

INFERRING CRITICAL FACTORS PREDICTING CONSUMERS' SUSTAINABLE GREEN PURCHASE BEHAVIOR FROM THE PERSPECTIVE OF DEVELOPING NATION

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Abstract. The purpose of this study was to explore factors affecting consumers' green purchase behavior in the context of a developing nation, India. We proposed an integrated model based on the theory of planned behavior (TPB) and Social cognitive theory, combining with independent factors the perceived environmental knowledge, personal norm, recycling participation, perceived value, and willingness to pay to predict individuals' green purchase intention. A total of 466 valid responses were collected from India with the help of a questionnaire survey. Evaluation of the research model was carried out through Structural Equation Modeling (SEM), and SPSS PROCESS macro was used to test the mediation effect. The findings explored three factors of TPB, recycling participation, personal norm, perceived value, and environmental knowledge significantly influenced consumers' green purchase intention. A positive mediation effect was also found regarding consumers' green purchase intention. But willingness to pay, negatively influenced consumers' green purchase intention.

Keywords: theory of planned behavior (TPB), willingness to pay, recycling participation, purchase intention, structural equation modeling (SEM), India

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1. Introduction

Over recent decades, consuming goods and services has rapidly grown, as have promoting austere impairment to the nature and increasing diminution of natural reserves (Joshi and Rahman 2015). It creates severe environmental damage such as depletion of natural resources, acid rain, global warming and decline in flora and fauna (Joshi and Rahman 2015). Report of World Wide Fund for Nature (WWF 2017) indicated the usage of natural resources by human had doubled and exceeded earth's determined capacity during the last 50 years. It is further reported that if humans do not control their consumption and continue to demand more natural resources, a second earth is required by 2030 (WWF 2017).

Ceaseless deterioration of natural resources initiated the protection of the natural resources, introduced the concept of principled consumption acknowledged as environmentally friendly consumerism (Beibie et al. 2020). Environmentally friendly consumption is considered as an intricate moral accountable behavior and made up as one of the extensive categories of socially responsible behavior (Hsiu-Hua 2017). The notion of environmentally friendly consumption is receiving greater consideration amongst practitioners as well as academicians (Lynn Sudbury and Florian 2016), which initiated the concept of 'sustainable development' and transformed consumers' purchasing behaviors (Kim and Chung 2011). Thus, consumers started choosing and using eco-friendly products (Xiaoyun and Feng 2020).

The concept of green consumerism is an important study area in the developed nations and several investigations regarding consumers' attitude and preferences of green purchase intention was carried out (Kamonthip et al. 2016, Leibao et al. 2019). Simultaneously, few studies have examined consumers' perspectives towards purchasing intention of green products in terms of developing countries (Khare 2015, Paul et al. 2016). However, the perception of consumers' green purchase intention is required for marketers (UNEP 2011) to formulate sustainable strategies for developing markets of green products.

Currently, India's economy is considered as one of the expeditious developing economy, causing rapid depletion of natural resources as well as environmental pollution. According to United Nations environment report (UNEP 2011) India ranked among top 10 (7th) of the environmentally polluted countries in the world. Unplanned and uncontrolled industrial development, along with urbanization, are among the leading reasons. In recent time Indian government has addressed these issues and initiated several measures (Ministry of Environment 2018), such as the Clean India Mission, Introduction of cleaner/alternate fuel like CNG, LPG, and launched National Air Quality index, etc. to secure environmental protection and curb the pollution level. However, natural resources are disappearing rapidly and pollution level is rising continuously (Joshi and Rahman 2016).

The present study employed the theory of planned behavior (TPB) to apprehend consumers' purchasing intention relating to green products, since TPB is among the most preferential researched models in social psychology used to predict users'

attitudinal intention (Kamonthip et al. 2016, Leibao et al. 2019). Several studies concerning consumers' pro-environmental intention (Wu and Chen 2014, Yadav and Pathak 2017, Chen and Hung 2016, Chen and Tung 2010, Carman and Eddie 2015) also employed TPB as a theoretical model to find out in case consumers consider to execute environmentally sustainable practice. Despite the comprehensive appropriateness of the TPB, previous research suggested that integrating context-specific factors reinforces TPB model's explanatory and predictive power (Aurelio et al. 2018). Joshi and Rahman (2016) recommended individual's concern regarding recycling participation call to be investigated in terms of consumers' readiness to carry out green purchase behavior. Han (2014) also indicated an investigation prophesying individuals' pro-environmentally sustainable behavior should comprise a value attribute, that significantly cognate with individuals' environmentally sustainable intention. Additionally, previous studies (Ajzen 1991, Beck and Ajzen 1991) confirmed perceived moral responsibility might be considered while investigating consumers' pro-environmental intention.

Inferences of global green marketers are multifarious. Since Indian market is considered as one of the most prominent marketplaces along with considerable potential for green products, understanding predictors influence consumers' green purchase decision-making might help to develop suitable strategies to increase consumers' green purchase intention. Thus, the primary purpose of the current study is to understand Indian consumers' green purchase intention employing a modified TPB model. Context specific predictors perceived environmental knowledge, personal norm, perceived value, recycling participation, and willingness to pay are incorporated with TPB model for assessing its influence on consumers' green purchase behavioral intention. We are affirmative that findings of the current investigation endorse our present apprehension relating to consumers' green purchase intention, along with encourage both enterprise and government to find out determinants might be useful to increase consumers' intention towards green purchase.

HYPOTHESIS. The following hypothesis was verified to support rational and applicable empirical verities on the determinants influencing consumers' green purchase intention to explore the purposes mentioned above.

- H₁. Personal norm positively influences consumers' green purchase intention.
- H₂. Attitude to green purchase positively impacts consumer's green purchase intention.
- H₃. Subjective norm significantly influences consumers' personal norm of green purchase intention.
- H_{4a}. Subjective norm has a positive influence on consumers' green purchase intention.
- H_{4b}. Personal norm mediates the relationship between subjective norm and green purchase intention.
- H₅. Perceived behavioral control significantly influences consumers' green purchase intention.
- H₆. Perceived environmental knowledge significantly influences consumers' green purchase intention.

- H₇. Perceived value has a positive impact on consumers' green purchase intention.
- H₈. Recycling participation has a significant impact on consumers' green purchase intention.
- H₉. Willingness to pay significantly influences consumers' green purchase intention.

2. Literature review

2.1. Theory of planned behavior (TPB)

Theory of reasoned action (TRA) (Ajzen 1980) and Theory of planned behavior (TPB) are the two primitive theories were utilized by previous investigations to explore consumers' green purchase intentional behavior. Previous studies mainly crack down on underlying values, attitudes, and behavioral intentions with regard to environmental-responsive product. According to the TPB was proposed by Ajzen (1985), an individual's overall performance of purchasing a green product is decided through his/her behavioral goal to execute the conduct. Consumers' intention to buy green product depend on three basic principles namely attitude, subjective norm, and perceived behavioral control. The TPB primarily states individuals' participation in most of their behavior is under their own control and is reasonable.

Literature examined consumers' intention to purchase green product using the TPB (Kim et al. 2013, Hsu et al. 2017). However, several studies have integrated independently with the TPB model to carefully consider positive motives associated with green consumption (Moisander 2007). Wu and Chen (2014) used independent factors to evaluate their direct effect on TPB and their mediating impacts on individuals' intention to purchase green product. Chen and Hung (2016) incorporated three independent variables with TPB to envisage consumers' green product adoption intention. Yadav and Pathak (2017) combined environmental concern and environmental knowledge with TPB to explore consumers' eco-friendly products purchase intention. Several studies had employed TPB to explore consumers' green purchase adoption intention. But findings of these studies are inconsistent. Thus, the current study employed the TPB model as a basic model and incorporated several cognitive factors (perceived environmental knowledge, recycling participation, willingness to pay) to explore consumers' intention to adopt green products more comprehensively.

2.2. Social cognitive theory

Phipps et al. (2013) proposed a new approach integrating the social cognitive theory (SCT) to understand sustainable consumer behavior. The model considered consumer behavior as not just an outcome but also a determinant of other factors. Phipps et al. (2013) indicated that consumers' pro-environmental behavior in a specific context could pass through into other context, and the sustainable consuming

behavior influence upcoming sustainable consuming behaviors. Social cognitive theory proposes a novel technique to predict consumers' forthcoming sustainable conduct insisting their personal traits, their current ecological behavior in addition socio-culture atmospheres. Lee (2014) found that very few studies have taken reciprocal determinism model into consideration to envisage purchasers' sustainable consuming conduct from the perspective of Asia. To the best knowledge of the authors no studies have included reciprocal determinism model with TPB to envisage Indian purchasers' intention to buy green product. Literature had explored Social cognitive theory to comprehend consumers' sustainable behavior regarding green purchase intention. Nonetheless, the conclusions are inconsistent. Thus, the authors consider that being relatively novel and unused in green purchase intention context; Social cognitive theory would predict innate understandings of Indian consumers' green purchase behavioral intention.

2.3. Personal norm

Yazdanmehr and Wang (2016) define personal norms as "an individual's internalized moral rules." According to Schwartz (1977), personal norms are determined by the awareness of the consequences of a specific behavior (or the lack thereof) and the feeling of responsibility for performing or not performing these behaviors. According to Gatersleben et al. (2014) personal norm played a key part while consumers' pro-environmental conduct was discussed rested on moral features. Personal norm states to an individual's awareness of his/her capability to perform a definite conduct or not (Fishbein and Ajzen 1975). Doran and Larsen (2016) explored interfaces between personal norm and how it impacts individuals' purchasing conduct. They found personal norm positively impacts individuals' purchasing conduct.

Literature observed a relationship between personal norm and factors defined in the TPB. Hauck and Szolnoki (2020) found consumers' decision to purchase organic or non-organic wine decided based upon their personal norm. Huijts et al. (2014) and Onwezen et al. (2013) had found personal norms influencing consumers' adoption intention as well. Onel (2016) concluded that integrating personal norms with the TPB increases the explained variance of behavioral intentions and behavior. Liu et al. (2017) and Schoenau and Müller (2017) found that personal norm is a key determinant of users' readiness to decrease car usage. Thøgersen (2014) noticed a positive relationship between personal norm and behavioral beliefs. Personal norms are a significant factor in consumers' choices to purchase 'green' products (Joshi and Rahman 2015). Additionally, personal norms have also been shown to directly influence responsible environmental, behavioral intention in energy conservation studies (Sahin 2013) and eco-friendly travel (Doran and Larsen 2016). Previous studies had incorporated personal norm with TPB to understand consumers' ecological behavior concerning green purchase intention. Nevertheless, the inferences of studies are inconsistent. However, the authors combined personal norm with TPB to predict arcane perceptions of Indian consumers' behavioral intention to perform a green purchase behavior more clearly.

2.4. Perceived environmental knowledge

Environmental knowledge states to consumers' perceived level of understanding concerning environmental problems and how to cope with those problems. Xiaoyun and Feng (2020) indicated consumers' understanding concerning environment mainly focal point of environmental educating and is a critical force to adopt green product. Pagiaslis and Krontalis (2014) indicated individuals' understanding of sustainable products, such as renewable energy, biofuels etc. results in their green purchase intent. According to findings of Yue et al. (2020) and Pratiwi et al. (2018) consumers' understanding concerning environment significantly influenced their intention to purchase green product. Consumers have better understanding concerning environment and this encourages them to behave more environmental responsible way (Suki 2013). However, literature reported inconsistent findings concerning the influence of environmental knowledge. Wolsink (2007) observed a negative association between environmental knowledge and consumers' conduct, whereas Yue et al. (2020) and Pratiwi et al. (2018) found environmental knowledge influences consumers' intention to behave environmentally friendly. Therefore, environmental knowledge plays a key role to determine consumers' intention to purchase a green product.

2.5. Perceived value

Perceived value refers to a comprehensive evaluation of the product's utility on the basis of the cognizance of what is gained against what is handed (GE et al. 2018). Chen and Chang (2012) indicated that the price of green products is normally more than their traditional substitute product. When consumers have a choice to pick out among product attributes and green product, they will probably go for product attributes in preference to green product (Joshi and Rahman 2015); thus, sustainable green promotion approaches are probably included through the companies to enhance the professed value in their merchandise regarding attention for the atmosphere (Chen and Chang 2012). Nekomahmud and Fekete-Farkas (2020) stated that companies could improve consumers' purchase intention by enhancing values of product as it is a key determinant and receives more importance. Wang and Hsu (2019) found that consumers' decision-making process is largely influenced by perceived value. Consumers choose a product with a better perceived value. Calvo-Porrall and Lévy-Mangin (2017) and Gan and Wang (2017) claim that consumers' intention to purchase green and environmental-friendly products is significantly influenced by their perception of green value. Therefore, the perceived value could help to improve green purchase sustainability.

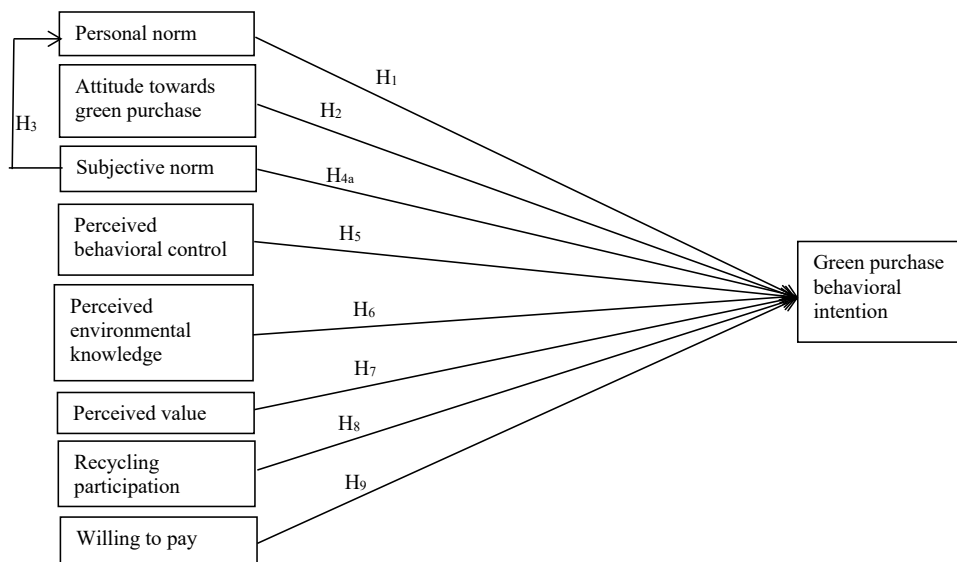
2.6. Recycling participation

Recycling participation shows users' conventional behavior which represents their sustainable environmental-friendly behavior (Sesini et al. 2020, Orzan et al. 2018). Orzan et al. (2018) and Nittala (2014) indicated that consumers' recycling behavior concerning their intention to purchase green product is largely overlooked.

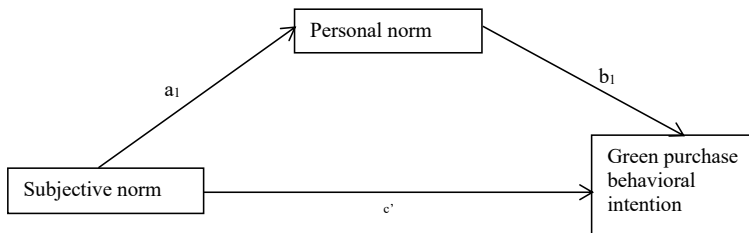
A couple of studies explored this, but the findings of the investigations concluded consumers' recycling behavior significantly influenced their intention to purchase green product in addition to sustainable consuming behavior (Nittala 2014, Sesini et al. 2020). Thus, the literature supported the claim that recycling participation is an important factor in performing green purchase behavior.

2.7. Willingness to pay (WP)

Perceived cost is constantly taken into consideration as it is one of the ultimate influential determinants which control consumers' decision-making procedure. Interpreting consumers' willingness to pay for the environmental-friendly product is significant for the companies as the price is still one of the key barriers in terms of consumers' green consumption (Gleim et al., 2013). Ajzen (1991) indicated the willingness to pay for green products could be contemplated as their pro-environmental conduct. Ling (2013) pointed out environmental-friendly products are usually costlier due to prices associated with manufacturing processes. Thus, consumers' willingness to pay extra negatively associated with their green care



A Model with total effect



B Simple mediation model of the personal norm

Figure 1. Research framework.

products purchasing intention. Rishi et al. (2015) reported that although most consumers are concerned about green practices and wish to choose hotels which are involved in green deeds, but they are unwilling to pay more for green inventiveness while investigating consumers' preference of selecting hotels during travelling in India. Namkung and Jang (2014) also found comparable results, as majority of the consumers are unwilling to pay additional prices for green products.

Shen (2012) conversely indicated that consumers concerned about eco-friendly preservation and who support atmosphere beyond lifetime expediency are willing to pay. A significant relationship between ecological concern and willingness to pay more was reported by several investigations in different ecological contexts, for example, eco-branded appliances and equipment (Shen 2008), environmental-friendly nutriment produces (Ishtiaq 2018), in addition green resorts (Kang et al. 2012), which further indicates consumers' willingness to pay influences their green purchase intention. Prior investigations used willingness to pay as an antecedent or independent factor with the TPB model to determine consumers' environmental activities relating to green purchase intention. Yet interpretations of these investigations are inconsistent. The authors consider that being a significant consideration in terms of green purchase intention, willingness to pay can provide a new dimension to predict Indian consumers' green purchase behavioral intention more definitely.

Based on the above discussion, a research model was proposed, shown in Figure 1.

3. Methods

3.1. Questionnaire design

A questionnaire investigation was exercised to explore the proposed theoretical model. An initial set of dimension items was predominantly prepared after going through prior studies concerning TPB, environmental knowledge, perceived value, recycling participation, willingness to pay, and consumers' intention to purchase eco-friendly product (Hsu et al. 2017, Huijts et al. 2014, Yadav and Pathak 2017, Ling 2013). The study instrument is divided into three sections. In the first section (cover page) the aim was mentioned; individuals' basic information, such as gender, age, educational level, and family income were asked in the second section, and measurement items regarding constructs of the current study were contained in the final section. Each item was assessed on a five-point Likert scale with strongly disagree to strongly agree in addition with values of 1 to 5.

To endorse measurement items both a pre-test and pilot test were carried out. Seven professionals, two professors from Information Management (IM), two doctoral researchers from the IM, in addition three doctoral researchers with competence in the environmental research area were incorporated. Participants had been requested to study the suitability, the arrangement, and the phrasing of the items. 50 participants, self-designated from the study respondents took part in the pilot test. The items employed in the current study were adapted from previously

published articles but based on the findings of pre-test and pilot test, some items were modified to fulfill the purpose of the current study more clearly. The reliability of each item was adequate (Cronbach's $\alpha > 0.80$) and items loading are 0.70 or more. Therefore, reliability and content validity of the measurement items were confirmed, and the findings of the pilot study are reported in Appendix 2.

3.2. Research setting and data collection

The aim of this study was to collect as much diverse data as possible, as it could represent demographic traits of a large number of Indians. Thus, we employed convenience sampling method as it was useful and actively employed in social science studies (Cooper and Schindler 2001). To fulfil the aim, respondents came from several locations, incorporating neighborhoods, small industries, municipal assembly spaces, e.g. gardens and transference places, etc. The participation was completely voluntary and even a prepaid envelop was provided to return their responses later by mail. Each respondent was given a consent form and notified about their right to stop their involvement at any time throughout the investigation.

Furthermore, participants were instructed not to mention any personal information which can be used to recognize their identity to regulate social appropriateness bias. In total of 515 questionnaires were handed over in the process, 478 responses were returned.

3.3. Data analysis

Structural equation modeling (SEM) using Smart-PLS was employed to study the proposed hypothetical relationships by two reasons. Firstly, SEM is considered a multivariate method that accords to the concurrent evaluation of several calculations (Hair et al. 1998). Secondly, SEM completes factor investigation and regression investigation in a solitary step, SEM is utilized to assess the structural model. Each construct was exhibited by way of reflective for the model assessment. Anderson and Gerbing (1998) recommended two steps to perform Data investigation. Firstly, analyzing the measurement model's convergent and discriminant validity, and successively analyzing study hypotheses and structural model. The mediation relationship was interpreted through SPSS's PROCESS macro.

4. Data analysis and results

4.1. Demographic information

The current study received 478 responses. Twelve responses were discarded due to misplaced information and inadequate responses. Thus, 466 valid answers were used. Since the minimum acceptable sample size is 385 valid responses, 466 valid responses correspond to the acceptable sample size. Samples included 271 (58.2%) male respondents and 195 (41.8%) female respondents. In terms of age, 284 (60.9%) responders were aged 18 to 35, and 39.1% of responders were above 35 years old.

Survey respondents' demographic information are presented in Table 1. We equated our collected data with a nationwide study to specify the representativeness of this study sample. Google India (2019) indicated that the majority of the consumers are male (63 percent) and 72% aged 16 to 39. However, most of the current respondents are male (58.2 percent), and 61% respondents in the age group between 18 to 35, indicating that the sample is unbalanced in gender and age and truly represents the population. More than half of the respondents who intended to purchase green were men, and about three-quarters of all respondents were between 18 and 45 years old. Most respondents were highly educated; around three quarters had either graduate or postgraduate degrees. The respondents' key purpose of purchasing green products were: 'better for the environment' and 'feel better to do this for environment'.

Table 1. Demographics of the respondents

Trait	Selection	Percentage (%)
Gender	Male	58.2
	Female	41.8
Age	18–25	33.5
	26–35	27.4
	36–45	16.6
	46–55	12.4
	> = 56	10.1
Educational qualification	Madhyamik (10 th Standard)	6.4
	Higher Secondary (12 th Standard)	11.2
	Graduate	61.6
	Postgraduate	13.5
	Others	7.3
Family income (in Rupees)	< = 25,000	21.6
	25,001–45,000	41.2
	45001–65,000	24.5
	> = 65,0001	12.7
Concerns regarding green purchase (<i>more than one choice</i>)	Lack of environmental awareness	47.61
	High price	65.72
	Insufficient accessibility of green products	52.31
	Lack of choices	69.25
	Lack of trust	67.25
Reasons to purchase green product (<i>more than one choice</i>)	Better for the environment	64.61
	Better resale value	41.92
	Better for your health	37.65
	Feel good about your purchase	56.54

4.2. Descriptive statistics and testing normal distribution

Table 2 presents the descriptive investigation. The mean value of each item is above 2.5, ranging from 2.53 to 2.86, which shows that consumers have comprehension about green purchase intention. The standard deviation recommends a contracted spread near the mean. The skewness and kurtosis were employed to evaluate Univariate normality, with values less than 3.0 and 10, correspondingly, suggestive of adequate normality (Kline 2005). The skewness and kurtosis of each construct are satisfactory and internal reliability is acceptable. Thus, the collected data are considered standard for structural equation modeling (SEM).

Table 2. Constructs' descriptive statistics

Construct	Mean	Standard deviation	Skewness	Kurtosis
ATT	2.70	0.874	0.424	-0.842
SN	2.64	0.953	0.417	-0.990
EK	2.53	0.933	0.457	-0.609
PN	2.64	0.853	0.547	-0.739
WP	2.82	0.887	0.415	-1.280
PBC	2.79	0.924	0.337	-1.255
RP	2.63	0.916	0.570	-0.723
PV	2.86	0.930	0.054	-1.156
BINT	2.61	0.949	0.447	-0.903

NOTE: ATT = Attitude; EK = Environmental knowledge; PV = Perceived value; SN = Subjective norm; RP = Recycling participation; PN = Personal norm; PBC = Perceived behavioral control; WP = Willingness to pay; BINT = Green purchase Behavioral intention

4.3. Tests of the normality

The normality of the distribution for the variables was determined through the Kolmogorov-Smirnov test. The distribution of the study sample is not meaningfully diverse from the normal distribution when the comparison of the scores in the sample is not non-significant ($p > 0.5$) then compared with a normally distributed set of scores with the same mean and standard deviation. The findings of the K-S investigation are indicated in Table 3. The K-S investigation was insignificant ($p > 0.05$) for variables attitude, personal norm, environmental knowledge, perceived value, subjective norm, willingness to pay, perceived behavioral control, and behavioral intention. It was determined that the variables are normally distributed. Statistical tests such as correlation and regression that assume normality of these variables, as Hanson (2006) defines, can be used since the key variables did not deviate significantly from a normal distribution.

Table 3. Results of the one-sample Kolmogorov-Smirnov test

		Personal norm	Attitude	Subjective norm	Perceived behavioral control	Environmental knowledge	Perceived value	Recycling participation	Willingness to pay	Behavioral intention
N		466	466	466	466	466	466	466	466	466
Normal parameters	Mean	2.64	2.70	2.64	2.79	2.53	2.86	2.63	2.82	2.61
	SD	0.853	0.874	0.953	0.924	0.933	0.930	0.916	0.887	0.949
Most extreme differences	Absolute	0.160	0.146	0.091	0.106	0.128	0.162	0.148	0.093	0.108
	Positive	0.156	0.141	0.087	0.102	0.124	0.158	0.143	0.089	0.104
	Negative	-0.160	-0.146	-0.036	-0.098	-0.081	-0.162	-0.148	-0.038	-0.096
KS-Z		2.632	2.365	1.457	1.714	2.067	2.734	2.461	1.553	1.902
Asymp. Sig. (2-tailed)		0.672	0.0786	0.071	0.091	0.094	0.670	0.0790	0.069	0.089

4.4. Tests of the measurement model

Reliability investigation was verified utilizing Cronbach's alpha and composite reliability¹ (CR) to measure the internal consistency of the model, and the results are reported in Table 4. Cronbach's alpha and CR value of each construct are higher than the recommended value 0.70 (Hair et al. 1998) ranged from 0.864 to 0.983 and 0.920 to 0.988, correspondingly inferring suitable reliability and consistency.

Bagozzi and Yi (1988) recommended three criteria to evaluate convergent validity: (1) Loadings of each item must be above 0.70 (Fornell and Larcker 1981); (2) CR value must be higher than 0.70, and (3) each construct's Average variance extracted (AVE) must exceed the variance as a consequence of the measurement error of that construct (AVE value must be above 0.50). The factor loading of each item is above 0.7 (Table 4). CR values of constructs are between 0.920 and 0.988 (Table 4). AVE values of constructs are between 0.795 and 0.967, thus meeting all conditions for convergent validity (Table 4).

Fornell and Larcker (1981) suggested the square root of the AVE of the construct must be higher than the assessed correlation shared between the construct and other constructs in the model to investigate discriminant validity. The square root of the AVE of each construct was more substantial than the construct's correlation values, therefore encountering the condition for discriminant validity (Table 5).

Table 4. The measurement model

Constructs	Item	Loadings	No. of items	Composite reliability ¹	Standardized Cronbach's α	AVE ^a
ATT	ATT1	0.9436	3	0.938	0.902	0.836
	ATT2	0.9193				
	ATT3	0.8798				
SN	SN1	0.9702	3	0.988	0.983	0.967
	SN2	0.9916				
	SN3	0.9888				
PBC	PBC1	0.9499	3	0.953	0.926	0.871
	PBC2	0.9509				
	PBC3	0.8993				
EK	EK1	0.9580	3	0.933	0.893	0.825
	EK2	0.9328				
	EK3	0.8293				
PV	PV1	0.9658	3	0.968	0.951	0.910
	PV2	0.9624				
	PV3	0.9343				
RP	RP1	0.9590	3	0.920	0.864	0.795
	RP2	0.9593				
	RP3	0.7397				
PN	PN1	0.9153	4	0.943	0.917	0.807
	PN2	0.9617				
	PN3	0.9618				
	PN4	0.7368				
WP	WP1	0.91	3	0.970	0.954	0.917
	WP2	0.9796				
	WP3	0.9817				
BINT	INT1	0.9465	4	0.978	0.971	0.920
	INT2	0.9714				
	INT3	0.9479				
	INT4	0.9718				

NOTE: ATT = Attitude; EK = Environmental knowledge; PV = Perceived value; SN = Subjective norm; RP = Recycling participation; PN = Personal norm; PBC = Perceived behavioral control; WP = Willingness to pay; BINT = Green purchase Behavioral intention

$$^1\text{Composite reliability} = \frac{(\sum \lambda_i)^2 \text{ var } F}{(\sum \lambda_i)^2 \text{ var } F + \sum \theta_{ii}}$$

$$^a\text{Average variance extracted} = \frac{\sum \lambda_i^2 \text{ var } F}{\sum \lambda_i^2 \text{ var } F + \sum \theta_{ii}}$$

Table 5. The correlation matrix and discriminant validity

	ATT	EK	BINT	PBC	PN	PV	RP	SN	WP	AVE
ATT	0.914									0.836
EK	0.845	0.908								0.825
BINT	0.850	0.860	0.959							0.920
PBC	0.328	0.270	0.345	0.933						0.871
PN	0.880	0.891	0.883	0.287	0.898					0.807
PV	0.357	0.242	0.264	0.888	0.247	0.953				0.910
RP	0.540	0.868	0.732	0.239	0.824	0.209	0.891			0.795
SN	0.282	0.277	0.265	0.897	0.262	0.823	0.226	0.983		0.967
WP	0.297	0.231	0.252	0.923	0.230	0.912	0.207	0.913	0.957	0.917

NOTE: ATT = Attitude; EK = Environmental knowledge; PV = Perceived value; SN = Subjective norm; RP = Recycling participation; PN = Personal norm; PBC = Perceived behavioral control; WP = Willingness to pay; BINT = Green purchase behavioral intention

4.5. Tests of the structural model

Table 6 reports the findings of the hypotheses test. Eight proposed relationships (H_1 , H_2 , H_3 , H_{4a} , H_5 , H_6 , H_7 , and H_8) were supported, whereas one relationship (H_9) is not supported at the 0.05 level of significance. Tests of significance of each relationship are done over the bootstrap resampling procedure. Figure 2 displays each path's standardized path coefficients, path significances, and variance explained (R^2). Together, they explained about 85.7% of the variance in consumers' behavioral intention to purchase the green product. Therefore, the acceptance of the inclusive model is decent.

Model fitness of the current study was evaluated based on the model-fit indices advocated by (Hair et al. 1998, Bagozzi and Yi 1988, Dutta et al. 2018) and all model-fit indices were above the recommended values (Table 7), demonstrating an acceptable fitting for the pull together data.

Table 6. Findings of hypotheses investigation

Hypothesis	Relationship	Path Coefficients	t-Statistics	Results
H ₁	Personal norm → Green purchase intention	0.248	2.581	Not rejected
H ₂	Attitude towards green purchase → Green purchase intention	0.392	3.631	Not rejected
H ₃	Subjective norm → Personal norm	0.282	2.548	Not rejected
H _{4a}	Subjective norm → Green purchase intention	-0.248	2.495	Not rejected
H ₅	Perceived behavior control → Green purchase intention	0.525	3.516	Not rejected
H ₆	Perceived environmental knowledge → Green purchase intention	0.434	2.926	Not rejected
H ₇	Perceived value → Green purchase intention	-0.232	2.069	Not rejected
H ₈	Recycling participation → Green purchase intention	-0.166	2.076	Not rejected
H ₉	Willingness to pay → Green purchase intention	-0.026	0.190	Rejected

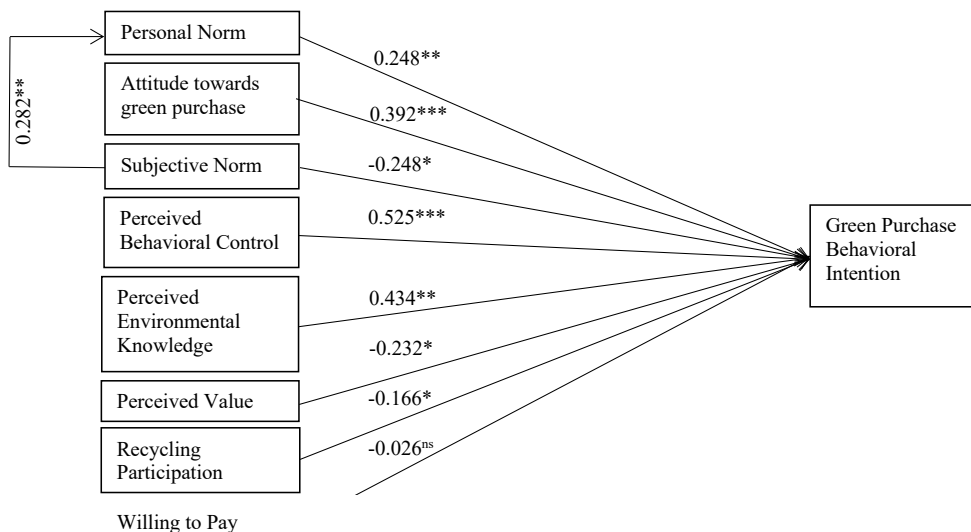


Figure 2. Path analysis result.

Note. p < 0.05* level, p < 0.01**, p < 0.001***, ns not significant at p < 0.05 level.

Table 7. Goodness-of-fit indices of study model

Goodness-of-fit measure	Recommended value (a)	Model Value
$\chi^2/\text{degree of freedom}$	≤ 3.00	2.16
Root mean square residual (RMSR)	≤ 0.10	0.08
Comparative fit index (CFI)	≥ 0.90	0.92
Tucker Lewis Index (TLI)	≥ 0.90	0.91

Note. a: Bagozzi and Yi (1988), Hair et al. (1998), Dutta et al. (2018).

The path among SN→PN→BINT was found significant (Figure 2). To investigate the statistical importance of the indirect influence of SN on consumers’ behavioral intention to purchase the green product, mediation analysis using SPSS PROCESS macro was done. Outcomes on the basis of 5000 bootstrapped samples revealed the standardized indirect influence of SN on consumers’ behavioral intention to purchase green product mediated by PN ($\beta = 0.22$; S.E. = 0.04) with 95% confidence interval [CI] between 0.14 and 0.30 (Table 8). Thus, PN can be considered as an essential mediator in the relationship; in addition, mediation hypothesis H_{4b} is supported.

Table 8. Result of mediation effect

Mediation effects	B (S.E.)	95% CI	Results
SN → PN → BINT	0.22 (0.04)	[0.14, 0.30]	Not Rejected

Note: PN = Personal norms; SN = Subjective norm; INT = Green purchase behavioral intention

5. Discussions

The explored attitude towards green purchase significantly influenced consumers’ behavioral intention to purchase the green product ($\beta = 0.392$, $p < 0.001$), and this result is in line with the finding by Joshi and Rahman (2015). The finding suggests that consumers are more probable to participate in sustainable behavior if they perceive a high-level environmental attitude. Besides, the attitude plays a significant role mainly as it is believed to persuasively impact consumers’ behavior on the given subject of environmental deterioration. The finding also shows that consumers hold onto an encouraging attitude towards purchasing intention of green product. This recommends that consumers prevent further ecological decline by having a positive purchase intention towards green products.

In line with Yadav et al. (2017), the current investigation found a positive association between subjective norm and consumers’ behavioral intention to purchase green product. Increasing support from reference groups, e.g., family, friends, influential people, can strengthen this kind of intention.

Perceived behavioral control is deliberated as a relevant interpreter of consumers’

behavioral intention to purchase green product (Bhutto et al. 2019). These intentions were significantly impacted by perceived behavioral control, in line with prior findings (Yadav et al. 2017) that show that the behavioral control of consumers will increase positive purchase intention.

One more finding concerns the factors of planned behavior model (subjective norm, attitude, and perceived behavioral control), personal norm lonely had a fragile association with consumers' behavioral intention to purchase green product, recommending that personal norm had a lesser amount of explanatory power than the factors of TPB, a behavior comparatively challenging to be implemented. This finding is in line with the prior study by Maloney et al. (2014), reporting general support of TPB but an insignificant relationship between personal norm and consumers' behavioral intention to purchase green product. Wang et al. (2016) found similar results while incorporating both TPB and personal norm and reported insignificant association between personal norm and the consumers' behavioral intention to purchase a hybrid car. Thus, personal norm is a significant factor in predicting consumers' behavioral intention to purchase green product.

Emotion of an ethical responsibility to shield the surroundings (personal norms) pointed out a significant relationship with consumers' behavioral intention to purchase green product. It would seem as though consumers that are aware of their contributions to environmental pollution and who have a feeling of moral obligation to act in a pro-environmental manner would have a more developed understanding of environmental problems and more knowledge around specific solution to environmental problems, leading them to purchase products that clearly describe the environmentally beneficial aspects of the product. The outcome is in line with Wang et al. (2016), which emphasized the importance of personal norm in predicting green purchase behavioral intention over conventional alternatives. Furthermore, personal norm mediates the social norm effect, a TPB variable, on green purchase behavioral intention. Thus, a combined model based on the classical theory TPB and individual responsibility for sustainable behavior, namely personal norm (PN), can better understand consumers' behavioral intention to purchase green product.

Hypothesis 6 predicts a positive association between perceived environmental knowledge and consumers' behavioral intention to purchase green product. It is in line with previous studies that emphasize a significant association exists between environmental knowledge and consumers' behavioral intention (Young et al. 2010, Kim and Chung 2011). Kim and Chung (2011) found consumers' previous experience with organic products has a significant impact on consumers' behavioral intention to purchase organic product. Even though there could be differences between organic personal care products and other green products, Kim and Chung (2011) claim that similar values will shape consumer behaviors with all these green products.

Therefore, the current findings suggest that the more knowledgeable Indian consumers are in environmental concerns, the more likely they intend to purchase the green product. Additionally, it can be determined that environmental knowledge might be a factor in predicting consumer purchasing decisions. The finding by Yue et al. (2020) reported a positive relationship between environmental knowledge and consumers' intention to purchase green product.

An unexpectedly interesting finding is that perceived value has significantly and negatively influenced consumer green purchase intention, but the influence is minimal ($\beta = -0.23, p < 0.05$). This may be because Indians are not entirely prepared to participate in such kind of product (Rahardjo 2015) despite understanding the significance of the green product. In contrast, Wei et al. (2018) found that consumers from developed countries are willingness to spend more on green products. Barbarossa and Pastore (2015) suggested that marketers discounted price is perfect for improving consumers' behavioral intention to purchase the green product, and this could be one of the critical strategies that could encourage increase consumers' perception of value towards green purchase intention. This finding coincides with a study finding by Dehghanan and Bakhshandeh (2014), which concluded that consumers are eager to pay more to purchase green products when they possess a positive value towards a product.

The current study finds that recycling participation is another crucial predictor and positively influences consumers' green purchase behavioral intention. According to Lee (2014) previous ecological behaviors were important interpreters of upcoming environmental behavior.

Our study reported an insignificant association between consumers' willingness to pay and green purchase behavioral intention by the finding of Yadav and Pathak (2017). This could be because the rate of the green product is even now a serious matter for most Indians as they consider the pricing of products (Rishi et al., 2015). Secondly, higher prices are an essential barrier to purchasing environmentally sustainable products. The result also suggests that product prices motivate consumers' intention to pay the green price premium. Thus, concerns regarding product price is one of the significant barriers to the market increase of green products. Consumers willingness to pay should increase their confidence in the offered value of green products and meet the cost-benefit analysis.

6. Conclusions and implications

India is the second largest consumer marketplace and has huge possibility for marketing green product for a cooperatively young population. Though, worldwide green and ecological merchants find it difficult to attract Indians since not much evidence is accessible in terms of consumers' perception towards green purchase intention. This investigation pursued an inclusive consideration of consumers' behavioral intention to purchase the green product in India by showing several coherent, normative, sensitive, and self-distinctiveness factors. The prospective recipients of the current investigation consist of buyers and individuals keen to review the predictors of their ecological consumption, comprising numerous investors in India, another developing marketplace, in addition the government of other countries and agencies.

The present study adopts the TPB to explore consumers' behavioral intention to purchase the green product in India and has verified the effectiveness and appropriateness of TPB in exploring consumers' behavioral intention to purchase the

green product from Indian perspective. The perceived behavioral control appeared as the most important factor concerning consumers' behavioral intention, subsequently attitudes towards the green purchase and subjective norm. Using SEM, results indicate that perceived value positively impacts on consumers' behavioral intention to purchase the green product. This backs up the significance of the perceived value in consumers' decision-making process. The finding is in line with Lee 2014, concluding that recycling behavior is a substantial interpreter of consumers' future ecological behavior. The results are favorable for further understanding of the factors motivating consumers to behave in an environmentally friendly way, thus permitting marketers and policymakers to draft efficient marketing planning and work out relevant interferences to enhance consumers' behavioral intention to purchase the green product. Perceived environmental knowledge positively influenced green purchase behavioral intention. The more individuals are concerned about the ecosystem, the more likely they buy a green product. In other words, improved environmental knowledge is a significant factor. Thus, the proposed study model could be considered as one of the comprehensive models to predict consumers' behavioral intention to purchase green product.

6.1. Theoretical implications

Through examining green purchasing intention from the Indian perspective, the current investigation provides additional pragmatic sustenance to the validity of the TPB model. The findings enhance the existing literature on comprehensive appropriateness of the model and add valuable recommendations for considering the model's validity under another cultural context or for another interactive category.

The experimental findings explore that consumers' attitude, subjective norm, and perceived how behavioral control positively influences consumers' behavioral intention to purchase the green product. These findings align with literature (Kim et al. 2013, Hsu et al. 2017, Wu and Chen 2014, Yadav and Pathak 2017, Han et al. 2010). The results support the claim that if an individual has a positive attitude and subjective norm toward the green product, he/she observes better behavioral control; in addition, his/her behavioral intention to purchase the green product will increase. In other words, this finding supports the idea that more behavioral control increases purchase intention (Kazemi et al. 2013).

Empirical results show that among three factors of TPB, subjective norm is the feeblest predictor of consumers' purchase intention, as did Yadav and Pathak (2017), but not Ying-Pei (2017). Norm had already been considered as the feeblest relation in intention models by literature, which applied the TPB model overall (Ajzen 1991), especially from the context of the green product (Ying-Pei, 2017). Consumers may consider the opinion of 'notable another' as not an essential determinant for making green product purchase decisions. In other words, friends or family members or peer groups have little positive influence on consumers' behavioral intention to purchase the green product.

In agreement with the conclusions pointed out by Bamberg (2003), our findings also specify that consumers' knowledge about the environment positively influences their behavioral intention. Additionally, literature pointed out an intermission caused

by an absence of research on the impact of norm effect on consumers' behavioral intention to purchase the green product (Young et al. 2010). This study copes with this breach and sets up a convincing association between subjective norm and consumers' behavioral intention to purchase the green product. Increasing the understanding of green purchase factors that influence consumers' intention is important for environmental and business reasons. From an environmental perspective, the significant impact of ecological knowledge implies a positive predictor of green favorable intention. Consumers who are knowledgeable about the environment and have positive attitudes make favorable attitudes towards purchase intention for green products.

This study is one of the first to employ interdependent deterministic belief and contemplate conduct, individual and relative determinants as the interpreter of consumers' intention to purchase the green product from the Indian perspective. This investigation comprises behavioral variables (recycling participation, willingness to pay, perceived value) in cooperation with attitudinal determinants (such as environmental knowledge and attitude), the determinant of moral obligatory (personal norm), and relative determinant (social influence) to conclude the analytical power of consumers' intention to purchase the green product. The study findings recommend that ecological behavior (recycling participation) could be seen as a significant interpreter of consumers' intention to purchase the green product and validate the behavior-behavior process as recommended in interdependent deterministic belief. Thus, the current study results confirm the significance of interdependent deterministic belief and social cognitive theory for examining ecological behavior.

The empirical results show that attitude instead of subjective norm has a more decisive impact on Indian consumers' intention to purchase the green product. Bearing in mind that green merchants in India must cautiously exercise transaction strategies that ease promising cognition alterations of their focus bystanders. Additionally, significant cognition theories recognized from the demographic traits (Table 1) could contribute valuable suggestions. For example, Indian consumers' intention toward purchasing the green product is impacted by significant cognition principles, for example, 'conserving the environment', 'good for health', and 'resale value'. Thus, in their communication campaigns, green merchants must mention how green product assists in preserving the nature in addition to what kind of advantages or morals green product offer to consumers and nature.

6.2. Practical implications

Analytical findings of this study demonstrate that when consumers possess an intense attitude towards environmental issues, they are more prone to buy green product. Thus, the Indian government should promote the perception of environmental preservation to improve consumers' environmental apprehension. To carry it out, the government could employ popular communicating means such as social media or school education. For instance, the conservational preservation management could produce documentary film concerning environmental issues and suggest quite a few related recommendations and guiding principles for consumers.

When consumers understand environmental problems better, this would encourage them in the direction of purchasing green product and conduct themselves accordingly. Additionally, a range of communicating means, e.g. mass media commercials and promotion proposals improve consumers' environmental knowledge and cultivate their consciousness regarding the benefits of purchasing green product.

As predicted, consumers' behavioral control was a convincing impact on Indian consumers' intention to purchase green product. Primarily, Indian consumers display a lower level of deliberate command over their green purchase intention. When considering the significant predictor recognized previously in the demographic traits, this factor is probably accredited to Indian consumers' absence of the essential ownerships (knowledge concerning environment and price) and prospects (insufficient accessibility of green product). Since India is still considered a developing nation and its green program is at an early phase, it is not easy to sort out all these issues quickly. Nevertheless, all these concerns must require continuous strategic attempts from both the Indian policymakers and green marketers to develop an increased eco-friendly consumption model nationwide. These tactical endeavors ought to incorporate further conservational studies into India's education system and advance the distribution capacity of green products. More comprehensive regulation is also important to closely monitor green products' quality and advertising claims to increase consumers' ability of paying more for green products.

Consumers' behavioral control was the highest important predictor among TPB in their intention to purchase green product. It emphasizes the significance of creating promising environments regarding the accessibility that might improve and comfort consumers' determination (De Leeuw et al. 2015). The merchants must look into consumers' point of view as this could also play an essential part in motivating consumers' intention. Consumers' point of view towards green product could be improved through raising awareness in the community, which in sequence might produce a satisfactory impression among the individuals regarding the green product.

The findings of the current study demonstrated that the perceived green value could positively influence green purchase behavioral intention. To sustain the relationship with green consumers, companies need to develop the green value of a product and enhance consumers' satisfaction.

Consumers' positive experience of previous sustainable behavior like recycling significantly predicts their future environmental behavior. Such type of ecological conducts might consist of conservation and recycling of secondhand products, drawing on more public transport, etc.

The price of green products is a significant apprehension for merchants since Indians are sensitive towards the price (Shen 2008). As consumers are price sensitive, different benefits of green product must be promoted, for example, security paybacks, well-being profits, long-standing price-cutting, etc. (Xiaoyun and Feng 2020). In that situation, appropriate communication of company's green ethics and products could promote green products since this might enhance consumers' understanding of values concerning green products, plus also increase the faith among the purchasers (De Leeuw et al. 2015).

According to the census of India, more than 65% of the population is below 35 years of age (Current population in India 2019). From the demographic table (Table 1), around 61% of study participants are below 35, and about 75% are well educated. Policymakers and marketers might use the power of social media in motivating young consumers. From this point of view, green marketing campaigns can encourage consumers to point out environmentally friendly buying actions among their community groups. Similarly, since the eco-friendly conduct of friends or family members or social groups also inspired participants to involve environmentally friendly movements (for example, planting of trees, using herbal products, etc.). Additionally, green marketers should organize social campaigns and develop social messages to educate consumers about the significance of green buying and also improve the frequency of green purchases (Nekmahmud and Fekete-Farkas 2020).

Moreover, policymakers need to develop public interventions and demonstrating of how consuming of environmental-friendly products could control environmental issues. Even more importantly, Indian consumers' apprehensive and encouraging views towards environmentally friendly product build effective conservational restructuring in their intention to procurement, understanding that environment has met its severe height (Singh and Gupta 2013). In the longer-term conservational impacts, consumers possess positive standpoint towards green purchase, for example, the LOHAS (lifestyles of health and sustainability) segment could be followed initial, in addition, persuaded them to improve their environmental-friendly purchase intention (Natural Marketing Institute 2015).

Reporting consumers' behavioral control is one of the most essential determinants among TPB ($H_5 = 0.525$). This finding points toward consumers' awareness of the accessibility towards the purchase of environmentally friendly product and this is considered as a significant factor of his/her intent of buying eco-friendly products. If environmentally friendly products can be assessed easily, then consumers' behavioral intention will increase. However, only few companies have seriously adopted the policy to go green in India. The Indian government's announcement and inducement plans are crucial while companies are planning to adopt eco-friendly items and use the Green Mark. Simultaneously, companies must inform purchasers how to recognize the Green Mark.

7. Limitations and future research

In spite of its substantial outcomes and implications, the current study has some limitations. First, the key constraint of the current investigation is to explore consumers' intention to purchase eco-friendly product determined by the modified TPB in place of their definite purchasing conduct. Literature indicated behavioral intention theories are persistent in various interactive fields (Ajzen 1991), but cautiousness ought to be exercised as the consumers' conclusive activities do not always coincide with their views. Thus, researchers must further explore consumers' conclusive conduct by perceiving and/or cross-examining them. Second, the current

investigation contemplates eco-friendly purchasing as a whole. Future investigations must study the projected research framework in several green product contexts, comprising reusable goods, natural stuffs, and green-endorsed products.

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References

- Ajzen, I. (1985) "From intentions to actions: a theory of planned behavior". In J. Kuhl and J. Beckmann, eds. *Action control: from cognition to behavior*, 10–39. Berlin, Heidelberg, and New York. Springer-Verlag.
- Ajzen, I. (1991) "The theory of planned behavior". *Organizational Behavior and Human Decisions*, 50 (2), 179–211.
- Ajzen, I. and M. Fishbein (1980) *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Anderson, J. C. and D. W. Gerbing (1988) "Structural equation modeling in practice: a review and recommended two step approach". *Psychological Bulletin* 103, 411–423.
- Aurelio, T., S. Pierpaolo, T. Orlando, and M. Gennaro (2018) "Extended theory of planned behavior (ETPB): investigating customers' perception of restaurants' sustainability by testing a structural equation model". *Sustainability* 10, 2580. DOI: 10.3390/su10072580
- Bagozzi, R. P. and Y. Yi (1988) "On the evaluation of structural equation models". *Journal of Academy of Marketing Science* 16, 74–94.
- Barbarossa, C. and A. Pastore (2015) "Why environmentally conscious consumers do not purchase

- green products: a cognitive mapping approach". *Qualitative Market Research* 18, 2. DOI: 10.1108/QMR-06-2012-0030
- Beck, L. and I. Ajzen (1991) "Predicting dishonest actions using the theory of planned behavior". *Journal of Research in Personality* 25, 285–301.
- Beibie, Y., G. Sheng, S. She, and J. Xu (2020) "Impact of consumer environmental responsibility on green consumption behavior in China: the role of environmental concern and price sensitivity". *Sustainability* 12, 2074. DOI:10.3390/su12052074
- Bhutto, M. Y., F. Zeng, Y. A. Soomro, and MA Khan (2019) "Young Chinese consumer decision making in buying green products: an application of theory of planned behavior with gender and price transparency". *Pakistan Journal of Commerce and Social Sciences* 13, 3, 599–619.
- Calvo-Porrà, C. and J. P. Lévy-Mangin (2017) "Store brands' purchase intention: examining the role of perceived quality". *European Research on Management and Business Economics* 23, 2, 90–95.
- Carman, K. M. L. and W. L. C. Eddie (2015) "Green purchase behavior of undergraduate students in Hong Kong". *The Social Science Journal* 53, 1. DOI: 10.1016/j.soscij.2015.11.003.
- Chen, S. C. and C. W. Hung (2016) "Elucidating the factors influencing the acceptance of green products: an extension of theory of planned behavior". *Technological Forecasting and Social Change*. 111, 155–163.
- Chen, Y. S. and C. H. Chang (2012) "Enhance green purchase intentions: the roles of green perceived value, green perceived risk, and green trust". *Management Decision*. 50, 502–520.
- Cooper, D. R. and P. S. Schindler (2001) *Business research methods* (Seventh edition) Irwin/McGraw-Hill: New York. 192.
- Current population in India (2019). Available online at <[http://www. quora.com/What-is-the-population-of-India-7](http://www.quora.com/What-is-the-population-of-India-7)>. Accessed on 25 August 2021.
- De Leeuw, A., P. Valois, I. Ajzen, S. Peter, and P. Schmidt (2015) "Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students: implications for educational interventions". *Journal of Environmental Psychology* 42, 128–138.
- Dehghanan, H. and G. Bakhshandeh (2014) "The impact of green perceived value and green perceived risk on green purchase behavior of Iranian consumers". *International Journal of Management and Humanity Sciences* 3, 1349–1357.
- Doran, R. and S. Larsen (2016) "The relative importance of social and personal norms in explaining intentions to choose eco-friendly travel options". *International Journal of Tourism Research* 18, 159–166.
- Dutta, B., M. H. Peng, and S. L. Sun (2018) "Modeling the adoption of personal health record (PHR) among individual: the effect of health-care technology self-efficacy and gender concern". *Libyan Journal of Medicine* 13, 1, 1500349. DOI: 10.1080/19932820.2018.1500349
- Fishbein, M. and I. Ajzen (1975) *Belief, attitude, intention, and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fornell, C. and D. F. Larcker (1981) "Evaluating structural equation models with unobservable variables and measurement error". *Journal of Marketing Research* 18, 39–50.
- Gan, C. and W. Wang (2017) "The influence of perceived value on purchase intention in social commerce context". *Internet Research* 27, 4, 772–785. DOI: <https://doi.org/10.1108/IntR-06-2016-0164>
- Gatersleben, B., N. Murtagh, and W. Abrahamse (2014) "Values, identity and pro-environmental behavior". *Contemporary Social Science* 9, 374–392.
- Ge, L., B. Almanza, C. Behnke, and C. H. H.Tang (2018) "Will reduced portion size compromise

- restaurant customer's value perception?". *International Journal of Hospitality Management* 70, 130–138.
- Gleim, M. R., J. S. Smith, D. Andrews, and J. J. Cronin Jr (2013) "Against the green: a multi-method examination of the barriers to green consumption". *Journal of Retailing* 89, 44–61.
- Google India (2019). Available online at <<https://www.statista.com/statistics/751005/india-share-of-internet-users-by-age-group/>>. Accessed on 25 August 2021.
- Hair, J. F., R. E. Anderson, R. L. Tatham, and W. Black (1998) *Multivariate data analysis*. 5th ed. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Han, H. (2014) "The norm activation model and theory-broadening: individuals' decision-making on environmentally-responsible convention attendance". *Journal of Environmental Psychology* 40, 462–471.
- Han, H., L. T. Hsu, and C. Sheu (2010) "Application of the theory of planned behavior to green hotel choice: testing the effect of environmental friendly activities". *Tourism Management* 3, 325–334.
- Hanson, T. E. (2006) "Inference for mixtures of finite Polya tree models". *Journal of the American Statistical Association* 101, 1548–1565.
- Hauck, K. and G. Szolnoki (2020) "German consumers' perceptions of organic wine – a qualitative approach". *Sustainability* 12, 7729. DOI:10.3390/su12187729
- Hsiu-Hua, C. (2017) "Consumer socially sustainable consumption: the perspective toward corporate social responsibility, perceived value, and brand loyalty". *Journal of Economics and Management* 13, 2, 167–191.
- Hsu, C. L., C. Y. Chang, and C. Yansritakul (2017) Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services* 34:145–152.
- Huijts NMA, Molin EJE, van Wee B (2014) "Hydrogen fuel station acceptance: a structural equation model based on the technology acceptance framework". *Journal of Environmental Psychology* 38, 153–166.
- Ishtiaq, M. I. (2018) Testing Sustainable Consumption Behavior in Italy and Pakistan. *European Journal of Business Science and Technology* 4(1): 93–104. DOI: <http://dx.doi.org/10.11118/ejobsat.v4i1.125>.
- Joshi, Y. and Z. Rahman (2015) "Factors affecting green purchase behaviour and future research directions". *International Strategic Management Review* 3, 128–143.
- Joshi, Y. and Z. Rahman (2016) "Predictors of young consumer's green purchase behavior". *Management of Environmental Quality* 27, 452–472.
- Kamonthip, M., P. Surakiat, and P. Ke-Chung (2016) "Application of the extended theory of planned behavior model to investigate purchase intention of green products among Thai consumers". *Sustainability* 8, 10, 1077.
- Kang, KH, Stein L, Heo CY, Lee S (2012) "Consumers' willingness to pay for green initiatives of the hotel industry". *International Journal of Hospitality Management*, 3, 564–572.
- Kazemi, A., R. D. Hossien, D. Abadi, and K. Nastara (2013) "Analyzing the effect of customer equity on repurchase intentions". *International Journal of Academic Research in Business and Social Sciences* 3, 6, 78–92.
- Khare, A. (2015) "Antecedents to green buying behaviour: a study on consumers in an emerging economy". *Marketing Intelligence Planning*, 33, 309–329.
- Kim, H. Y. and J. E. Chung (2011) "Consumer purchase intention for organic personal care products".

- Journal of Consumer Marketing* 28, 40–47.
- Kim, Y. J., D. Njite, and M. Hancer (2013) “Anticipated emotion in consumers’ intentions to select eco-friendly restaurants: augmenting the theory of planned behavior”. *International Journal of Hospitality Management* 34, 255–262.
- Kline, R. B. (2005) *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Kozar, J. M. and K. Y. H. Connell (2013) “Socially and environmentally responsible apparel consumption: knowledge, attitudes, and behaviours”. *Social Responsibility Journal* 9, 315–324.
- Lee, K. (2014) “Predictors of sustainable consumption among young educated consumers in Hong Kong”. *Journal of International Consumer Marketing* 26, 217–238.
- Leibao, Z., F. Yanli, Z. Wenyu, and Z. Shuai (2019) “Extending the theory of planned behavior to explain the effects of cognitive factors across different kinds of green products”. *Sustainability* 11, 4222. DOI:10.3390/su11154222
- Ling, C. Y. (2013) “Consumers’ purchase intention of green products: an investigation of the drivers and moderating variable”. *Elixir Marketing Management* 57, 14503–14509.
- Liu, Y, H. Sheng, N. Mundorf, C. Redding, and Y. Ye (2017) “Integrating norm activation model and theory of planned behavior to understand sustainable transport behavior: evidence from China”. *International Journal of Environmental Research and Public Health* 14, 12, 1593. <https://doi.org/10.3390/ijerph14121593>.
- Lynn Sudbury, R. and K. Florian (2016) “Ethically minded consumer behavior: scale review, development, and validation”. *Journal of Business Research* 69, 8, 2697–2710.
- Maloney, J., M. Y. Lee, V. Jackson, and K. A. Miller-Spillman (2014) “Consumer willingness to purchase organic products: application of the theory of planned behavior”. *Journal of Global Fashion Marketing* 5, 4, 308–321.
- Ministry of Environment (2018). Available online at <<http://pib.nic.in/newsite/PrintRelease.aspx?relid=124460>>. Accessed on 25 August 2021.
- Namkung, Y. and S. Jang (2014) “Are consumers willing to pay more for green practices at restaurants?”. *Journal of Hospitality and Tourism Research* 41, 3, 329–356.
- Natural Marketing Institute (2015) “Understanding the LOHAS market report”. 6th ed. Available online at <https://www.lohas.se/wp-content/uploads/2015/07/Understanding-the-LOHAS-Consumer-11_LOHAS_Whole_Foods_Version.pdf>. Accessed at 25 August 2021.
- Nduneseokwu, C. K., Y. Qu, and A. Appolloni (2017) “Factors influencing consumers’ intentions to participate in a formal e-waste collection system: a case study of Onitsha, Nigeria”. *Sustainability* 9: 881. DOI: <https://doi.org/10.3390/su9060881>
- Nekmahmud, M. and M. Fekete-Farkas (2020) “Why not green marketing? Determinates of consumers’ intention to green purchase decision in a new developing nation. *Sustainability* 12, 19, 7880. DOI:10.3390/su12197880
- Nittala, R. (2014) “Green consumer behaviour of the educated segment in India”. *Journal of International Consumer Marketing* 26, 138–152.
- Onel, N. (2016) “Pro-environmental purchasing behavior of consumers: the role of norms”. *Social Marketing Quarterly* 23, 2, 103–121.
- Onwezen, M. C., G. Antonides, and J. Bartels (2013) “The norm activation model: an exploration of the functions of anticipated pride and guilt in pro-environmental behavior”. *Journal of Economic Psychology* 39, 141–153.
- Orzan, G., A. F. Cruceru, C. T. Balaceanu, and G. G. Chivu (2018) “Consumers’ behavior concerning

- sustainable packaging: an exploratory study on romanian consumers". *Sustainability* 10, 1787. DOI:10.3390/su10061787.
- Pagiaslis, A., and A. K. Krontalis (2014) "Green consumption behavior antecedents: environmental concern, knowledge, and beliefs". *Psychology & Marketing* 31, 335–348.
- Paul, J., A. Modi, and J. Patel (2016) "Predicting green product consumption using theory of planned behavior and reasoned action". *Journal of Retailing and Consumer Services* 29, 123–134.
- Phipps, M., L. K. Ozanne, M. G. Luchs, S. Subrahmanyam, S. Kapitan, J. R. Catlin, and T. Weaver (2013) "Understanding the inherent complexity of sustainable consumption: a social cognitive framework". *Journal of Business Research* 66, 1227–1234.
- Pratiwi, N. P. D. K., S. Sulhaini, and B. H. Rinuastuti (2018) "The effect of environmental knowledge, green advertising and environmental attitude toward green purchase intention". *Russian Journal of Agricultural and Socio-Economic Sciences* 78, 6, 95–105.
- Rahardjo, F. A. (2015) "The roles of green perceived value, green perceived risk, and green trust towards green purchase intention of inverter air conditioner in Surabaya". *iBuss Management* 3, 2, 252–260.
- Rishi, M., V. Jauhari, and G. Joshi (2015) "Marketing sustainability in the luxury lodging industry: a thematic analysis of preferences amongst the Indian transition generation". *Journal of Consumer Marketing* 32, 5, 376–391.
- Sahin, E. (2013) "Predictors of Turkish elementary teacher candidates' energy conservation behaviors: an approach on value-belief-norm theory". *International Journal of Environmental and Science Education* 8, 269–283.
- Schoenau, M. and M. Müller (2017) "What affects our urban travel behavior? A GPS-based evaluation of internal and external determinants of sustainable mobility in Stuttgart (Germany)". *Transportation Research Part F Traffic Psychology and Behaviour* 48, 61.73.
- Schwartz, S. Z. (1977) "Normative influence on altruism". In L. Berkowitz, ed. *Advances in experimental social psychology*. Vol. 10, 221–279. New York: Academic Press.
- Sesini, G., C. Castiglioni, and E. Lozza (2020) "New trends and patterns in sustainable consumption: a systematic review and research agenda". *Sustainability* 12, 5935. DOI:10.3390/su12155935
- Shen, J. (2008) *Understanding the determinants of consumers' willingness to pay for eco-labeled products: an empirical analysis of the China environmental label*. (OSIPP Discussion Paper, DP-2008-E-001.) Osaka: Osaka University.
- Shen, J. (2012) "Understanding the determinants of consumers' willingness to pay for eco labeled products: an empirical analysis of the China environmental label". *Journal of Service Science and Management* 5, 87–94.
- Singh, N. and K. Gupta (2013) "Environmental attitude and ecological behavior of Indian consumers". *Social Responsibility Journal* 9, 4–18.
- Suki, N. M. (2013) "Young consumer ecological behaviour: the effects of environmental knowledge, healthy food, and healthy way of life with the moderation of gender and age". *Management of Environmental Quality* 24, 6, 726–737.
- Thøgersen, J. (2014) "The mediated influences of perceived norms on pro-environmental behavior". *Revue d'économie politique* 124, 2, 179–193.
- United Nations Environment Programme (UNEP) (2011) World Conservation Monitoring Centre. Available online at <www.unep-wcmc.org>. Accessed on 25 August 2021.
- Van Zoonen, W., J. W. M. Verhoeven, and W. J. L. Elving (2014) "Understanding work-related social

- media use: an extension of theory of planned behavior”. *International Journal of Management, Economics and Social Sciences* 3, 4, 164–183.
- Wang, J. and Y. Hsu (2019) “Does sustainable perceived value play a key role in the purchase intention driven by product aesthetics? Taking smartwatch as an example”. *Sustainability* 11, 23, 6806. DOI:10.3390/su11236806
- Wang, S., J. Fan, D. Zhao, S. Yang, and Y. Fu (2016) “Predicting consumers’ intention to adopt hybrid electric vehicles: using an extended version of the theory of planned behavior model”. *Transportation* 43, 123–143.
- Wei, S. M., T. Ang, and V. E. Jancenelle (2018) “Willingness to pay more for green products: the interplay of consumer characteristics and customer participation”. *Journal of Retailing and Consumer Services* 45, 230–238. DOI: 10.1016/j.jretconser.2018.08.015
- Wolsink, M. (2007) “Wind power implementation: the nature of public attitudes: equity and fairness instead of ‘backyard motives’”. *Renewable and Sustainable Energy Reviews* 11, 1188–1207.
- World population review (2018) <http://worldpopulationreview.com/world-cities/kolkata-population/>
- Wu SI and Chen JY (2014) A model of green consumption behavior constructed by the theory of planned behavior. *Int. J. Mark. Stud.* 6:119–132.
- WWF (World Wildlife Fund) (2017) Living Planet Report. <https://www.worldwildlife.org/>
- Xiaoyun, Z. and D. Feng (2020) Why Do Consumers Make Green Purchase Decisions? Insights from a Systematic Review. *Int. J. Environ. Res. Public Health* 17:6607. doi:10.3390/ijerph17186607.
- Yadav, R. and G. S. Pathak (2017) Determinants of Consumers’ Green Purchase Behavior in a Developing Nation: Applying and Extending the Theory of Planned Behavior, *Ecological Economics* 134:114–122.
- Yazdanmehr, A. and J. Wang (2016) Employees’ information security policy compliance: A norm activation perspective. *Decision Support System* 92: 36–46.
- Ying-Pe, S. (2017) Consumption Intentions Toward Green Restaurants: Application of Theory of Planned Behavior and Altruism, *International Journal of Management, Economics and Social Sciences* 6:121–143.
- Young, W., K. Hwang, S. McDonald, and C. J. Oates (2010) Sustainable Consumption: Green Consumer Behaviour when Purchasing Products. *Sustainable development* 18:20–31.
- Yue, B., G. Sheng, S. She, and J. Xu (2020) Impact of Consumer Environmental Responsibility on Green Consumption Behavior in China: The Role of Environmental Concern and Price Sensitivity. *Sustainability* 12, 2074. doi:10.3390/su12052074.