

Impact of Perceived Consumer Effectiveness on Green Buying: A Moderated Mediation Model

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Abstract

The act of purchasing ecologically friendly goods is known as green purchasing behaviour. These buying choices are the outcome of numerous factors that researchers have attempted to analyse in the past. The goal of this study is to comprehend consumers' green purchasing habits and investigate the variables that influence them. Some cognitive measures such as perceived consumer effectiveness, perceived environmental knowledge and green perceived value that play an important part in shaping attitudes are being studied. According to the belief-attitude-behaviour model on which this study is based, these attitudes subsequently result in behaviours. A questionnaire is created to find out how these attitudes and beliefs influence green purchasing behaviours. This study utilised the Theory of Planned habits to comprehend and explore the relationship between various variables and green purchasing habits. Data was collected from 300 respondents who were educated adults. Analysis was done using PROCESS macro by Hayes moderated mediation model 14 in SPSS. The research findings indicated that an increase in knowledge of consumers regarding environmental issues resulted in them engaging in pro- environmental behaviour. The findings were similar for effectiveness and perceived value measures although it was established that people gave more importance to quality and did not strongly feel that their individual actions played a major role in changing environmental conditions.

Keywords: *Green purchase behaviour; green trust; perceived environmental knowledge; perceived consumer effectiveness; green perceived value; attitude towards green products.*

JEL Code: M30,M31,M37

1. Introduction

Deteriorating environmental conditions and the associated problems like global warming, waste disposal, climate change, and acidic rain have put the spotlight on sustainable development which can be understood as when the present generation is able to meet its needs and in doing so, it does not hamper the ability of future generations to satisfy their own needs. This has placed an increased focus on responsible consumption and production which ultimately helped green consumer behavior to emerge. Nowadays more attention is paid by the consumers as they search for options that are healthier for them and for their homes (Neilson news).

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Practitioners as well as academicians are giving more attention to the concept of ethical consumption (Papaoikonomou et al., 2011). Consumer buying preferences are changing as they are paying more attention towards protecting the natural environment and therefore exhibiting environmental ethics (Kim and Chung, 2011). To protect their environment, consumers are inclined towards buying green products. Researchers such as Wu et al., 2020; Ali et al., 2022, suggested that the new generation of consumers has started to favor ecologically friendly items. Products beneficial to society and environment are general green products and include recycled papers, energy efficient vehicles, ecofriendly carry bags, herbal products etc. (Lee, 2008). Green products generate low waste and can be easily recycled (Chen and Chai, 2010). The production process of these products is also environmentally friendly. Apart from recycling their products, these green consumers not only choose pro-environment alternatives where available but also try to minimize their consumption (Ali et al. 2021).

The annual spending on green products in the United States is \$25 billion. Ferrell & Hartline (2011) show that the sale of green products in Europe and the United States increased when they were differentiated by using green labelling. Around 42% of consumers in America are happy to pay an additional amount for purchasing green products (Kotler, 2003). Researchers have conducted various studies to understand this pro-environmental behaviour of the consumers in developed nations (Zhao et al., 2014). Many factors influence the green purchase behavior of consumers as revealed by studies conducted in Europe and USA.

The environmental issues have started to get more attention in Pakistan after the intense fog in winters that disrupted routine life. Unprecedented flooding after drought like situation in August 2022 destroyed families, infrastructure, and economy. Increasing dumps of e-waste which contains toxic chemicals are posing a health risk to people (Gilal et al., 2022). Various campaigns like Billion Tree Tsunami and building new water reservoirs like Diamer Basha dam have sensitized the population towards environmental problems. People are taking measures to mitigate the adverse effects on their environment. Green buying is a relatively new phenomenon in developing countries like Pakistan. Pakistan lacks in-depth literature on consumer research and environmental issues as only a handful of studies can be found on measurement of green purchase behavior. Environmental sensitivity and awareness have increased in Pakistan and many individuals know and are worried about the different environmental issues (Khan & Mohsin, 2017). Although there is a lot of awareness about green phenomenon and eco-friendly products, yet the usage of products with eco-friendly labeling on them is not very common and the trust level regarding the performance of these products is also very low (Rizwan et al., 2013). Although people are aware of green products and their effects on the environment, actual purchase intentions are lacking. As a result, it is essential to understand the factors that influence how people choose to buy and use green products in order to effectively overcome these obstacles.

Numerous factors, including eco-awareness, green trust, green risk, environmental liability, and cognitive recognition have been examined by academics in the past, but perceived consumer efficacy has never been put to the test in the context of actual customers. This study attempts to examine consumers' environmental behavior by studying their measure of perceived consumer effectiveness and fill this research gap by adding additional context.

The current study presents a unique opportunity to advance our knowledge of how green buying behavior is affected by different levels of perceived consumer effectiveness and if improving consumers' perceptions about their efficacy can bring about a change in green buying behavior. This research also attempts to understand how consumers' attitude and intentions towards green purchases are altered by their level of trust in the green products.

2. Literature Review

2.1 Theory of Planned Behavior

This theory which incorporates the external factors leading towards the behavior with a mediating role of attitude is the basis of this study. Formation of behaviors can be understood with the aid of theory of planned behavior. Ajzen (1991) suggests that people's attitudes help forming their intentions which then lead to a particular behavior. Various recent research (Zeng et al., 2022, Ye et al., 2017) has employed the theory of planned behavior to understand how behavior is developed. This theory has also been used extensively to study pro-environmental behaviors (Asif et al. 2023). However, in the field of green consumerism, ethical consumption, and green marketing, it is argued that there are other variables that can help explain the formation of attitudes towards green products. Such cognitive measures comprise beliefs of the individual that lead to forming attitude. According to the literature on belief, attitude, and behavior, belief influences behavior through attitude. The study grounds itself upon belief-attitude-behavior model.

2.2 Green Purchase Behavior

Green purchase behavior (GPB) is the practice of buying environmentally friendly goods that may be "recycled" and are "beneficial" for the protection of the environment. These products do not present any harm to society and the general environment and can be regarded as sustainable. These products may be manufactured by using recycled materials, may contain ingredients that are less toxic or may have minimal packaging. Companies use different terms like 'recyclable', 'environmentally safe', 'ozone friendly' and 'biodegradable' to classify and promote these products. The main aim of the consumers when choosing such products is to have a minimum negative effect on their natural environment therefore, they exhibit various forms of pro-environmental behavior which includes recycling behavior, energy saving, green purchase behavior etc. After reviewing past literature Joshi & Rahman (2015) established that purchase of green products is considered socially responsible behavior

and involves complicated ethical decision making. Because they seriously consider the social effects of their private consumption, green consumers can be regarded as socially responsible consumers. These consumers therefore use their purchasing power to create a positive social change. Green consumer behavior is evaluated when the consumers have the intentions to buy green products and those intentions are eventually transformed into their purchase decisions (Joshi and Rahman, 2015). According to research on consumer behavior, attitude, subjective standards, intents, and perceived behavioral control all work together to shape consumer behavior (Ajzen and Fishbein, 1980).

Green consumers desire to buy products that are less harmful and eco-friendly thus cautiously selecting the ones which are beneficial to the environment. The disastrous environmental pollution that has arisen as a result of industrial manufacturing activities around the world has prompted people to take notice of the environmental issues. These concerns help in forming the intention to purchase green products which exerts a great influence on their behavior to purchase green products. Peattie (1995) found that those who are more concerned with environmental issues and want to reduce the negative effects of their consumption are more inclined to purchase environmentally friendly products. External motivation i.e. when the consumers anticipate receiving any award also encourages them to indulge in green consumer behavior (Gilal et al., 2019).

2.3 Attitude towards Green Products

In psychology of green consumer, attitude is assumed to be a vital force that shapes behavioral intention and actual behavior. Attitude is understood as a mental state which influences the response of the people when they are confronted with different situations and objects. Classification of attitude can be done into general attitude and specific attitude (Tan, 2011). The general tendency to engage in related behavior with respect to a category of attitude is called general attitude; while for a particular attitude object, showing a single behavior is regarded as specific attitude (Ajzen and Fishbein, 1977). Fishbein and Ajzen cautioned that general attitude should not be used to forecast specific behavior and recommended the use of specific attitude in predicting the specific behavior. It can also be said that when the attitude measure is more specific, it has a stronger correlation with the behavioral action.

Specific attitude contains attitude towards green products (AGP). It can be described as one's feelings or beliefs about the decisions to purchase those products which are good for the environment. If the individual has an encouraging attitude regarding a specific behavior, then the chances of him performing that behavior will increase (Ajzen, 1991). According to Irland (1993) consumers' environmental attitudes influence their purchase intentions. Favorable purchase intentions are formed when customers' attitude regarding green products is positive (Chan, 2001). Attitude also influences a particular behavior eventually by initially working to strengthen the intention of performing that behavior (Ajzen, 1991).

Different psychological factors like perceptions, beliefs and values play a role in determining people's attitudes. This study is based on understanding the impact of consumers' perceived product value, knowledge and their measure of effectiveness on forming their attitudes regarding green products.

2.4 Perceived Environmental Knowledge

One's cognitive ability to comprehend issues related to environment or sustainability is described as perceived environmental knowledge (PEK). These problems for the most part include air, land and water pollution, waste generation, recycling, energy usage and efficiency, also their impact on the society and environment (Chan, 2001; Tan, 2011; Yadav and Pathak, 2016). It is assumed that consumers having more knowledge regarding the product and its performance will be more prone to buy it.

If we look at the past behavioral literature, it advocates a positive association of behavior and environmental knowledge in common but empirical finding for the association between these two variables is still not conclusive. Chan & Lau (2000) summarize past literature that establishes environmental knowledge is known to have little bearing on behavior. On the contrary, researchers like Yadav and Pathak (2016) reported that these two variables are positively related. While others like Kumar et al. (2017) found an inconsistent correlation between intention to purchase green products and perceived environmental knowledge and suggested that whenever the knowledge about environment increases, it does not always result in purchase of environmentally friendly products. He however found that this knowledge is definitely associated with favorable mindset towards green products which are able to alter purchase intention of green products.

Researchers have found that in emerging nations, perceived environmental knowledge and a pro-green attitude have a direct beneficial relationship that eventually influences the inclination to buy green products (Chan, 2001). In Pakistani context, a positive link was found between transference of environmental responsibility from teachers to students whereas teachers who had a high level of concern for the environment transferred it more effectively to their students compared to those who had a low level of concern (Gilal et al., 2020). This transfer helps better in shaping attitudes. Therefore, the following hypothesis is proposed.

H₁: The relationship between perceived environmental knowledge and green purchasing behavior is mediated by attitude.

2.5 Perceived Consumer Effectiveness

In prior studies done on green consumer behavior, the perceived consumer effectiveness (PCE) is discovered to be a significant forecaster of green consumption behavior (Tan, 2011). PCE reflects peoples' belief that their actions such as

purchasing green products or subscribing to e-invoice promotions, etc can have a significant impact in solving the problems of environment (Ellen et al.,1991).

It can be referred as a measure for evaluating peoples' judgment on how the individuals can contribute in solving society's environmental problems (Kim, 2011). According to Straughan and Roberts (1999) consumers make green purchases only when they trust that this can positively impact their environment, thus consumers that have high PCE are more inclined towards green product purchase, and we can consider PCE to be the key predictor of consumers' environment friendly behavior.

As stated by Kim and Choi (2005) it has been observed that people are more prone towards engaging in environment friendly behavior when they strongly believe that their behavior and attitude will positively affect the environment overall. Similar studies by, Kim and Choi (2005), Roberts (1996) in western context, Mostafa (2006) similarly referred PCE to be the key predicting factor for Asian Region to predict the green purchase attitude of the people.

PCE directly affects environmentally conscious behaviors. People have different life experiences and knowledge, based on these factors some people will opine that the actions they take will drastically impact the environment while others will believe their actions to be of very little help in bringing any improvement in the environment, therefore it can be said that the level of PCE varies from one individual to another. Roberts (1996) advocated consumer's perceived effectiveness to be the key determinant factor for environmentally conscious consumer behavior. When consumers believe that the impact of their attitude on the environment will be positive that is when they prefer buying green products.

Perceived consumer effectiveness and green behavior are related such that an increase in one factor will predict an increase in the other as well. Researchers like Ellen et al. (1991) believes that marketers, environmentalists, and businesses who believe in environment sensitive attitude and endorse the same should encourage others and provide them with positive comments and support for their environment friendly behavior. According to IshaSwini and Datta (2011), demand for green products can be increased if consumers are effectively informed regarding the positive impacts of their purchasing behaviors on the environment.

Governments are believed to be mainly responsible for environment protection, in case government fails to lay efficient environment protection regulations in place people start doubting the impact of their green behavior (Dunlap and Scarce, 1991), consumers must be urged to adopt green behavior and must be convinced of the positive impact that their green behavior can have in helping to fight the environmental degradation.

Depending upon different situations and behaviors, it is believed that PCE is a changing phenomenon. It is believed that different reflections can be observed in

different situations (Kim and Choi, 2005). According to Lee and Holden (1999) for consumers to transform their positive attitude into real green purchase, a high PCE level is mandatory. It is still unknown how effective our local consumers perceive their purchase decisions as are to combat environmental problems. Therefore, the following hypothesis is proposed.

H₂: The relationship between perceived consumer effectiveness and green purchasing behavior is mediated by attitude.

2.6 Green Perceived Value

The phrase "a consumer's overall evaluation of the net benefit of a product or service based on consumer's appraisal" (Patterson & Spreng, 1997) is a good way to describe perceived value. Perceived value can also indicate a customer's purchasing intentions (Zhuang et al., 2010). According to Dodds et al. (1991), when consumers are deciding which green items to buy, they will select those with a higher perceived value.

“A consumer’s overall appraisal of the net benefit of a product or service between what is received and what is given based on the consumer’s environmental desires, sustainable expectations, and green needs” (Spreng,1997), is described as green perceived value (GPV). The findings demonstrate to businesses that the moment that the value of the green product is perceived is when the entire process of purchase intention begins. In other words, it is very unlikely that a product will win the trust or contentment of the green movement if it does not provide value for the user (Román-Augusto et al., 2022).

The available literature reveals that consumers purchase intentions and perceived value are positively related (Patterson and Spreng, 1997). It helps in forming green purchase intentions. Consumers will choose the product if they think that its value is high (Chang and Chen, 2008). Companies can boost the purchase intention of consumers because of perceived value as it is gaining more importance nowadays (Steenkamp and Geyskens, 2006). They will be able to generate value for their customers by differentiating their product from the competitors (Zeithaml, 1988). Trust is also known to have a positive association with perceived value. A high level of perceived value can create an image of a highly value-added product in the market (Sweeney et al., 1999). When organizations over-emphasize about the environmental worth of their products, they eventually diminish consumers trust on them. When these environmental claims are assumed to be dependable and credible by green consumers, their green perceived value increases.

Companies involved in the marketing of green products need to reinforce their product development strategies by including characteristics that are important to green product consumers and that are also effective in developing a brand's positioning (Román-Augusto et al., 2022). The strong green value in the customers’ mind can be achieved if the quality and performance of both the non-green product and its green

substitute are similar. A very important factor that can also help to form repurchase intentions in green products category is value. Based on all these arguments, the following hypothesis is proposed.

H₃: The relationship between green perceived value and green purchasing behavior is mediated by attitude.

2.7 Green Trust

Trust can be referred to as belief, expectations and promises one can rely on (Rotter, 1971; Schurr and Ozanne, 1985). It cannot be fostered if there is no prior knowledge of domain. Trust is one's willingness to accept vulnerability because the other parties' intentions and behavior are expected to be positive (Rousseau et al. 1998). According to past studies there are three main beliefs that the trust is build up upon namely benevolence, ability, and integrity (Schurr and Ozanne, 1985). Trust is when one party is willing to depend on other party based on expectation that resulted from other party's reliable and benevolent behavior (Ganesan, 1994). Trust is also important to keep long term customer relationships (Lee et al., 2011).

Green trust was defined as "a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance" by Chen (2010). Green buying practices are ultimately influenced by green trust, according to prior research (Berger & Cobin, 1992).

The confidence or trust that consumers have on green products ultimately urges them to choose them as they do not damage the environment (Rizwan et al., 2013). Effective green buying can be achieved if there is a lesser risk associated with green products which in turn strengthen the trust of consumers (Chen & Chang, 2012).

It is observed that false promotions by various companies based on confusing and misleading green claims where they overstate the environmental worth of their respective products has resulted in loss of trust of the consumers (Kalafatis and Pollard, 1999). Trust and reliability are two main factors that radically urge consumers for green purchase (Ali et al., 2011). Relationships are built and based on trust, green trust is the key factor that improves consumers purchase behavior and eventually helps in increasing the brand's equity in the market.

The products that match their environmental claims are perceived more trustworthy and the manufacturers are able to sell more of them. This means that the products are able to deliver green satisfaction associated with them. One way to gain this trust of the buyers is to make products which deliver the same features and attributes that are claimed by the manufacturers. The increasing level of confidence in green products provides consumers with a sense of dependability, which boosts organizational success (Hang et al., 2022).

Companies that succeed in developing the trust factor with their consumers tend to lead to an increased purchasing intention. In the current study, the role of green trust as a moderator is studied. It is significant to observe if the attitude towards green purchase is present, how the attitude of purchase behavior is affected by the impact of attitude.

Keeping in mind these considerations, the following hypotheses are stated.

H₄: The association between attitudes towards green items and green purchasing behavior is moderated by green trust.

The study discovered that people are more likely to have favorable views towards engaging in green consumer behavior when they perceive their own environmental knowledge to be higher. However, when there is a high level of confidence in the green products and businesses being offered, this relationship is stronger. In other words, the association between perceived environmental knowledge and green purchasing behavior is moderated by green trust. When it comes to choosing green hotels, environmental knowledge and green trust have a positive significant impact on purchase intentions (Sultana et al., 2022). Roh et al., (2022) also found that perceived knowledge positively influences attitude and trust when people consume organic food. In light of these findings, we propose the following hypothesis.

H₅: The mediating role of attitude between perceived environmental knowledge and green purchase behavior is moderated by green trust.

People's actual green purchasing behavior is influenced by their perceptions of how effective they are as consumers, attitudes towards green behavior, and the degree of green confidence they have in businesses or organizations.

Green trust and perceived consumer effectiveness also positively influence green purchase intention (Wang et al., 2019). It suggested that when consumers have a strong belief in the positive results of using green products, they believe that environmental problems can be solved through individual green purchasing behavior. Various research have established that green trust has a major impact on green purchase intentions. The moderating function of green trust suggests that the degree of green trust has an impact on the link between attitude and green purchasing behavior. Thus, the following hypothesis is proposed:

H₆: The mediating role of attitude between perceived consumer effectiveness and green purchasing behavior is moderated by green trust.

Customer perceived green value has been found to be the only factor that truly influences consumer behavior, according to numerous studies (Ahmad & Zhang, 2020; Suki & Suki, 2019). An increased green perceived value helps in enhancing green trust and green purchase intentions (Chen & Chang, 2012). Salimi (2019) found

a positive and significant relationship between green purchase attitude and green purchase intention while it found that green product perceived value does not enhance green purchase. Owing to the moderating effect of green trust, the relationship between attitude and green purchasing behavior may be influenced by the level of green trust. In light of these statements, current research proposes the following hypothesis.

H₇: The mediating role of attitude between green perceived value and green purchase behavior is moderated by green trust.

From the literature review and above stated hypotheses, the following framework is derived:

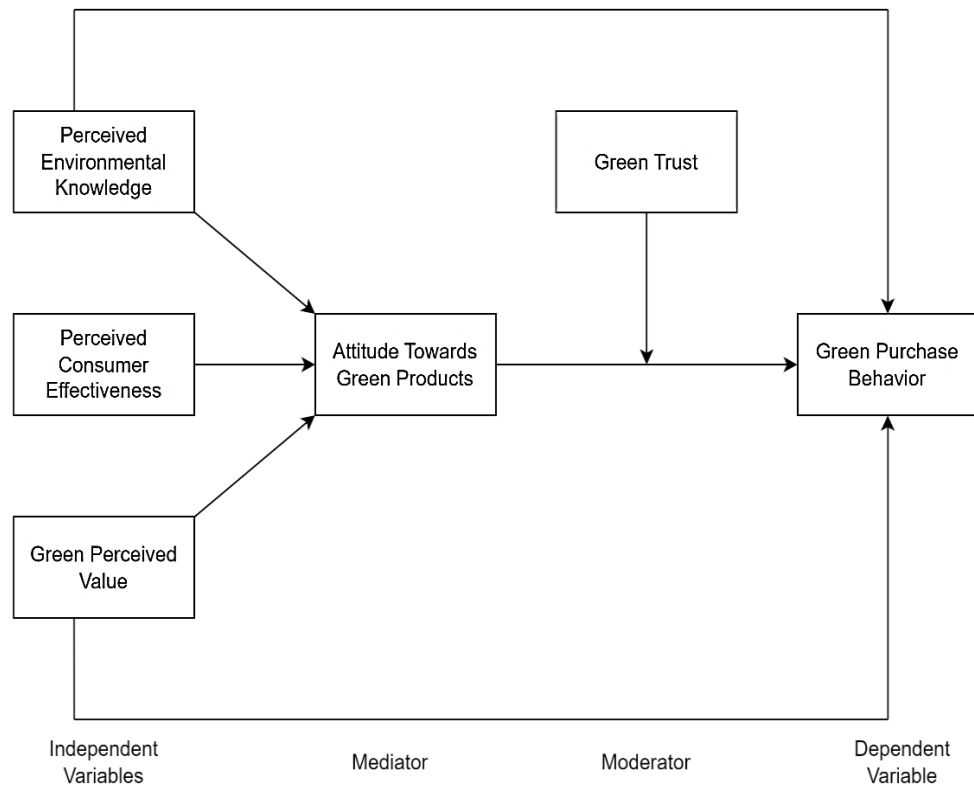


Figure 1: Theoretical Framework

3. Methodology

Hypothesis testing is done in this descriptive study. The study is carried out in a natural habitat with minimal researcher interference, rather than in a laboratory

setting. Respondents have been asked during their routine shopping to fill out the survey. Our target population is general household consumers who are educated and adults (above 18 years of age). Educated adults are more informed of the environmental problems and consequences of their buying behavior. Chan (2001) observed that phenomenon of green purchase behavior is clearly understood by knowledgeable population and by young adults therefore the responses that are generated are more appropriate as compared to the ones provided by less educated people and minors. Sampling frame of this study are those individuals who are aware or users of green products.

Mall intercept method is used to gather data. General household consumers were provided a self-administered questionnaire consisting of two parts. The questionnaire (survey) forms were distributed to individuals in form of a hard copy. They were requested to voluntarily participate in this survey and their anonymity was ensured. Nunnally (1978) used item response theory to calculate the sample size. It was computed by multiplying the number of survey items by 10, therefore 250 responses were sufficient ($25 \times 10 = 250$). The total sample size in this study was 300. Respondents were selected by using a convenience sampling method. The results were analyzed using SPSS and Process Hayes software. Descriptive, reliability and correlation and regression analysis were performed.

3.1 Measurements and Scales

To measure perceived consumer effectiveness, mentality towards green products, green perceived value, perceived environmental understanding, green trust, and green buying behavior, established scales are modified from the literature. Each item is evaluated on a five-point Likert scale. Strongly disagree to strongly agree are the range of answer choices. However, there are four items on the scale for green purchasing behavior, with response choices ranging from never (1) to always (5). The questionnaire is provided in (Annexure A) of the study.

The details of scales, measuring items used and their sources are stated in table 3.1.

Table 3.1: Measures of study variables

Variable	Items	Sample Items	Scale	Reference
Green purchase behavior	4	I choose to buy products that are environmentally friendly	Five-point Likert Scale	Lee, 2008
Attitude towards green products	3	I like the idea of purchasing green products.	Five-point Likert Scale	Taylor and Todd, 1995; Chan, 2001

Perceived environmental knowledge	5	I am very knowledgeable about environmental issues	Five-point Likert Scale	Mostafa, 2006
Perceived consumer effectiveness	4	I feel capable of helping solve the environmental problems.	Five-point Likert Scale	Kim and Choi, 2005
Perceived value	5	The green product's environmental functions provide good value to me.	Five-point Likert Scale	Chen and Chang, 2012
Green Trust	4	Green product's environmental reputation is generally reliable.	Five-point Likert Scale	Chen, 2010

4. Results

In this study, the sample consisted of 300 respondents. Table 4.1 provides frequency analysis of research participants by their gender, marital status, age, qualification, monthly income and their occupations.

The findings indicated that 71.3% of the participants were females (214) and there were 86 male respondents (28.7 %). 176 (58.7%) participants were single, and 124 (41.3%) participants were married. 74.7% of participants lie in the age bracket of 18-34 years. There were 54 (18%) participants who are 35-44 years old and only 20 (6.7%) participants were 45+years old. The qualification of 14 (4.7%) participants was intermediate, half of the participants (154, 51.3%) had a bachelor's degree, 128 participants held a masters (42.7 %) and only 4 participants were Ph.D. holders (1.3%). Majority of the participants were employed; 126 (42%), 108 (36%) were students, there were 2 retirees (0.7%) and 32 (10.7%) housewives. 2 respondents (0.7%) were unemployed while 30 respondents belonged to the 'other' category which were mostly entrepreneurs.

Table 4.1 Respondents Characteristics

Characteristics	N=300
<i>Gender</i>	
Male	28.7%
Female	71.3%
<i>Marital Status</i>	
Married	41.3%
Un married	58.7%

<i>Age</i>	
18-24 years	40.7%
25-34 years	34.7%
35-44 years	18.0%
45 & above	6.7%
<i>Education</i>	
Intermediate	4.7%
Bachelors	51.3%
Masters	42.7%
Ph.D.	1.3%
<i>Monthly Income</i>	
below 50,000	30.7%
50,000-100,000	22.0%
100,001-200,000	36.0%
above 200,000	11.3%
<i>Occupation</i>	
Student	36.0%
Employed	42.0%
Unemployed	0.7%
Housewife	10.7%
Retired	0.7%
Other	10.0%

Sample size N=300

Scales' reliability is evaluated using Cronbach's Alpha. It verifies the degree to which variables are reliable. According to Cronbach's (1951), the threshold value to verify reliability and internal consistency of a scale's items is that it should be equal to or greater than 0.7. The reliability of the scales is shown in Table 4.2.

Table 4.2 Scales Reliability

Scales	Items	Alpha
1 Green Purchase Behavior	4	.739
2 Attitude towards Green Products	3	.719
3 Perceived Environmental Knowledge	5	.837
4 Perceived Consumer Effectiveness	4	.802
5 Green Perceived Value	5	.851
6 Green Trust	4	.831

The Alpha value of attitude towards green products is more than 0.70 which shows that the reliability of the scales is satisfactory. Cronbach's alphas of all other scales lie between 0.8 - 0.9 which indicates that all these scales have a good reliability.

This study uses correlation to find preliminary evidence for the relationship we hypothesized. A correlation matrix was created by meticulously tabulating the data, as seen in Table 4.3. Results are deduced using the established correlational rules (i.e., the coefficient ranges from +1 to -1, where 0 denotes no link).

Table 4.3 Correlation Matrix

Variables	1	2	3	4	5	6
1. Green Purchase Behavior	1					
2. Attitude towards Green Products	.310**	1				
3. Perceived Environmental Knowledge	.519**	.208**	1			
4. Perceived Consumer Effectiveness	.286**	.414**	.499**	1		
5. Green Perceived Value	.545**	.562**	.436**	.457**	1	
6. Green Trust	.178**	.178**	.213**	.456**	.544**	1

** Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix shows that dependent variable green purchase behavior has a significant and positive association with attitude towards green products ($r = 0.310$, $\rho < 0.01$). This shows an increase in attitude towards green products predicts increase in green purchase behavior of consumers. Results also shows that attitude towards green products has a significant and positive association with perceived environmental knowledge ($r = 0.208$, $\rho < 0.01$). This indicates an increase in environmental knowledge predicts an increase in positive attitude of consumers towards green products. These facts are congruent with various studies on green purchase behavior (i.e., Jaiswal, 2018; Tandung, 2016). The correlation outcomes also provide that attitude towards green products positively relates with perceived consumer effectiveness ($r = 0.414$, $\rho < 0.01$) and green perceived value ($r = 0.562$, $\rho < 0.01$). The moderator green trust shows a significant and positive relationship with green purchase behavior ($r = 0.178$, $\rho < 0.01$) validating the fact that it is powerful enough to alter purchasing behavior for green products.

4.2 Hypothesis Testing

Hypothesis testing is done using the moderated mediation model. This study investigates whether the impact of independent variables on green purchase behavior (dependent variable) via attitude towards green products (mediator) was conditional on green trust by employing SPSS Process macro (Model 14, Preacher & Hayes, 2008) at 90% confidence interval. 5000 bootstrap resampling was performed. The results of the moderated mediated analysis are discussed as further.

4.2.1 Relationship between Green Purchase Behavior and Perceived Environmental Knowledge:

We calculated the model's coefficients, which show how perceived environmental knowledge affects attitudes towards green products and how those attitudes interact with green trust to influence consumers' decisions to buy green goods. Table 4.4 lists the outcomes of the moderated mediation analysis.

Table 4.4 Regression for the Conditional Indirect Effect

Mediating Variable Model (Attitude Towards Green Products)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	3.41	0.19	18.41	0.00	3.10	3.72
X (Perceived Environmental	a_{1i}	0.20	0.05	3.67	0.00	0.11	0.29

Knowledge)							
Dependent variable Model (Green Purchase Behavior)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	-1.85	1.17	-1.58	0.12	-3.78	.08
M (Attitude Green Products)	b _{1i}	0.74	0.28	2.69	0.01	0.29	1.20
X (Perceived Environmental Knowledge)	c'	0.48	0.05	9.12	0.00	.39	.57
V (Green Trust)	b ₂	0.66	0.32	2.03	0.04	.12	1.19
Interaction	b _{3i}	-0.14	0.07	-1.91	0.06	-.26	-.02
Conditional Indirect Effect(s) of X on Y at Range Values of Moderator							
Confidence	Effect	Boot SE	Boot LLCI	Boot ULCI			
-1 SD (2.97)	0.06	0.02	0.03	0.11			
M (3.60)	0.05	0.02	0.02	0.08			
+ 1SD (4.23)	0.03	0.02	0.01	0.07			
Index of Moderated Mediation							
Mediator	Index	SE	LL 90% CI	UL 90% CI			
	-0.03	0.02	-0.06	-0.01			

Note: n = 300; β = Unstandardized Regression Coefficient; Bootstrap Sample Size = 5000 ;LL = Lower limit ; CI = Confidence Interval ; UL =Upper Limit

The results of the model show that attitudes towards green products are significantly influenced by perceived environmental knowledge, and these attitudes are found to be positive as shown by the significant unstandardized regression coefficient (= 0.20, t = 3.67, p 0.001, route an in table 4.4). When PEK was taken into account, the connection between AGP and GPB was positive and significant (= 0.74, t = 2.69, p 0.05, route bi in table). Additionally, the model showed a significant and favorable direct impact of PEK in shaping and predicting GPB (path c' in table 4.4) as = 0.48, t = 9.12, and p 0.001 when GPB is considered as an outcome variable. These results support our first hypothesis, which states that AGP mediates the link between PEK and GPB. Additionally, these variables partially mediate one another.

When accounting for all other variables, the model's results likewise demonstrate that green trust has a significant and favorable impact on consumers' decisions to buy green goods (route b2 in table 4.4, with $\beta = 0.66$, $t = 2.03$, and $p < 0.05$). In Table 4.4, path b3i in Figure 4.1, the interaction impact of GT and AGP on GPB was shown to be negative and significant with $\beta = -0.14$, $t = -1.91$, 90% CI = -0.26 to -0.02, and $p < 0.10$. This confirms our fourth hypothesis, according to which GT modifies the association between AGP and GPB.

The SPSS outcome shows that the index of moderated mediation is also significant at -0.03 and confidence intervals limits are -0.06 to -0.01. This helps us to infer that GT moderates the mediated relationship of PEK and GPB via AGP. Since these values are significant, we accept our H5.

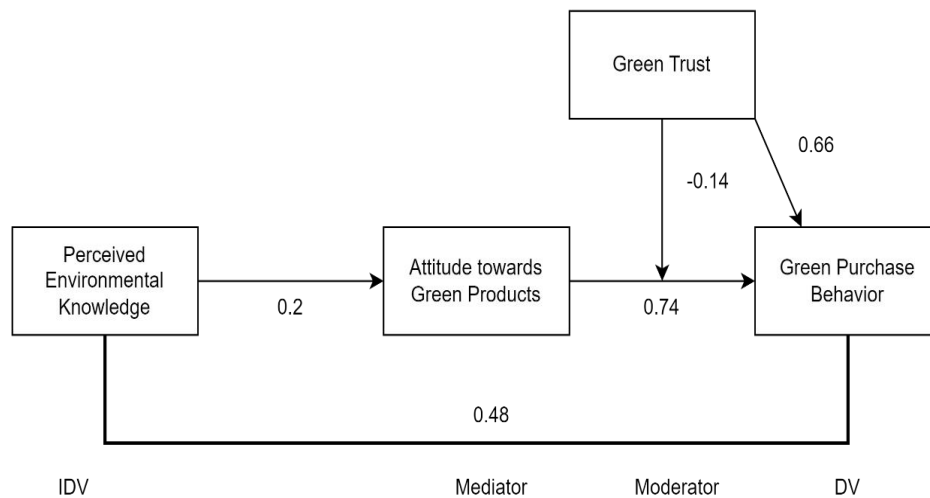


Figure 4.1

4.2.2 Relationship between Green Purchase Behaviour and Perceived Consumer Effectiveness:

The results of moderated mediation analysis are presented in Table 4.5

Table 4.5 Regression for the Conditional Indirect Effect

Mediating Variable Model (Attitude Green Products)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	2.28	0.23	9.83	0.00	1.90	2.66
X (Perceived	a _{1i}	0.45	0.06	7.86	0.00	0.35	0.54

Consumer Effectiveness)							
Dependent variable Model (Green Purchase Behavior)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	-2.16	1.31	-1.64	0.10	-4.33	.01
M (Attitude Green Products)	b_{1i}	1.00	0.31	3.23	0.00	0.49	1.51
X (Perceived Consumer Effectiveness)	c'	0.18	0.08	2.38	0.02	.06	.31
V (Green Trust)	b_2	0.95	0.36	2.62	0.01	.35	1.55
Interaction	b_{3i}	-0.20	0.08	-2.46	0.01	-.34	-.07
Conditional Indirect Effect(s) of X on Y at Range Values of Moderator							
Confidence	Effect	Boot SE	Boot LLCI	Boot ULCI			
-1 SD (2.97)	0.18	0.04	0.11	0.26			
M (3.60)	0.12	0.03	0.07	0.18			
+ 1SD (4.23)	0.06	0.04	0.00	0.13			
Index of Moderated Mediation							
Mediator	Index	SE	LL 90%CI	UL 90% CI			
	-0.09	0.04	-0.17	-0.02			

Note: n = 300; β = Unstandardized Regression Coefficient; Bootstrap Sample Size = 5000 ; LL = Lower limit ; CI = Confidence Interval ; UL =Upper Limit

The output shows the relationship between PCE and AGP to be positively significant with $\beta = 0.45$, $t = 7.86$, $p < 0.001$, (see path a in figure 4.2). The relationship between AGP and GPB is significant and positive as their $\beta = 1.00$, $t = 3.23$, $p < 0.001$, path b_{1i} in figure 4.2). Furthermore, the relationship between PCE and GPB when controlling for other variables is also significant with $\beta = 0.18$, $t = 2.38$, $p < 0.05$. Since all these paths a, b and c' are positive and significant therefore we can conclude that this supports out Hypothesis 2 that AGP mediates the relationship between PCE and GPB. We can also infer that the mediation effect between these variables is partial.

The model's findings also suggest that the effect of green trust on green purchasing behavior is significant and favorable after controlling for all other variables, as demonstrated by path b2 in table 4.4, with $\beta = 0.95$, $t = 2.62$, and $p < 0.05$. The interaction impact of GT and AGP on GPB was revealed to be adverse and significant in Table 4.5, path b3i in Figure 4.2, with $\beta = -0.20$, $t = -2.46$, 90% CI = -0.34 to -0.07, and $p < 0.01$. This supports Hypothesis 4's assertion that GT alters the relationship between AGP and GPB.

The SPSS outcome shows that the index of moderated mediation is also significant at -0.09 and confidence intervals limits are -0.17 to -0.02. This helps us to infer that GT moderates the mediated relationship of PCE and GPB via AGP.

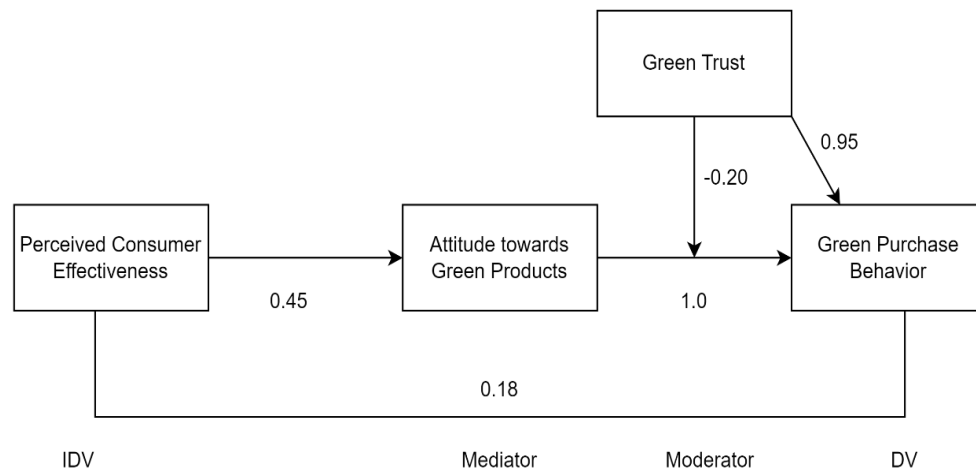


Figure 4.2

4.2.3 Relationship between Green Purchase Behavior and Green Perceived Value

The results of moderated mediation analysis are presented in Table 4.6

Mediating Variable Model (Attitude Green Products)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	1.71	.20	8.40	0.00	1.38	2.05
X (Green Perceived Value)	a_{1i}	0.63	.05	11.72	0.00	0.54	0.72
Dependent variable Model (Green Purchase Behavior)							
Predictor		B	SE	T	P	LLCI	ULCI
Constant	I	-1.95	1.16	-1.68	0.09	-3.87	-.03

M (Attitude Green Products)	b_{1i}	0.66	0.28	2.40	0.02	0.21	1.11
X (Green Perceived Value)	c'	0.80	0.08	9.43	0.00	.66	.94
V (Green Trust)	b_2	0.59	0.32	1.82	0.07	.06	1.12
Interaction	b_{3i}	-0.19	0.07	-2.57	0.01	-.31	-.07
Conditional Indirect Effect(s) of X on Y at Range Values of Moderator							
Confidence	Effect	Boot SE	Boot LLCI	Boot ULCI			
-1 SD (2.97)	0.06	0.05	-0.02	0.15			
M (3.60)	-0.01	0.04	-0.07	0.05			
+ 1SD (4.23)	-0.09	0.05	-0.16	-0.01			
Index of Moderated Mediation							
Mediator	Index	SE	LL 90%CI	UL 90% CI			
	-0.12	0.05	-0.20	-0.04			

Table 4.6 Regression for the Conditional Indirect Effect

Note: $n = 300$; β = Unstandardized Regression Coefficient; Bootstrap Sample Size = 5000; LL = Lower limit; CI = Confidence Interval; UL =Upper Limit

Analysis of the output show that the relationship of GPV with AGP is positive and significant where $\beta = 0.63$, $t = 11.72$, $p < 0.0001$. This makes our path a in the figure 4.3 significant. Next while examining path b, we come to observe that the association between AGP and GPB is also positive and significant as evident from the unstandardized regression coefficient β whose value is 0.66 at $t = 2.40$ and $p < 0.05$. Furthermore, the association between GPV and GPB when controlling for all other variables is also positive and significant with $\beta = 0.80$, $t = 9.43$, $p < 0.000$. This is sufficient to conclude that since all the paths a, b and c' are significant therefore there is partial mediation between GPV and GPB where AGP acts as the mediator between these variables. Hence our Hypothesis 3 is supported.

The outcome of the model also shows that green trust is significantly and positively related to green purchase behavior when controlling for all other variables, path b_2 in Table 4.6, with $\beta = 0.59$, $t = 1.82$, $p < 0.10$. The interaction effect of GT and AGP on GPB was negative and significant with $\beta = -0.19$, $t = -2.57$, 90% CI = -0.31to -0.07, $p < 0.01$ (Table 4.6, path b_{3i} in Figure 4.3). This validates our Hypothesis 4 that GT moderates the relationship between AGP and GPB.

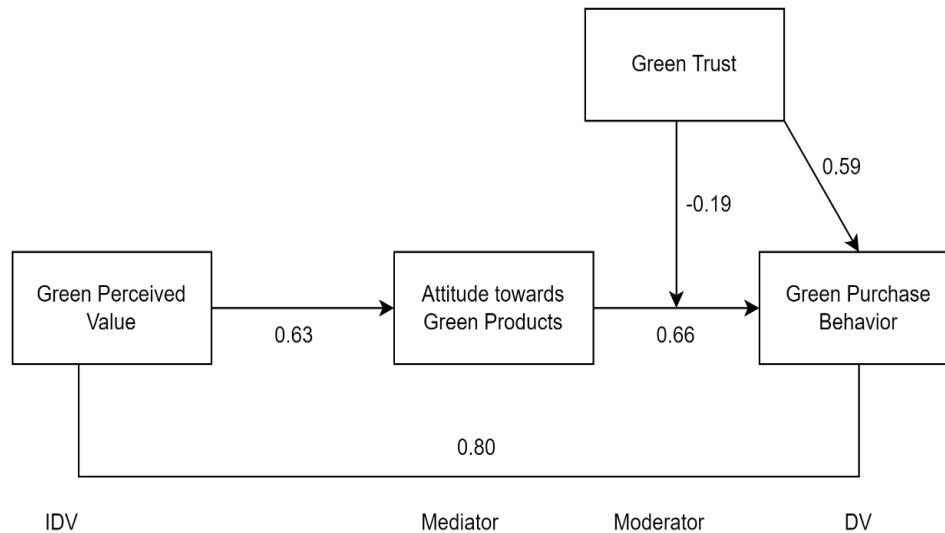


Figure 4.3

The SPSS outcome shows that the index of moderated mediation is also significant at -0.12 and confidence intervals limits are -0.20 to -0.04. Since these values are statistically significant, we can conclude that GT moderates the mediated relationship of GPV and GPB via the mediator AGP accepting our H7.

5. Discussion

In view of the previous literature available on the variables under study, it was predicted that perceived environmental knowledge would be related to green purchase behavior with the mediating effect of attitude in the model. Results of this study have provided empirical support for this prediction. Therefore, the hypothesis was accepted based on findings in Table 4.4.

Green purchase behavior is significantly and positively related to perceived environmental knowledge. It has a major impact on forming favorable attitude towards green products and attitude partially mediates this relation between green purchase behavior and perceived environmental knowledge. Consumers having an understanding of the environmental challenges and are able to identify various environmentally related symbols are more inclined to indulge in an ecologically conscious behavior. Yadav and Pathak (2016). have also established the importance of environmental knowledge in influencing people towards purchasing green products. Advanced perceived environmental awareness results in greater purchase of green products (Mostafa, 2007). The measures of perceived knowledge and stance towards green products are directly linked to each other. Consumers who have detailed

knowledge are more aware and exhibit better attitudes regarding environmental problems. Such a favorable attitude therefore leads towards making purchase decisions that are less detrimental to the environment such as switching from plastic to paper carry bags, recycling, using energy efficient electrical appliances and organic products etc.

The current research further enhances our understanding of green purchase behavior through empirical support of the relations between perceived consumer effectiveness and green purchase behavior directly, and through mediation of attitude towards green buying behavior. The scale items of these variables were reliable as shown in Table 4.2 and were positively correlated as shown in Table 4.3. The proposed hypothesis stated that there is a significant relationship between perceived consumer effectiveness and green purchase behavior directly, and through mediation of attitude. This hypothesis was accepted using empirical findings as shown in Table 4.5.

The attitude towards green products and the purchasing behavior for them are both positively and significantly impacted by perceived consumer effectiveness ($= 0.199$, $p < 0.01$) and perceived consumer effectiveness ($= 0.154$, $p < 0.05$), respectively. These results suggest that customers' perceptions of their own effectiveness have a direct impact on both their purchasing decisions and their attitudes towards environmentally friendly behavior. Green purchasing behavior has substantial antecedents in perceived consumer effectiveness and environmental concern (Casalegno et al., 2022). As PCE's direct positive influence on green purchase behavior is greater than that of green purchase intention, it plays a critical role in encouraging green purchases (Kamalanon et al., 2022).

Some previous studies have found that environmentally conscious consumer behavior is to be best predicted by perceived consumer effectiveness which is not true in the case of this study. Although it positively impacts the behavior, still this relationship is not as strong as with the perceived value and knowledge. This measure of effectiveness is low as the consumers think that their individual actions are not going to make a huge impact on the environmental outcomes (Chan & Lau, 2000). It is therefore important that more stress should be placed on making people realize how their individual actions can affect the environment. To promote this green buying behavior individuals should be provided with positive feedback and reinforcement of their behaviors. If the consumers have confidence that they can bring about a positive change in the environment through their actions, they will surely engage in environmentally friendly behavior.

Considering the prior research, it was hypothesized that attitudes towards green products play a key mediating role in the relationship between green perceived value and green purchase behavior. Findings of the present study empirically favor this hypothesis. The scale of green perceived value is reliable as shown in Table 4.2 and it is positively correlated with the other studied variables which is shown in Table 4.3. The results in Table 4.6 allow us to accept the hypothesis. The findings show that

green perceived value directly influences green purchase behavior and also effects it through mediation of attitude toward green products.

There is a greater chance that consumers will buy that product which has a higher perceived value (Chang and Chen, 2008). Dodds and colleagues (1991) discovered that consumers demand those products that have a higher perceived value. In studies on ecotourism perceived value and the environmentally responsible behavior are positively associated. Dutta et al. (2022) discovered a substantial relationship between perceived value and environmental knowledge and the intention to make green purchases. Businesses should make a concerted effort to increase consumers' perceptions of the value of their products by enhancing product quality and successfully communicating that to customers.

The final construct that was investigated in this study was that of green trust. It was investigated what role green trust plays on the existing relationship between green purchase behavior and attitude. Previous findings like You-Kyung (2020) have identified that perceived risk is reduced when customers trust green products making them more likely to buy green commodities. Results of this study demonstrate that attitudes towards green items and green purchase behavior are moderated by green trust. Since the path b2 is statistically significant with $p < 0.10$ in all the models that investigated various independent variables, green trust has a significant impact on green buying behavior in these models (see figs. 4.1, 4.2, and 4.3).

The interaction term in Table 4.4 is also significant with $\beta = -0.14$ and $p < 0.10$. This shows that although green trust moderates the mediating relationship of attitude between green purchase behavior and perceived environmental knowledge, this combined effect is very small. The negative interaction between these factors shows that the significant influence of green trust decreases with an increase in favorable attitude towards green items. Although green trust modifies the correlations between many variables, the interaction terms between perceived consumer effectiveness, green perceived value, and green purchasing behavior also exhibit the same impacts, however this effect does not alter the purchase behavior majorly. Other factors like consumers' perceptions about value, knowledge and effectiveness are strong enough to alter purchase decisions with only a slight effect achieved from the trust factor of green products.

6. Theoretical Implications

Many contributions are made towards the growing work done in the field of green consumption behavior through this study. Researchers of green consumption behavior have strongly recommended the integration of different cognitive measures that can explain the formation of favorable attitudes and behaviors. Thus, this study is an attempt to comprehend the underlying variables that help in shaping consumer's attitude towards conscious purchase behavior which is green buying. It thoroughly describes how attitude mediated between different cognitive measures and green buying behavior. This study relied on the framework provided by theory of planned

behavior. According to the findings, the mediator of this particular study, attitude played partial mediation between the independent and outcome variables.

This study showed that perceived consumer effectiveness helps in shaping positive attitudes towards green buying but contrary to many past researches, it was not the strongest predictor of green purchase behavior. The consumers do not strongly feel that their individual green buying behavior will help to bring about a drastic improvement in the overall environmental situation. The results indicated that people engage in buying green products if the perceived value is high which indicates that consumers are not keen to make compromises on the product quality and will likely buy green products if they are getting a better or a similar value as that of a non-green product.

Findings of this research also suggested a positive association exists between green buying behavior and environmental knowledge through partial mediation of attitude. Knowledgeable consumers make efforts towards improving the environment rather than destroying it.

7. Practical Implications

There are several managerial implications provided in this research. Consumers' perceptions play an important part in their decision-making process. Policy makers and marketers can use this cue and devise marketing communication tools and strategies that can enhance consumers' perception of effectiveness. Advertising messages based on emotional appeal and negative appeal can enhance this measure among consumers. To enhance perception of consumers' effectiveness, advertisements that contain testimonials and success stories of environmental conservation can be shown. Similarly, the perceived knowledge of consumers regarding environmental issues and eco-friendly products impacts their purchase decisions significantly. Knowledge is thought to be a main component that helps people set and achieve their goals. In order to increase environmental knowledge, mass campaigns should be launched which make the public more knowledgeable about their environment in general and address problems related to the environment in particular. Campaigns that address how to combat these problems should be made for public awareness.

This study found that creating positive attitudes and behaviors is positively and most strongly influenced by perceived green value. It is advised that businesses make a concerted effort to raise consumer perceptions of the value of their products by enhancing product quality and clearly expressing this to customers. Green marketing can be used as a long-term strategy, where companies need to maximize the credibility and value of their products so that they can build green trust in consumers' minds.

8. Limitations

Although this study's findings have validated the proposed research model, it is not without limitations. The first limitation is that the research was conducted in a particular geographical area i.e. Lahore. Purposive convenient sampling was used to collect data. The respondents were mostly young educated and adult people. Therefore, it is not appropriate to generalize the results of the proposed model in the overall context.

The second limitation is that it is a cross-sectional study, and we can't draw causal explanations based on our findings such as whether positive expressed purchase behavior will transform in the actual purchase of green products. How and to what extent this expressed behavior will transform into actual behavior is beyond the scope of this study. Scholars like Cleveland et al., (2012) have also highlighted this intention-behavior gap in past research.

Another limitation is that other factors like availability and price of the products which were not included in this model also influence actual purchase.

9. Future Directions

Due to limitations of time and cost, the present study was confined only to Lahore. In future research, the sample size can be increased and data from various cities can be collected to have opinions from a wider range of respondents.

Since the data was only collected once, it was impossible to know if the consumers were able to fulfill their expressed behavior or not, therefore the future research must focus on longitudinal design to establish causality.

The purchase of green products is also affected by factors like price, availability and the level of involvement that need to be studied in future. Future studies are suggested that can investigate the role of other variables like green advertising which may enhance the consumers' perception of their effectiveness in the model.

This research was focused on a broad range of products which were green products. Various categories of green products can be formed such as green electrical appliances, organic food etc. Research that focuses on a specific product category can be undertaken in future. It is also possible to test the impact of variables studied in this research on the subcategories of green products.

10. Conclusion

Findings of the study implies that Pakistani consumers have a lot of awareness about the environmental related problems and are willing to make decisions that are eco-friendly if given an opportunity. Still green consumerism is not largely prevalent in our country due to lack of the available green products in the market. If more green

products are available for consumption in the market that are of good quality, the educated segment of the society is very likely to purchase them and play their part in protecting the environment. The government should encourage green products manufacturers to not only increase the supply of existing products but also offer green alternatives to other products as well. Incentives can be given to the green manufacturing industries so that more companies are motivated to produce green products. Policies shall be made for the companies to switch to green production methods.

Although perceived effectiveness is an important measure in forming favorable attitude towards green buying, still the other factors like consumers' knowledge about the environmental issues and the value associated with green products plays a major role in shaping attitudes. The results of this study show that consumers are more likely to make environmentally friendly purchases when they perceive themselves to be more aware of environmental issues, to value products more, and to be more effective in their environmental behavior. It is important to find ways that can help in positively enhancing these factors.

It is vital for all stakeholders i.e. governments, companies and consumers to engage more in environmentally friendly behavior as this is the ethical behavior required to save nature and the planet for future generations.

Author Contributions:

Ms. Amber Munir has worked on this topic in her MPhil thesis. Dr. Maryam Rehmat supervised the Ms. Amber Munir in her thesis. Dr. Asma Nisar helped in improving the paper and in responding to reviewers' comments.

Data Availability Statement:

The data that support the findings of this study are available on request from the first author.

Conflict of Interest:

The authors have declared no conflicts of interest.

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References

- AHMAD, W., & ZHANG, Q. (2020). Green purchase intention: Effects of electronic service quality and customer green psychology. *Journal of Cleaner Production*, 267, 122053.
- AJZEN, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

- AJZEN, I., & FISHBEIN, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888.
- AJZEN, I., & FISHBEIN, M. (1980). Understanding attitudes and predicting social behaviour.
- ALI, A., KHAN, A. A., AHMED, I., & SHAHZAD, W. (2011). Determinants of Pakistani consumers' green purchase behavior: Some insights from a developing country. *International Journal of Business and Social Science*, 2(3), 217-226.
- ALI, M. R., SHAFIQ, M., & ANDEJANY, M. (2021). Determinants of consumers' intentions towards the purchase of energy efficient appliances in Pakistan: An extended model of the theory of planned behavior. *Sustainability*, 13(2), 565.
- ALI, S., YAN, Q., RAZZAQ, A., KHAN, I., & IRFAN, M. (2023). Modeling factors of biogas technology adoption: a roadmap towards environmental sustainability and green revolution. *Environmental Science and Pollution Research*, 30(5), 11838-11860.
- ALLPORT, G. W. (1935). Attitudes in CA Murchinson (Ed.) *Handbook of social psychology*. Clark University Press, Worcester, MA, 798, 844.
- ASIF, M. H., ZHONGFU, T., IRFAN, M., & İŞIK, C. (2023). Do environmental knowledge and green trust matter for purchase intention of eco-friendly home appliances? An application of extended theory of planned behavior. *Environmental Science and Pollution Research*, 30(13), 37762-37774.
- BLAU, P. (1964). *Power and exchange in social life*. NY: John Wiley & Sons.
- CASALEGNO, C., CANDELO, E., & SANTORO, G. (2022). Exploring the antecedents of green and sustainable purchase behaviour: A comparison among different generations. *Psychology & Marketing*, 39(5), 1007-1021.
- CHAN, R. Y. (2001). Determinants of Chinese consumers' green purchase behavior. *Psychology & Marketing*, 18(4), 389-413.
- CHAN, R. Y., & LAU, L. B. (2000). Antecedents of green purchases: a survey in China. *Journal of Consumer Marketing*, 17(4), 338-357.
- CHEN, T. B., & CHAI, L. T. (2010). Attitudes towards the environment and green products: Consumers' perspective. *Management Science and Engineering*, 4, 27-39.
- CHEN, Y., & CHANG, C. (2012). Enhance green purchase intentions. *Management Decision*, 50(3), 502-520.
- CHENG, S., LAM, T., & HSU, C. H. (2006). Negative word-of-mouth communication intention: An application of the theory of planned behavior. *Journal of Hospitality & Tourism Research*, 30(1), 95-116.
- CHOI, G., & PARSA, H. G. (2007). Green practices II: Measuring restaurant managers' psychological attributes and their willingness to charge for the "green practices". *Journal of Foodservice Business Research*, 9(4), 41-63.
- DODDS, W. B., MONROE, K. B., & GREWAL, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, 28(3), 307-319.
- DUNLAP, R. E., & SCARCE, R. (1991). Poll trends: Environmental problems and protection. *The Public Opinion Quarterly*, 55(4), 651-672.
- DUTTA, B., CHEN, C. C., & PENG, M. H. (2022). Inferring critical factors predicting consumers' sustainable green purchase behavior from the perspective of developing nation. *TRAMES: A Journal of the Humanities & Social Sciences*, 26(1).
- EAGLY, A. H., & CHAIKEN, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers
- ELLEN, P. S., WIENER, J. L., & COBB-WALGREN, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing*, 10(2), 102-117.

- FERRELL, O. C., & HARTLINE, M. D. (2011). Marketing management strategies. South-Western Cengage Learning.
- GANESAN, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, 58(2), 1-19.
- GILAL, F. G., CHANDANI, K., GILAL, R. G., GILAL, N. G., GILAL, W. G., & CHANNA, N. A. (2020). Towards a new model for green consumer behaviour: A self-determination theory perspective. *Sustainable Development*, 28(4), 711-722.
- GILAL, F. G., GILAL, N. G., CHANNA, N. A., GILAL, R. G., GILAL, R. G., & TUNIO, M. N. (2020). Towards an integrated model for the transference of environmental responsibility. *Business Strategy and the Environment*, 29(6), 2614-2623.
- GILAL, F. G., SHAH, S. M. M., ADEEL, S., GILAL, R. G., & GILAL, N. G. (2022). Consumer e-waste disposal behaviour: A systematic review and research agenda. *International Journal of Consumer Studies*, 46(5), 1785-1803.
- HANG, Y., SARFRAZ, M., KHALID, R., OZTURK, I., & TARIQ, J. (2022). Does corporate social responsibility and green product innovation boost organizational performance? a moderated mediation model of competitive advantage and green trust. *Economic Research-Ekonomska Istraživanja*, 35(1), 5379-5399.
- IRLAND, L. C. (1993). Wood producers face green marketing era: Environmentally Sound Products. *Wood Technology*, 120(2), 34-36.
- ISHASWINI, N., & DATTA, S. K. (2011). Pro-environmental concern influencing green buying: A study on Indian consumers. *International Journal of Business and Management*, 6(6), 124-133.
- JAISWAL, D., & KANT, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *Journal of Retailing and Consumer Services*, 41, 60-69.
- JOSHI, Y., & RAHMAN, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategic Management Review*, 3(1-2), 128-143.
- KALAFATIS, S. P., POLLARD, M., EAST, R., & TSOGAS, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: a cross-market examination. *Journal of Consumer Marketing*.
- KAMALANON, P., CHEN, J. S., & LE, T. T. Y. (2022). "Why do we buy green products?" an extended theory of the planned behavior model for green product purchase behavior. *Sustainability*, 14(2), 689.
- KHAN, S. N., & MOHSIN, M. (2017). The power of emotional value: Exploring the effects of values on green product consumer choice behavior. *Journal of Cleaner Production*, 150, 65-74.
- KIM, Y. J., NJITE, D., & HANCER, M. (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.
- KIM, Y., & CHOI, S. M. (2005). Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *ACR North American Advances*.
- KIM, Y., (2011). Understanding green purchase: the influence of collectivism, personal values and environmental attitudes, and the moderating effect of perceived consumer effectiveness. *Seoul Journal of Business*, 17(1), 65-92.
- KUMAR, B., MANRAI, A. K., & MANRAI, L. A. (2017). Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. *Journal of Retailing and Consumer Services*, 34, 1-9.
- LEE, J. A., & HOLDEN, S. J. (1999). Understanding the determinants of environmentally conscious behavior. *Psychology & Marketing*, 16(5), 373-392.

- LEE, J., PARK, D., & HAN, I. (2011). The different effects of online consumer reviews on consumers' purchase intentions depending on trust in online shopping malls. *Internet Research*, 21(2), 187–206.
- LEE, K. (2008). Opportunities for green marketing: young consumers. *Marketing Intelligence & Planning*, 26(6), 573-586.
- LING, C. Y. (2013). Consumers' purchase intention of green products: an investigation of the drivers and moderating variable. *Elixir Marketing Management*, 1, 14503-14509.
- MOSTAFA, M. M. (2006). Antecedents of Egyptian consumers' green purchase intentions: a hierarchical multivariate regression model. *Journal of International Consumer Marketing*, 19(2), 97-126.
- MOSTAFA, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220-229.
- PAPAOIKONOMOU, E., RYAN, G., & GINIEIS, M. (2011). Towards a holistic approach of the attitude behaviour gap in ethical consumer behaviours: Empirical evidence from Spain. *International Advances in Economic Research*, 17(1), 77-88.
- PATTERSON, P. G., & SPRENG, R. A. (1997). Modelling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: an empirical examination. *International Journal of Service Industry management*, 8(5), 414-434.
- PEATTIE, K. (1995). *Environmental Marketing Management: Meeting the green challenge*, Pitman, London.
- RIZWAN, M., ASLAM, A., UR RAHMAN, M., AHMAD, N., SARWAR, U., & ASGHAR, T. (2013). Impact of green marketing on purchase intention: An empirical study from Pakistan. *Asian Journal of Empirical Research*, 3(2), 87-100.
- ROBERTS, J. A. (1996). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research*, 36(3), 217–231.
- ROH, T., SEOK, J., & KIM, Y. (2022). Unveiling ways to reach organic purchase: Green perceived value, perceived knowledge, attitude, subjective norm, and trust. *Journal of Retailing and Consumer Services*, 67, 102988.
- ROMÁN-AUGUSTO, J. A., GARRIDO-LECCA-VERA, C., LODEIROS-ZUBIRIA, M. L., & MAURICIO-ANDIA, M. (2022). Green Marketing: Drivers in the process of buying green products—the role of green satisfaction, green trust, green wom and green perceived value. *Sustainability*, 14(17), 10580.
- ROTTER, J. B. (1971). Generalized expectancies for interpersonal trust. *American Psychologist*, 26(5), 443.
- ROUSSEAU, D. M., SITKIN, S. B., BURT, R. S., & CAMERER, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.
- SALIMI, A. R. (2019). Effects of environmental concerns and green knowledge on green product consumptions with an emphasis on mediating role of perceived behavioral control, perceived value, attitude, and subjective norm. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*, 10(5), 651-661.
- SCHURR, P. H., & OZANNE, J. L. (1985). Influences on exchange processes: Buyers' preconceptions of a seller's trustworthiness and bargaining toughness. *Journal of Consumer Research*, 11(4), 939-953.

- 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(1), 87-94.
- STEENKAMP, J. B. E., & GEYSKENS, I. (2006). How country characteristics affect the perceived value of web sites. *Journal of Marketing*, 70(3), 136-150.
- STRAUGHAN, R. D., & ROBERTS, J. A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing*, 16(6), 558-575.
- SUKI, N. M., & SUKI, N. M. (2019). Examination of peer influence as a moderator and predictor in explaining green purchase behaviour in a developing country. *Journal of Cleaner Production*, 228, 833-844.
- SULTANA, N., AMIN, S. AND ISLAM, A. (2022), "Influence of perceived environmental knowledge and environmental concern on customers' green hotel visit intention: mediating role of green trust", *Asia-Pacific Journal of Business Administration*, Vol. 14 No. 2, pp. 223-243.
- SWEENEY, J. C., SOUTAR, G. N., & JOHNSON, L. W. (1999). The role of perceived risk in the quality-value relationship: A study in a retail environment. *Journal of Retailing*, 75(1), 77-105.
- TAN, B. C. (2011). The roles of knowledge, threat, and PCE on green purchase behaviour. *International Journal of Business and Management*, 6(12), 14.
- TAN, H. S. (2018). Green products consumption behaviour among industrial engineering undergraduate students based on the theory of planned behaviour. In *IOP Conference Series: Earth and Environmental Science* (Vol. 195, No. 1, p. 012031). IOP Publishing.
- VERMEIR, I., & VERBEKE, W. (2006). Sustainable food consumption: Exploring the consumer "attitude-behavioral intention" gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169-194.
- WANG, H., MA, B., & BAI, R. (2019). How does green product knowledge effectively promote green purchase intention? *Sustainability*, 11(4), 1193.
- WU, H., XU, L., REN, S., HAO, Y., & YAN, G. (2020). How do energy consumption and environmental regulation affect carbon emissions in China? New evidence from a dynamic threshold panel model. *Resources Policy*, 67, 101678.
- YADAV, R., & PATHAK, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732-739.
- YE, S., SOUTAR, G. N., SNEDDON, J. N., & LEE, J. A. (2017). Personal values and the theory of planned behaviour: A study of values and holiday trade-offs in young adults. *Tourism Management*, 62, 107-109.
- YEON KIM, H., & CHUNG, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1), 40-47.
- YOU-KYUNG, L. (2020). The relationship between green country image, green trust, and purchase intention of Korean products: Focusing on Vietnamese Gen Z consumers. *Sustainability*, 12(12), 5098.
- ZEITHAML, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2-22.
- ZENG, S., TANVEER, A., FU, X., GU, Y., & IRFAN, M. (2022). Modeling the influence of critical factors on the adoption of green energy technologies. *Renewable and Sustainable Energy Reviews*, 168, 112817.

ZHAO, H. H., GAO, Q., WU, Y. P., WANG, Y., & ZHU, X. D. (2014). What affects green consumer behavior in China? A case study from Qingdao. *Journal of Cleaner Production*, 63, 143-151.

ZHUANG, W., CUMISKEY, K. J., XIAO, Q., & ALFORD, B. L. (2010). The impact of perceived value on behavior intention: an empirical study.