsu et al., 2017; Joshi & Rahman, 2017; Maichum et al., 2017; Hasan & Suciarto, 2020; Bui et al., 2021; Patwary et al., 2022; Aseri & Ansari, 2023). Environmental concern is frequently discussed as an attitude towards environmental degradation that increases green purchasing intention (Chekima et al., 2016), while other studies show that environmental crises increase green purchase intention (Manaktola & Jauhari, 2007; Dagher & Itani, 2012; Joshi & Rahman, 2017).

Within this framework, a need has emerged to examine the predictors of green purchase intention, TPB antecedents, and environmental concerns. There is also a gap in the literature concerning whether attitude influences the relationship between environmental concern and green purchase intentions (Mamun et al., 2018). On the other hand, green consumption behaviours are not determined by individual, consumer-centred factors alone because external factors also significantly determine the formation of individuals' consumption behaviours (Stern, 2005). The moderating effects of these factors on the relationships between attitudes and behaviours have been investigated in the green consumption literature (Dagher et al., 2015). A critical demographic determinant of green consumption behaviours is generation, as each has characteristics such as value judgments, attitudes, strengths, and weaknesses. Therefore, generation-based differences in consumer behaviour can be expected (Lower, 2008). There is also a reciprocal interaction between generations and society in that each generation is affected by the community while changing the community's attitudes and behaviours to a certain extent (Aktas & Cicek, 2019). Thus, the factors that motivate consumers to consume green are affected by the common intellectual processes of their society (Kotler, 2011). Hence, green consumption may differ according to a person's culture (Sreen et al., 2018). However, there appears to be a lack of studies examining these intergenerational and intercultural effects in predicting green purchase intention.

In this context, this study has three purposes. It first examines the influence of antecedents of TPB (such as attitude, subjective norms, and perception of behavioural control) on purchasing intention in green consumption. The second aspect of the study examines the mediating effect of attitude on the relationship between environmental respect and the intention to make green purchases. Finally, it looks at the moderating role of generation and culture in the abovementioned relationships.

2. Methodology

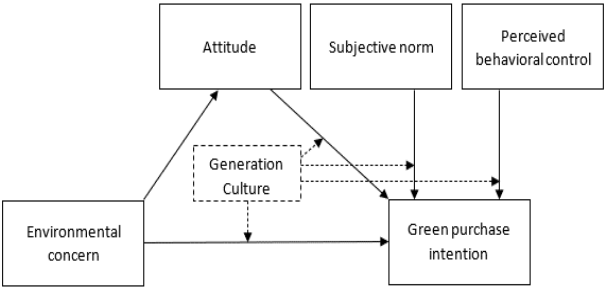
2.1. Conceptual Framework

This research utilised Ajzen's (1991) TPB to understand consumer behaviour regarding green products. Human behaviour can be explained using TPB in many different fields, including environmental psychology (Stern, 2005). According to TPB, behaviour is a direct function of behavioural intention. Generally, the stronger an individual's intention to perform a behaviour, the likelihood they will perform it. Three factors contribute to behavioural intention: attitudes toward the behaviour, subjective norms, and perceived control of the behaviour (Ajzen, 1991).

Purchase intention represents consumers' willingness or plan to purchase a particular product in the future, while green purchase intention is the consumer's determination to act environmentally, which is a motivating factor for green purchasing (Akehurst et al., 2012). Green purchase intention is related to an individual's tendency to purchase and use products with environmentally friendly features. Consumers are concerned not only about the quality of the product but also about the environmental impact of their purchases (Jaiswal & Kant, 2018). Although most consumers intend to buy green products, this fact conflicts with restrictive factors, such as price and lifestyle, during the decision-making process to purchase green products. Consequently, their behaviour may not reflect their intentions (Braimah et al., 2011).

An illustration of the research model can be found in Figure 1. The independent variables of environmental concern, attitude, subjective norms, and perceived behavioural control influence green purchase intention. Furthermore, the model examines how attitude mediates the relationship between the independent and dependent variables, while generation and culture are moderator variables.

Figure: 1
Proposed Research Framework



2.1.1. Attitude

Attitude plays a substantial role in influencing behaviour (Chekima et al., 2016) and is an essential variable in understanding green consumers' behaviour (Trivedi et al., 2018). Attitude refers to a person's positive or negative evaluations of behaviours. Suppose the individual has a positive attitude towards a specific behaviour. In that case, the intention to enact the behaviour and the rate of enacting the behaviour is higher than for another person with a negative attitude (Ajzen, 1991).

Regarding purchase intentions, attitude is one of the most important factors to consider (Tang et al., 2014). Attitudes significantly and positively influence the intention to purchase green products in numerous previous studies (Vazifehdoust et al., 2013; Tang et al., 2014; Paul et al., 2016; Yadav & Pathak, 2016; Hsu et al., 2017; Maichum et al., 2017; Trivedi et al., 2018). This suggests the following hypothesis:

H_1: Attitude towards green purchasing positively and significantly affects green purchase intention.

2.1.2. Subjective Norms

According to Ajzen (1991), subjective norms refer to social pressure to perform a particular behaviour. In other words, subjective norms represent the approval or disapproval of an individual's behaviour by others significant to the individual (Ajzen, 1991). Subjective norms are other people's opinions that are important to a person and affect the individual's decision-making processes. If a person believes that a particular behaviour will be approved or rejected by influential people, they intend to exhibit that behaviour more or less, respectively (Maichum et al., 2016). Regarding green consumption, if the person or group that the individual takes as a reference believes that protecting the environment and environmentalist practices are important, then the individual's behaviours may reflect these beliefs of others (Hsu et al., 2017).

Subjective norms, considered an important determinant of green consumption (Paul et al., 2016), can affect consumers' behaviour due to the influence of other individuals' opinions, significantly impacting their green purchases (Maichum et al., 2016). Many studies confirm that subjective norms increase green purchase intention (Han et al., 2010; Hu et al., 2010; Wu & Chen, 2014; Hsu et al., 2017). This suggests the following hypothesis:

H_2: Subjective norms positively and significantly affect green purchase intention.

2.1.3. Perceived Behavioural Control

An individual's perception of their ability to perform a given behaviour is called their perceived behavioural control (PBC). Depending on the individual's perception, PBC indicates whether a particular behaviour is easy or difficult to perform (Ajzen, 1991).

It is thought that a low level of PBC can inhibit behaviour, whereas a high PBC can increase behaviour and behavioural intention. Thus, PBC positively relates to behavioural intention (Tsai, 2010). Various studies have demonstrated the positive effect of PBC on green purchase intention (Chan & Lau, 2002; Tsai, 2010; Karatu & Mat, 2015; Hsu et al., 2017; Hasan & Suciarto, 2020; Bui et al., 2021). Consequently, it is predicted that:

H_3: Perceived behavioural control positively and significantly affects green purchase intention.

2.1.4. Environmental Concern

Environmental concern is another key variable besides TPB antecedents in predicting green product purchasing behaviour (Paul et al., 2016; Yadav & Pathak, 2016; Jaiswal & Kant, 2018). This general attitude reflects the extent of the consumer's concern about environmental threats (Ishaswini & Datta, 2011).

Concerns caused by environmental problems affect environmental responsibility and consciously or unconsciously affect consumption behaviours. Environmental concern encourages consumers to be "greener" in their purchases and increases green purchase intention (Leary et al., 2014; Chekima et al., 2016). Many studies indicate that environmental concern increases green purchase intention (Kim & Choi, 2005; Manaktola & Jauhari, 2007; Ishaswini & Datta, 2011; Dagher & Itani, 2012; Dagher et al., 2015; Joshi et al. Rahman, 2017). In this regard, it is predicted that:

H_4: Green purchase intentions are positively and significantly influenced by environmental concerns.

2.1.5. Attitude as Mediator

Environmental concern is accepted as an attitude towards protecting the environment and an important factor for understanding green purchase intention. In other words, environmental concern can determine the attitude reflecting positive or negative evaluations regarding green consumption and the intention to purchase green products (Maichum et al., 2016). A positive attitude towards green purchasing strongly determines green product purchasing behaviour (Trivedi et al., 2018).

Many studies show that environmental concern directly affects attitudes towards green purchasing (Leary et al., 2014; Tang et al., 2014; Jaiswal & Kant, 2018). Environmental concern also significantly affects purchase intention as well as attitude (Maichum et al., 2016). Environmental concern positively affects attitudes towards green purchasing, increasing green purchase intention (Vazifehdoust et al., 2013). In conclusion, attitude can mediate between environmental concerns and green purchasing intentions (Mamun et al., 2018). Consequently, it is predicted that:

H_5: Environmental concern and green purchase intention are mediated by the attitude towards green purchasing.

2.1.6. Generation and Culture as Moderators

Green consumption behaviour goes beyond consumers alone in that, in addition to individual factors, external factors also determine the formation of individuals' consumption behaviours (Stern, 2005). The moderating effects of these factors on the relationship between attitudes and behaviours have been investigated in the green consumption literature (Dagher et al., 2015). One of the important demographic characteristics affecting green consumption behaviours is generation. Each generation has its characteristics, value judgments, attitudes, strengths, and weaknesses, so consumer behaviour will likely differ according to generation (Lower, 2008). There is also a reciprocal interaction between generations and society as each generation is affected by society while also changing society somewhat through its attitudes and behaviours (Aktas & Cicek, 2019). Thus, the factors that motivate consumers to make green purchases are affected by their society's shared intellectual processes (Kotler, 2011), which implies that green consumption may vary according to a person's culture (Sreen et al., 2018).

Similar studies examining the relationship between environmental factors, generation (age), and culture have produced different findings. In 2008, for example, green products were preferred more by consumers over 55 years of age in the USA (Nastu, 2008), whereas they were selected more by consumers aged 25-34 in Portugal in 2009 (do Paço et al., 2009). PBC strongly affects green purchase intention in Chinese customers, whereas attitude and subjective norms are more effective in American consumers (Chan & Lau. 2002). However, there appears to be a need for studies in the literature examining intergenerational and intercultural predictors of green purchase intention. This suggests the following two hypotheses:

H_6: Generation moderates the relationships between environmental concern, attitude, subjective norms, perceived behavioural control, and green purchase intention.

H_7: Culture moderates the relationships between environmental concern, attitude, subjective norms, perceived behavioural control, and green purchase intention.

2.2. Procedure and Sample

The study population was 1,719 international students at Tekirdağ Namık Kemal University in Tekirdağ, Turkey. Cluster sampling was used to sample the proportion of students from each country equally, specifically by including a quarter of the students from each country. Simple random sampling was adopted to select these students from each country to draw the desired sample. The study sample thus consisted of 446 university students uniformly chosen from 20 different countries. The minimum sample size for the study was calculated as 314 with a 95% confidence interval and a 5% margin of error. Hair et al. (2010) suggest that the minimum number of participants should not be less than ten

times the number of items in the questionnaire. Accordingly, a minimum sample size of 240 is required in this study, which has a 24-item questionnaire. On this basis, the study's sample size (N=446) was sufficient for both approaches.

Primary data were collected from the participants using an online questionnaire. An explanation of the study's purpose was provided to the participants before the questionnaire was administered, and they were assured that their information would remain anonymous, confidential, and secure. After reading this information, the participants gave their voluntary participation consent. The survey was carried out in July 2022.

3. Results

3.1. Socio-demographic Profile of the Respondents

Table 1 presents the participants' demographic statistics.

Table: 1
Sample Characteristics

Demographic variables	n	%	Country	n	%
Gender			Syria	58	13.0
Female	157	35.2	Azerbaijan	53	11.9
Male	289	64.8	Greece	44	9.9
Date of birth			Bulgaria	37	8.3
1981-1999	131	29.4	Turkmenistan	31	7.0
After 2000	315	70.6	Ukraine	28	6.3
Marital status			Afghanistan	27	6.1
Single	347	77.8	Uzbekistan	26	5.8
Married	99	22.2	Macedonia	26	5.8
Education			Iran	23	5.2
Senior high school	309	69.3	Albania	16	3.6
College/university	96	21.5	Bosnia and Herzegovina	13	2.9
Master's degree or Ph.D.	41	9.2	Iraq	11	2.5
Perceived economic status			Yemen	9	2.0
Low	141	31.6	Egypt	9	2.0
Moderate	139	31.2	Germany	9	2.0
High	166	37.2	Jordan	8	1.8
			China	7	1.6
			The Netherlands	6	1.3
			France	5	1.1

3.2. Measures

The questionnaire used in the research had two parts. A total of 24 items were included in the first part of the study, which measured attitudes, subjective norms, perceived behavioural control, environmental concern, and purchasing intentions about green consumption. Each item was rated on a five-point Likert-type scale: "1" means strongly disagree, and "5" means strongly agree. The items used in this section were obtained from a previous study (Paul et al., 2016) in which the scales were validated. Secondly, the questionnaire asked participants about their demographic background, including their country of origin, gender, date of birth, marital status, educational level, and income. Table 2 provides descriptive statistics for the research variables.

Table: 2
Descriptive Statistics

Variables	Number of Items	Mean	sd
Attitude	3	4.58	0.50
Subjective norms	4	3.86	0.85
Perceived behavioural control	7	3.39	1.11
Environmental concern	5	4.36	0.60
Purchase intention	5	4.39	0.55

3.3. Common Method Variance

A common method variance depends on the measurement method rather than the constructs being measured by the scales (Podsakoff et al., 2003), which may occur in studies where all variables are measured with a single questionnaire and a similar methodology. The self-report method is used, and the same respondent evaluates different variables within the same period (Malhotra et al., 2006). This is particularly the case when both dependent and independent variables are obtained from the same respondents using perception-based scales. This, in turn, may cause systematic measurement errors, both Type I and Type II, which increase or decrease the strength of the observed relationships between variables more than the actual situation (Chang et al., 2010). Since the self-report method was used in the present study and the variables were evaluated with the same scale, at the same time, and by the same respondent, there was a risk of common method variance. Harman's single-factor test (Podsakoff et al., 2003) is the most common method of evaluating this item, which looks for the single unrotated factor solution across all items in the scale. If this single factor explains less than 50% of the variance, it is assumed that there is no common method problem (Harman, 1960; Podsakoff et al., 2003). In the present study, the single factor explained 37.55% of the variance, indicating no common method variance problem.

3.4. Reliability and Validity

Regarding the scale's reliability, both internal reliability and composite reliability were evaluated. In terms of validity, construct validity, convergent validity, and discriminant validity were evaluated. Table 3 presents the reliability and validity findings.

Table: 3
Reliability and Validity Results

Variables	Scale Items	Regression Weights	α	CR	AVE
Attitude	at1	0.981**	0.923	0.943	0.847
	at2	0.985**			
	at3	0.781**			
Subjective Norms	sn1	0.700**	0.808	0.818	0.532
	sn2	0.745**			
	sn3	0.808**			
	sn4	0.654**			

Perceived Behavioural Control	pbc1	0.778**	0.892	0.893	0.548
	pbc2	0.801**			
	pbc3	0.851**			
	pbc4	0.696**			
	pbc5	0.657**			
	pbc6	0.626**			
	pbc7	0.744**			
Environmental Concern	ec1	0.698**	0.813	0.814	0.467
	ec2	0.615**			
	ec3	0.725**			
	ec4	0.648**			
	ec5	0.725**			
Purchase Intention	pi1	0.940**	0.964	0.962	0.837
	pi2	0.966**			
	pi3	0.876**			
	pi4	0.886**			
	pi5	0.903**			

*** p<0,01; α=Cronbach's Alpha; CR=Composite reliability; AVE=Average variance extracted.*

As seen in Table 3, the internal reliability criterion was met as the α coefficients were greater than 0.70 (Hair et al., 2010), while the composite reliability criterion was met as the CR values were greater than 0.70 (Fornell & Larcker, 1981). Regarding construct validity, the confirmatory factor analysis results showed that all items had a factor weight above 0.60. In addition, all goodness of fit values (CMIN/df=2,188; GFI=0,910; CFI=0,965; NFI=0,938; RMR=0,052 and RMSEA=0,052) of the measurement model fell within acceptable ranges (Cangur & Ercan, 2015). In other words, the data fits well with the model. Regarding convergent validity, the AVE values were examined. Fornell and Larcker (1981) recommend that these values be higher than 0.50. In addition, if the AVE value is less than 0.50, the convergent validity of the scale can be accepted, provided that the CR is higher than 0.6 since the AVE is a conservative measure (Fornell & Larcker, 1981; Malhotra et al., 2010). Table 3 shows that only environmental concern was slightly below 0.50, although its CR value was considerably above 0.60. Thus, the necessary criteria for convergent validity (Fornell & Larcker, 1981; Malhotra et al., 2010) were met. For discriminant validity, the square roots of the AVE values, which are diagonally presented in Table 4, were examined. Their values should be greater than the correlations between factors (Malhotra et al., 2010; Hair et al., 2010). As the results in Table 4 show, these meet the discriminant validity criterion.

Table: 4
Correlations and Discriminant Validity

Variables	AT	SN	PBC	EC	PI
Attitude (AT)	*0.920[a]*				
Subjective norms (SN)	0.323	*0.729[a]*			
Perceived behavioural control (PBC)	0.324	0.249	*0.740[a]*		
Environmental concern (EC)	0.550	0.208	0.257	*0.683[a]*	
Purchase intention (PI)	0.555	0.321	0.436	0.622	*0.915[a]*

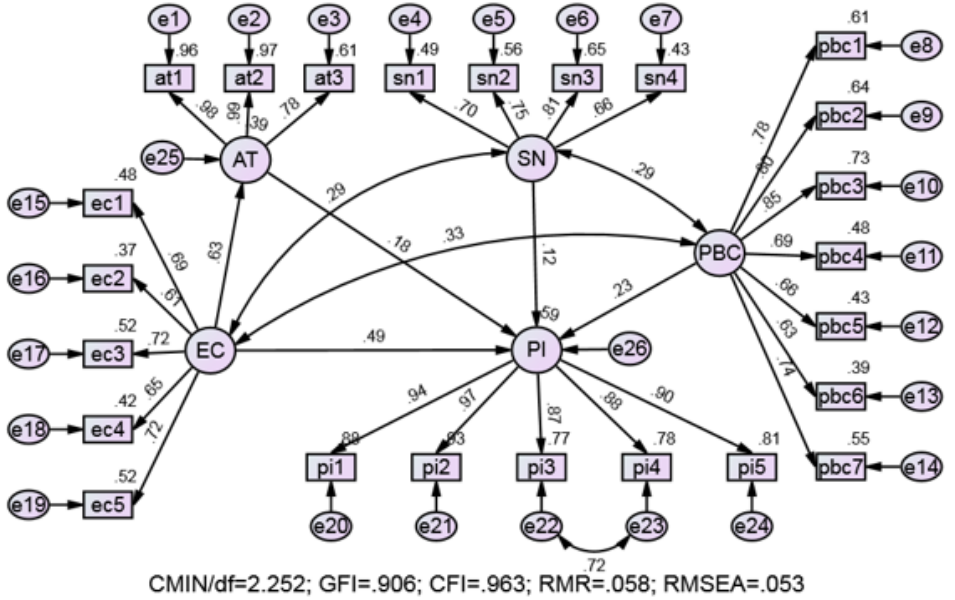
[a] Square root of AVE.

3.5. Path Analysis

Structural equation modelling (SEM) was conducted using AMOS to test the hypotheses. According to the model in Figure 2, environmental concern, social norms, and perception of behavioural control are independent variables, attitude is the mediating

variable, and purchase intention is the dependent variable. As seen in Figure 2, all the model's goodness of fit values (CMIN/df=2.252; GFI=0.906; CFI=0.963; RMR=0.058 and RMSEA=0.053) are in the acceptable range (Cangur & Ercan, 2015).

Figure: 2
Structural Model



Tests of the hypothesis were conducted based on the standard regression estimates, critical ratios, and significance levels shown in Table 5. The first four hypotheses were all supported. A regression estimate of 0.182 and a critical ratio of 3.830 on the path from attitude to purchase intention are supported by a significance level 0.01 for H_1. The path from subjective norms to purchase intent has a regression estimate of 0.116 and a critical ratio of 2.846 at a significance level of 0.01, thus supporting H_2. The path from perceived behavioural control to purchase intention has a regression estimate of 0.226 and a critical ratio of 5.608 at a significance level of 0.01, thus supporting H_3. Finally, the path from environmental concern to purchase intention has a regression estimate of 0.485 and a critical ratio of 7.963 at a significance level of 0.01, thus supporting H_4. The R^2 value in Table 5 shows that these variables explain 58.8% of purchase intention, while the remaining 41.2% is determined by other variables not included in the model.

Table: 5
SEM Results

Paths	Std. estimates	Critical ratio	R^2
Purchase intention ← Attitude	0.182	3.830**	0.588
Purchase intention ← Subjective norms	0.116	2.846**	
Purchase intention ← Perceived behavioural control	0.226	5.608**	
Purchase intention ← Environmental concern	0.485	7.963**	

** *p<0.01.*

Furthermore, the role of attitude in the mediating effect of environmental concern on purchase intention was examined in H_5. The mediation results in Table 6 show that both the direct impact of environmental concern on purchase intention ($p<0.01$) and its indirect effect via attitude ($p<0.01$) are significant. In cases where both effects are significant, a ratio of indirect effect to direct impact of more than 0.50 indicates complete mediation, while less indicates partial mediation (Hair et al., 2010; Kline, 2011). As the ratio was below 0.50 (0.114/0.485=0.23), it was determined that the attitude partially mediates the effect of environmental concern on purchase intention; thus, H_5 was supported.

Table: 6
Mediation Results

Path	Direct effect	Indirect effect	Total effect
EC → AT → PI	0.485**	0.114**	0.600**

** *p<0.01; EC=Environmental concern; AT=Attitude; PI=Purchase intention.*

A multigroup analysis was conducted to examine the moderation effect of generation by estimating the standardised coefficients of the paths in the model separately for each generation. Critical ratios in the form of Z-scores were calculated to identify any significant differences between the causal parameters. A significant difference in the standardised regression weights between the two groups indicates moderation (Hair et al., 2012). As Table 7 shows, however, the Z-scores in the present study were insignificant, implying no significant difference between the groups in any path; in other words, generation does not have a moderating effect, so H_6 was rejected.

Table: 7
Moderation Results for Generation

Paths	Generation Y	Generation Z	Z-scores
PI ← AT	0.211**	208**	0.383
PI ← SN	0.109**	106**	0.330
PI ← PBC	0.186**	251**	0.476
PI ← EC	0.430**	430**	0.495

** *p<0.05.*

An identical multigroup analysis was carried out to examine the moderating effect of culture. The results in Table 8 show a significant difference between the groups only for the impact of environmental concern on purchase intention. Specifically, environmental concern has a stronger effect on purchase intention among participants from Western countries than those from Eastern countries. This result supports H_7.

Table: 8
Moderation Results for Culture

Paths	Eastern	Western	Z-scores
PI ← AT	0.245**	0.107**	0.583
PI ← SN	0.159**	0.010**	1.498
PI ← PBC	0.282**	0.131**	1.189
PI ← EC	0.273**	0.672**	6.812**

*** p<0.05.*

4. Discussion

There were three main objectives for this study. To begin with, it investigated the effects of antecedents of TPB on purchasing intention in the context of green consumption (namely attitude, subjective norms, and perceived behavioural control). The study's second aim was to examine the mediating role of attitude in the relationship between environmental concern and green purchase intention. As a final step, it examined the moderating effect of generation and culture on these relationships.

The predicted results regarding the effects of TPB antecedents on green purchase intention were obtained. First, the attitude had a significant positive impact on green purchase intention (H1), which shows that if consumers believe green products will cause less harm to the environment, their intention to buy green products increases. In other words, consumers with pro-environmental attitudes plan to buy green products in the future. Numerous previous studies support this finding (Han et al., 2010; Teng et al., 2015; Vazifehdoust et al., 2013; Paul et al., 2016; Yadav & Pathak, 2016; Hsu et al., 2017; Maichum et al., 2017; Trivedi et al., 2018). Second, subjective norms had a significant positive effect on green purchase intention (H2), which shows that if the people or groups taken as reference by the individual perceive that green purchasing is necessary, the individual's green purchase intention will increase. This result is also supported by many previous studies (Han et al., 2010; Hu et al., 2010; Wu & Chen, 2014; Maichum et al., 2016; Hsu et al., 2017). Third, perceived behavioural control had a significant positive effect on green purchase intention (H3), which shows that as consumers' beliefs about their green product purchasing abilities increase, their green purchase intention also increases. This result is also supported by many studies in the literature (Chan & Lau, 2002; Karatu & Mat, 2015; Hsu et al., 2017; Hasan & Suciarto, 2020; Bui et al., 2021).

Regarding the effect size of the three TPB antecedents on green purchase intention, perceived behavioural control affected green purchase intention the most, whereas subjective norms affected it the least, while attitude was in the middle. In the literature, the findings vary. Some studies conclude that the essential TPB antecedent in green purchase intention is attitude (Han et al., 2010), while others suggest subjective norms (Teng et al., 2015) or perceived behavioural control (Tsai, 2010). The findings in the present study indicate that belief in green purchase ability is the most important factor in green purchase intention. This highlights the importance of restrictive factors, such as price and lifestyle (Braimah et al., 2011), in purchasing green products.

This study also determined that environmental concern and TPB antecedents increase green purchase intention (H4). Consumers' concerns about environmental threats encourage them to be "greener" in purchasing. Many studies support this finding (Kim & Choi, 2005; Manaktola & Jauhari, 2007; Ishaswini & Datta, 2011; Dagher & Itani, 2012; Dagher et al., 2015; Junior et al., 2015; Joshi & Rahman, 2017). In addition, environmental concern had a stronger effect on green purchase intention than the TPB antecedents. That is, it was the most important variable in the research model. Yadav and Pathak (2016) also reported that environmental concern has the most critical effect on green purchase intention among other predictors, namely attitude, subjective norms, behavioural control, environmental respect, and environmental knowledge.

Regarding mediation effects, it was determined that attitude partially mediated the relationship between environmental concern and green purchase intention (H5). In other words, environmental concerns strengthen consumers' attitudes that green products will cause less harm to the environment, and this attitude increases consumers' green purchase intention. This finding confirms the attitude-mediated concern-intention relationship reported by previous researchers (Vazifehdoust et al., 2013; Maichum et al., 2016; Mamun et al., 2018).

Regarding moderating effects, there was no significant difference between the Y and Z generations regarding the impact of environmental concern and TPB antecedents on green purchase intention (H6). On the other hand, western culture increased the effect of environmental concern on green purchase intention (H7). In other words, the impact of environmental concern on green purchase intention is significantly higher in European consumers than in Asian consumers. Thus, while the results did not support the predictions about the moderating effects of generation (Lower, 2008; Dagher et al., 2015), they partially supported predictions about culture (Kotler, 2011; Sreen et al., 2018). These mediating and moderating findings can contribute to the literature, which has limited studies.

5. Conclusion

Environmental problems in recent years have increased individuals' concerns and led to a green consumption trend. In addition to environmental concerns, TPB has been frequently used in predicting consumers' green purchasing behaviour. The study results showed that attitude, subjective norms, perceived behavioural control, and environmental concern increase green purchase intention. Environmental concern is the most decisive factor affecting green purchase intention, while attitude mediates this relationship. The strongest TPB antecedent affecting green purchase intention was perceived behavioural control. The results highlight the importance of developing environmental awareness and price regulation for producing and consuming green products to leave a more liveable world in the future.

5.1. Practical Implications

Environmental concern emerged in this study as the most important variable for increasing green purchase intention. Therefore, it is recommended that governments and businesses organise environmental activities and education, especially in schools and workplaces, to create environmental awareness. Increasing environmental awareness in these ways could make environmental concerns and shape people's perceptions of green consumption.

Among the TPB antecedents, perceived behavioural control was the strongest predictor of green purchase intention. However, relatively high prices of green products may weaken consumers' belief in their ability to engage in green purchasing behaviour. Governments could repair this intention-behaviour bridge by reducing costs through practices like financial incentives and tax reductions for green producers and consumers.

Consumers with environmental concerns are more inclined towards green consumption. Therefore, in addition to protecting the environment, businesses must develop strategies (such as green marketing mix strategies) to address consumers' environmental concerns. Businesses that adopt green production processes can earn opportunities to enter new markets, ensure the sustainability of profits, and gain a competitive advantage over businesses that do not have environmental concerns.

5.2. Limitations and Further Research

This study was limited to examining the determinants of green purchase intention. Therefore, the effect of green purchase intention on green purchasing behaviour was not investigated. However, green purchasing intention may not always translate into green purchasing behaviour, mainly due to price. Thus, future studies could usefully examine the intention-behaviour relationship in the context of green consumption.

Other limitations include the study's cross-sectional and self-report-based collection of data and the study sample formed by university students. Conducting a similar but longitudinal study with different samples and using more objective measurements is recommended. In addition, the moderator variable culture was classified as Asian and European countries for this study. However, future studies could rank countries differently in terms of culture.

The findings showed that environmental concern has the most significant effect on green purchase intention. Further research can focus on how this environmental concern is shaped, for example, by examining the effects of reference groups (family, friends, relatives, etc.) and other non-personal factors (media channels, etc.).

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Appendix

Demographic Information Form	
Please indicate your country of citizenship	
Gender	□ Female □ Male
Date of birth	□ Before 1943 □ 1981-1999 □ 1944-1964 □ After 2000 □ 1965-1980
Marital status	□ Single □ Married
Education	□ Senior high school □ College/university □ Master's degree or Ph.D.
What level do you think your monthly income is?	□ Low □ Moderate □ High

Questionnaire Form	1=Strongly disagree	2=Disagree	3=Neither agree nor disagree	4=Agree	5=Strongly agree
Attitude towards purchasing green products					
1. I like the idea of purchasing green.	1	2	3	4	5
2. Purchasing green is a good idea.	1	2	3	4	5
3. I have a favourable attitude toward purchasing a green version of a product.	1	2	3	4	5
Subjective norm					
1. Most people who are important to me think I should purchase green products when purchasing.	1	2	3	4	5
2. Most people who are important to me would want me to purchase green products when purchasing.	1	2	3	4	5
3. People whose opinions I value would prefer that I purchase green products.	1	2	3	4	5
4. My friend's positive opinion influences me to purchase green products.	1	2	3	4	5
Perceived behavioural control					
1. I believe I have the ability to purchase green products	1	2	3	4	5
2. I am confident I would purchase green products if it were entirely up to me.	1	2	3	4	5
3. I see myself as capable of purchasing green products in future.	1	2	3	4	5
4. I have the resources, time and willingness to purchase green products.	1	2	3	4	5
5. Green products are generally available in the shops where I usually do my shopping.	1	2	3	4	5
6. There are likely to be plenty of opportunities for me to purchase green products.	1	2	3	4	5
7. I feel that purchasing green products is not totally within my control.	1	2	3	4	5
Environmental concern					
1. I am very concerned about the environment	1	2	3	4	5
2. I would be willing to reduce my consumption to help protect the environment.	1	2	3	4	5
3. Major political change is necessary to protect the natural environment.	1	2	3	4	5
4. Major social changes are necessary to protect the natural environment.	1	2	3	4	5
5. Anti-pollution laws should be enforced more strongly.	1	2	3	4	5
Purchase intention for green products					
1. I will consider buying products because they are less polluting in the coming times.	1	2	3	4	5
2. I will consider switching to environmentally friendly brands for ecological reasons.	1	2	3	4	5
3. I plan to spend more on environmentally friendly products than conventional ones.	1	2	3	4	5
4. I expect to purchase the product in the future because of its positive environmental contribution.	1	2	3	4	5
5. I definitely want to purchase green products in the near future.	1	2	3	4	5