Article

How Does Green Product Knowledge Effectively Promote Green Purchase Intention?

Hong Wang ¹, Baolong Ma ^{1,2} and Rubing Bai ^{3,*}

¹ School of Management and Economics, Beijing Institute of Technology, Beijing 100081, China; wanghongbit@126.com (H.W.); mabl@sem.tsinghua.edu.cn (B.M.)

² Sustainable Development Research Institute for Economy and Society of Beijing, Beijing 100081, China

³ College of Business, City University of Hong Kong, HongKong 999077, China

* Correspondence: gudangxia89461@163.com

Received: 21 January 2019; Accepted: 19 February 2019; Published: 24 February 2019

Abstract: Knowledge can influence the whole decision-making process of consumers. While green product knowledge is often conceptualized as a direct antecedent of green purchase intention, empirical findings in support of this relationship are inconsistent. Based on 236 samples, this study investigates how green product knowledge promotes consumers' green purchase intention. Results show that green trust and perceived consumer effectiveness partly mediate the relationship between green product knowledge and green purchase intention. The relationship between green trust and green purchase intention is positively moderated by perceived price. Compared with low perceived price, green trust has a greater effect on green purchase intention in the case of high perceived price. However, the relationship between perceived consumer effectiveness and green purchase intention is not moderated by perceived price. This study provides a new insight into green product knowledge and how to promote green purchase intention, and the findings help government and enterprises to formulate strategies to promote consumers' green purchase intention.

Keywords: green product knowledge; green purchase intention; green trust; perceived consumer effectiveness

1. Introduction

With rapid economic development and technological progress, unsustainable development and consumption patterns have had many negative impacts on the environment, such as climate change, water and air pollution, ozone layer depletion, and haze. Environmental problems have become a focus of the public and the media, and have drawn much attention from scholars. Accordingly, the production and sale of green products have received attention from enterprises. Business managers and scholars have been looking for ways to promote consumers to buy green products.

In order to gain a greater market share of green products, enterprises develop a variety of green products and services to meet consumer demand [1]. Marketers disseminate the environmental functional attributes, innovation, and characteristics of green products through multiple media, hoping to persuade consumers to try new green products. Various marketing methods are potential ways to disseminate green product knowledge to consumers. As a result, environmental awareness and health consciousness of consumers have been improved. Consumers gradually change their consumption concept and increase the purchase of green products [2]. Consumers improve their green product knowledge through purposeful learning and accidental learning strategies [3,4], and their knowledge level of green products has been gradually improved. More and more consumers participate in environmental protection activities. A study reports that 90% of American consumers are concerned about the environmental consequences of their purchases, and 75% of consumers

would consider the environmental impact of products when making purchasing decisions [5]. However, the market share of green product is still low [6]. That is to say, most consumers have certain green product knowledge, but do not necessarily translate their knowledge into behavior. Green product knowledge plays a key role in consumers' decision to purchase green products and is often considered as a direct prerequisite variable for green purchase intention [7,8]. However, some studies found that knowledge does not necessarily directly affect behavior [9,10]. There is a complex relationship between knowledge and behavior [11]. Therefore, a question remains as to whether there are other key variables involved in the relationship between green product knowledge and green purchase intention. Existing studies have shown that knowledge affects consumers' decision-making processes. Consumers' knowledge level and their attitude towards green products are directly related to consumers' purchase intention. This study suggests that green trust and perceived consumer effectiveness can effectively explain the internal mechanism of green product knowledge transforming into green purchase intention. Perceived consumer effectiveness is defined as an individual's belief that the efforts of their actions can make a difference in solving environmental problems [12]. In addition, the motivation of consumption depends on the consumption value, which is an important factor influencing consumers' purchase intention [13]. Price is an expression of product value and is an important factor affecting consumers' purchase behavior. Therefore, perceived price is introduced as a moderating variable in this study.

This study explains how green product knowledge promotes green purchase intention. Specifically, this study examines the impact of green product knowledge on green purchase intention from the perspective of an indirect relationship, and emphasizes the importance of green trust, perceived consumer effectiveness, and perceived price in promoting green purchase intention. This study helps marketers better understand consumer attitudes towards green products and develops marketing strategies to promote green purchasing behavior. Thus, this present research contributes to business by developing the commercial market and helps promote consumers' green consumption.

2. Theoretical Basis and Research Hypothesis

2.1. Theoretical Basis

Due to the severity of the environmental problems, there is a growing demand and concern for green products. These green products are considered environmentally friendly products and are conducive to environmental protection. Enterprises actively publicize and promote green products through various media, and people are encouraged to consume green products. Consumers improve their knowledge of green products through self-directed purposeful learning and accidental learning. Green product knowledge refers to subjective knowledge that is the consumers' understanding of the environmental attributes and environmental impacts of green products. If consumers lack green product knowledge, there may be a gap between consumers' attitudes and behaviors. Some previous studies point out that green product knowledge is often considered as a direct precondition variable of green purchase intention (or green purchasing behavior) [14,15], while some studies indicate that green product knowledge is not necessarily the direct prerequisite variable of green purchase intention [16,17]. Some studies even show that there is no significant relationship between green product knowledge and green purchase intention [18]. Relevant studies on the relationship between green product knowledge and green purchase intention have reached inconsistent conclusions. Therefore, it is necessary to study whether there are other variables involved in the relationship between green product knowledge and green purchase intention. Solving this problem will help us to clearly understand how green product knowledge is transformed into green purchase intention, and provide theoretical and practical contributions for current research.

Knowledge is defined as information stored in consumers' memory which affects their evaluation of information translation and preferences, as well as their purchasing behavior of green products. The more knowledge consumers have about green products, the more they understand the

environmental protection functions and attributes of green products. Consumers show more positive attitudes towards green products and are more confident about the reliability of environmental protection functions of green products. Confidence is defined as a level of trust [19,20]. Green trust plays an important role in developing behavior intention, which significantly affects consumers' green purchase intention. In addition, the more knowledge consumers have about green products, the lower their perceived risk of green products, and the more trust they have in green products. Therefore, green trust is an intermediate variable connecting green product knowledge and green purchase intention.

In addition, in the field of new energy, the more knowledge consumers have about new energy, the stronger their belief that using new energy products produces positive results and can improve environmental performance or alleviate environmental problems [21]. Similarly, in the field of green consumption, the more knowledge consumers have about green products, the stronger their belief in the positive effects of using green products. They believe that personal green purchasing behavior can improve environmental performance or alleviate environmental problems. When making purchasing decisions, consumers will use product knowledge to assess the environmental attributes and benefits of green products [22,23]. If the environmental benefits of green products can meet consumers' expectations, consumers believe that the use of green products is beneficial for environmental protection. Consumers have a positive belief that individual green purchasing behavior can protect the environment. Therefore, perceived consumer effectiveness is an intermediate variable connecting green product knowledge and green purchase intention.

This study employs the attitude–behavior–context (ABC) theory to understand the effect of green product knowledge on green purchase intention. Attitude is a predictor of behavior in general. However, attitude does not necessarily translate into behavior. According to the ABC theory, consumer behavior is also affected by contextual factors. Therefore, the interaction between attitudes and contextual factors is an important dimension of the ABC theory [24]. Building on the ABC theory, this study models the mediating role of green trust and perceived consumer effectiveness, and the moderating role of perceived price, in the relationship between green product knowledge and green purchase intention.

2.2. Research Hypothesis

Previous studies show that green product knowledge is closely related to confidence in green products [25]. If consumers have a lot of green product knowledge and information about the attributes, functions and utility of products, they will have more confidence in the judgment of green products, which directly affects consumers' purchase intention [26]. In other words, the more knowledge consumers have about green products, the more trust they have in the function and attribute of the products. That knowledge can help consumers make more comprehensive judgments about green products. Conversely, if consumers lack product-related information or knowledge, it will reduce their confidence in the products they choose, and reduce their green purchasing behavior [27]. Therefore, we propose the following hypothesis:

H1: *Green product knowledge has a positive impact on green trust.*

Environmental knowledge can influence consumers' perception and preference. Previous studies have shown that increasing consumers' knowledge of new energy can lead consumers to have a strong belief in the positive results of using new energy products [21]. Consumers believe that the use of new energy can improve environmental performance or alleviate environmental problems. Similarly, increasing consumers' knowledge of green products can make consumers have a strong belief in the positive results of using green products, and make consumers believe that environmental problems can be alleviated through individual green purchasing behavior. If consumers lack knowledge of green products, they will not be able to fully understand the environmental protection attributes and environmental effects of green products, making it difficult for consumers to believe that individual

green purchasing behavior can effectively improve the environmental situation. Therefore, we propose the following hypothesis:

H2: *Green product knowledge has a positive impact on perceived consumer effectiveness.*

In the field of relationship marketing, previous studies indicate that customer trust has a positive impact on customer purchase intention [28]. Green purchase intention refers to consumers' willingness to buy green products [29]. Chen [19] defined green trust as a willingness to depend on one object based on the belief or expectation resulting from its credibility, benevolence, and ability about environmental performance. In the field of green consumption, previous research shows that green trust can develop consumers' green purchase intention. For example, Konuk, F.A. et al. [30] pointed out that green trust can positively affect green purchase intention in the study of antecedent variables of green behavior intention. Similarly, Chen and Chang [20] showed that green trust can significantly affect green purchase intention. Therefore, we propose the following hypothesis:

H3: *Green trust has a positive impact on green purchase intention.*

In the field of green consumption, perceived consumer effectiveness is an important predictor of green behavioral intention [25]; that is to say, perceived consumer effectiveness is an important prerequisite for predicting consumers' green purchasing behavior. Meanwhile, previous studies have shown that perceived consumer effectiveness can positively affect consumers' green purchase intention [31]. For example, Berger and Corbin [32] showed that perceived consumer effectiveness has a positive impact on environmentally friendly behavior (e.g., green purchasing behavior). In other words, if consumers believe that individual green purchasing behavior can bring about benefits to the environment, consumers will increase their purchasing of green products. Therefore, we propose the following hypothesis:

H4: *Perceived consumer effectiveness has a positive impact on green purchase intention.*

With environmental pollution becoming more and more serious, people pay more attention to the environmental situation. More importantly, people pay more attention to healthy and environmentally friendly lifestyles and increase the purchase of green products. Product price is an important factor affecting consumers' choice behavior. The price of green products is higher than that of traditional products in general. In the consumer's consumption concept, high prices of green products represent that the products are of high quality and have reliable environmental functions and effects. More and more consumers are willing to pay a premium to buy green products. Previous studies have confirmed this view. Laroche et al. [33] carried out a series of green consumption surveys to show that consumers are willing to pay premium prices for green products. In 1989, 67% of Americans expressed willingness to pay a premium of 5–10% to buy green products; in 1991, the investigation report showed that consumers with environmental awareness were willing to pay a premium of 15–20% to buy green products; in 1993, the research reports showed that 79% of female British consumers were willing to pay a premium of about 40% to buy green products. According to the survey results, most consumers are willing to pay a certain premium to buy green products [34]. In addition, some studies have shown consumers' inherent willingness to protect the environment exceeds the importance of price, and price is not a key factor influencing green choice behavior [35]. Therefore, we propose the following hypothesis:

H5: *Perceived price positively moderates the relationship between green trust and green purchase intention.*

H6: *Perceived price positively moderates the relationship between perceived consumer effectiveness and green purchase intention.*

Based on theoretical basis and the research hypotheses, the research model of the present study is proposed, as shown in Figure 1.

Figure 1. The research model of the present study.

3. Research Method

3.1. Measurement

In this study, previous mature scales were used. The survey adopts a seven-point Likert scale with a range from strongly disagree (1) to strongly agree (7). The study employed the scales from Liobikienė, G. et al. [16] and Kanchanapibul, M. et al. [14] to measure green product knowledge. The scale of green trust was adapted from the study of Chen and Chang [36]. The scale of perceived consumer effectiveness was adapted from Kim and Choi [31]. The study employed scales from He and Zhan [37] to measure perceived price. The scale of green purchase intention was adapted from Yadav, R. et al. [38].

3.2. Data Collection

The questionnaires were administered via an online survey. Before the questionnaire was officially distributed, we conducted a pilot test to check the understandability of the items. Thirty-five questionnaires were collected. The reliability and validity of the questionnaire were tested. Further modifications were made to the questionnaire to make it easier for the respondents to understand the items. After the pilot test, 283 questionnaires were collected, and 236 questionnaires are valid. The effective recovery was 83.39%. Table 1 presents demographic information. Within the sample, 59.3% of respondents were male and 40.7% were female. In addition, 77.9% of the respondents were consumers aged 21–35. Moreover, most respondents were graduates with a university degree or above. Most respondents had a monthly income of less than 8000 CNY (Chinese Yuan).

Table 1. Demographic profile of respondents.

Variable		Frequency	Percentage
Gender	Male	140	59.3
	Female	96	40.7
Age (years)	≤ 20	35	14.8
	21–25	111	47
	26–30	44	18.6
	31–35	29	12.3
	≥ 36	17	7.3
Education level	High school	36	15.2
	Junior college	32	13.5
	Bachelor's degree	126	53.3
	Master's degree	33	14
	Doctor's degree	9	4
Income (CNY)	≤3000	120	50.8
	3001–8000	85	36
	8001–10,000	10	4.2
	≥ 10,000	21	9

4. Data Analysis

The study uses SPSS 18 and AMOS 20 to analyze the data. According to the guidelines of Anderson and Gerbing [39], the study tests the research model in two steps: measurement model and structural model.

4.1. Measurement Model

Confirmatory factor analysis (CFA) was used to evaluate model fit in this study. The results of CFA were all above the acceptable level ($\chi^2/df = 1.708$; CFI = 0.960; GFI = 0.910; TLI = 0.951; RMSEA = 0.055). Table 2 shows the Cronbach's alphas and composite reliability for all constructs, showing that all values are greater than the cut-off value of 0.7 proposed by Hair et al. [40]. Consequently, the internal reliability is good. This study employs the average variances extracted (AVE) to evaluate convergent validity; the values of AVE surpassed the optional cut-off value of 0.5 [41], ranging from 0.52 to 0.72. Consequently, the constructs show adequate convergent validity.

Table 2. Reliability and validity analysis.

Constructs	α	CR	AVE
Green product knowledge	0.88	0.88	0.72
Green trust	0.87	0.87	0.63
Perceived consumer effectiveness	0.88	0.88	0.60
Perceived price	0.71	0.72	0.57
Green purchase intention	0.82	0.81	0.52

Note: α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted.

Table 3 provides the value of discriminant validity. The square roots of the AVE of each construct were greater than the correlation coefficients between constructs, which shows the discriminant validity is acceptable.

Table 3. Discriminant validity analysis.

Construct	1	2	3	4	5
Green product knowledge	0.85				
Green trust	0.59	0.79			
Perceived consumer effectiveness	0.43	0.61	0.78		
Perceived price	0.24	0.31	0.36	0.75	
Green purchase intention	0.45	0.68	0.70	0.38	0.72

Note: 1. Off-diagonal elements are correlations between constructs; 2. Diagonal elements are the square root of average variance extracted.

4.2. Hypothesis Testing

In order to test the hypotheses, we adopted the structural equation modeling. Figure 2 shows the estimation results of the path coefficients of the model. The results show that green product knowledge positively affects green trust and perceived consumer effectiveness. Moreover, green trust and perceived consumer effectiveness positively affect green purchase intention. All hypotheses, namely H1, H2, H3 and H4, are supported.

Figure 2. Examination results of research model. Note: *** $p < 0.001$.

In this study, all variables are continuous. This study uses hierarchical regression modeling to examine moderating effect by SPSS 18. The regression equation consists of three hierarchical steps. We use mean center to deal with all variables to unify the units. The hierarchical regression was used with the control variables entered as a block in step 1 (gender, age, education level, and income), followed by the main effects in step 2 (green product knowledge, green trust, and perceived consumer effectiveness), and the interaction item in step 3 (green trust $\times$ perceived price; perceived consumer effectiveness $\times$ perceived price). We followed Aiken and West's [42] procedures and plotted the interaction relationship under high (one SD above the mean) and low (one SD below the mean) levels. Firstly, the moderating effect of perceived price on the relationship between green trust and green purchase intention was analyzed. As shown in Figure 3, perceived price moderates the relationship between green trust and green purchase intention ($\beta = 0.117$, $t = 2.473$, $p < 0.05$). Compared with low perceived price, green trust has a greater impact on green purchase intention under high perceived price, so it is assumed that H5 is supported. After that, we analyzed the moderating effect of perceived price on the relationship between perceived consumer effectiveness and green purchase intention. As shown in Figure 4, perceived price has no moderating effect on the relationship between perceived consumer effectiveness and green purchase intention ($\beta = 0.055$, $t = 1.244$, $p > 0.05$). In the case of high and low perceived price, there is no significant difference in the impact of green trust on green purchase intention. Therefore, H6 is not supported.

Figure 3. The moderating effect of perceived price on green trust and green purchase intention.

Figure 4. The moderating effect of perceived price on perceived consumer effectiveness and green purchase intention. Note: PCE = perceived consumer effectiveness.

In order to further understand this study, SPSS 18 was used to test the mediating effect of green trust and perceived consumer effectiveness. According to the test steps of mediating effect from Baron and Kenny [43], Table 4 presents the results of mediating effect. Green trust partially mediates the relationship between green product knowledge and green purchase intention, and perceived consumer effectiveness partially mediates the relationship between green product knowledge and green purchase intention. Furthermore, bootstrapping procedure was used to verify the mediating effect again [44,45]. The study employs 5000 bootstrap samples and 95% bias-corrected bootstrap confidence intervals. We find that confidence intervals do not include zero, which shows that mediation effect is supported.

Table 4. Analysis results of mediation effect.

Regression Coefficient							
IV	M	DV	IV → DV	IV → M	IV + M → DV		
					IV	M	
GPK	GT	GPI	0.284 ***	0.432 ***	0.104 *	0.416 ***	Partial mediation
GPK	PCE	GPI	0.284 ***	0.275 ***	0.144 ***	0.507 ***	Partial mediation

Notes: IV = independent variable; M = mediation; DV = dependent variable; GPK = green product knowledge; GT = green trust; PCE = perceived consumer effectiveness; GPI = green purchase intention; * $p < 0.05$, *** $p < 0.001$.

Based on the above data analysis, the study summarizes the research results. Table 5 shows the results of research hypothesis in this study.

Table 5. Summary of results for each hypothesis.

Hypothesis	Description	Result
H1	Green product knowledge has a positive impact on green trust	Supported
H2	Green product knowledge has a positive impact on perceived consumer effectiveness	Supported
H3	Green trust has a positive impact on green purchase intention	Supported
H4	Perceived consumer effectiveness has a positive impact on green purchase intention	Supported
H5	Perceived price positively moderates the relationship between green trust and green purchase intention	Supported
H6	Perceived price positively moderates the relationship between perceived consumer effectiveness and green purchase intention	Not supported

5. Conclusions and Discussion

Green product knowledge is often regarded as a direct predictor of green purchase intention, which implies the assumption that consumers with green product knowledge will buy green products. Based on the current research results, this assumption is too simplified. In particular, a phenomenon exists where consumers do not necessarily buy green products even if they have green product knowledge and know the attributes of green products. Consumers with green product knowledge form a cognitive judgment and evaluation of green products by integrating product information and produce an evaluation result, that is, green trust and perceived consumer effectiveness, which can translate green product knowledge into consumers' green purchase intention. Therefore, the findings are valuable. Green trust and perceived consumer effectiveness are added to the model. The relationship between green product knowledge and green purchase intention can be explained more comprehensively.

The results show that green trust partially mediates the relationship between green product knowledge and green purchase intention, which indicates that green trust helps to transform green product knowledge into green purchase intention. Consumers more knowledgeable about green products have more confidence regarding the environmental protection attributes and effects of green products. This fact increases consumer trust in green products, as well as the possibility of purchase. In addition, perceived consumer effectiveness mediates the relationship between green product knowledge and green purchase intention. This shows that when purchasing green products, the more knowledge consumers have about green products, the more they believe that using green products can produce positive results for the environment. Consumers who form a strong belief in the positive results are more likely to believe that personal green purchasing behavior can improve the environment and reduce environmental pollution. The possible reason for this result is that China is a country with collectivist culture. Consumers tend to have altruistic values, and consider the welfare of society or others. Consumers with altruistic values not only pay more attention to environmental problems, but also believe that environmental problems can be alleviated or solved through their own environmental behavior [46]. This also confirms previous studies that collectivist cultural orientation can promote perceived consumer effectiveness [47]. Most previous studies did not examine the antecedent variables of perceived consumer effectiveness [37,48]. However, this study finds that green product knowledge can be used as an antecedent variable to perceived consumer effectiveness. This provides a new possibility for promoting perceived consumer effectiveness.

In the current study, perceived price positively moderates the relationship between green trust and green purchase intention. Compared with low perceived price, green trust has a greater impact

on green purchase intention under high perceived price. This may be due to the fact that high price represents high quality in consumers' consumption concepts. Furthermore, with the improvement of consumers' living standards in China, consumers gradually pay more attention to environmental protection and health, and are more willing to pay a premium to buy green products. This implies that price is not the main factor influencing green purchasing behavior. However, high price means high purchase cost. Previous studies have shown that high prices are a major factor hindering green purchasing behavior [49,50]. If the price is much higher than consumers' expectations, consumers may choose not to buy green products. In addition, perceived price does not moderate the relationship between perceived consumer effectiveness and green purchase intention. The possible reason is that when consumers have a strong belief that the use of green products can produce positive results to environment, they believe that the environment can be improved through individual green purchasing behavior. This belief comes from the internal psychological activities of consumers and is not easily disturbed by external factors (e.g., product prices). Consumer choice behavior is more affected by personal factors than external factors [51].

6. Theoretical Contribution and Managerial Implications

Previous studies have expressed different opinions on whether green product knowledge can significantly affect green purchase intention. However, this study finds that there is a complex relationship between green product knowledge and green purchase intention. In other words, green product knowledge has an important indirect impact on green purchase intention. Green trust and perceived consumer effectiveness mediate the relationship between green product knowledge and green purchase intention. The product price is an important factor for consumers to consider. In general, high price represents high quality while high price also represents high purchase cost, which will hinder the consumers' purchase behavior. Therefore, there is a dilemma where consumers choose high price, or high quality. This study develops a research framework to show that consumers are willing to pay high prices in exchange for high quality green products.

Green trust mediates the relationship between green product knowledge and green purchase intention. Enterprises should implant green trust and perceived consumer effectiveness into their business models and establish good brand management. From the perspective of market and advertising, enterprises should improve the environmental functions of green products and the environmental image of brands. Perceived risk is a factor affecting consumer trust in products. In the process of purchasing products, consumers tend to reduce risks more than to maximize the utility of products [52]. Marketers should strengthen green product innovation and provide green products that meet consumer expectations, enhancing consumers' trust in brands. In addition, in the process of communicating with consumers, enterprise salesmen should convey the reliability of environmental attributes and environmental protection effects of green products to consumers, enhancing consumers' trust in the products, and therefore their green purchase intention.

Perceived consumer effectiveness mediates the relationship between green product knowledge and green purchase intention. In order to enhance perceived consumer effectiveness, enterprises should attach environmental protection labels to green product packaging. The labels include specific environmental information, such as resources saved and carbon emissions reduced. This information can inspire consumers to participate in environmental protection, so that consumers can clearly know how much they will contribute to the protection of the environment by purchasing the product. In addition, with the help of social media, the government should focus on publicizing environmental protection knowledge, such as how much resource can be saved and how much carbon emissions can be reduced when consumers use green products. This helps consumers to believe that their green purchasing behavior can really alleviate or solve environmental problems, thus enhancing perceived consumer effectiveness. Personal values play an important role in forming environmental attitudes. Consumers with altruistic values have good environmental attitudes and believe that environmental problems can be solved through their personal behavioral activities [53]. Moreover, the government

should strengthen the propaganda and establishment of altruistic values, enhance perceived consumer effectiveness, and promote consumers' green purchase intentions.

Perceived price moderates the relationship between green trust and green purchase intention. Compared with low perceived price, green trust has a greater impact on green purchase when the perceived price is higher. This reminds marketers that in the process of communicating with consumers, they should establish customer trust management and know the level of trust that consumers have in products. According to different levels of consumer trust, marketers can provide consumers with green products at different prices. Furthermore, perceived price does not moderate the relationship between perceived consumer effectiveness and green purchase intention, which indicates that there is no significant difference between perceived consumer effectiveness and green purchase intention regardless of perceived price. In the process of communication with consumers, salesmen should enhance consumers' perceived consumer effectiveness as much as possible, which helps to reduce consumers' price sensitivity and increases green purchase intention.

7. Limitations and Future Research

(1) The study examines the indirect effect of green product knowledge on green purchase intention. In the field of marketing, consumers have a lot of knowledge about green products, and can fully understand the environmental attributes of products. Consumers can discover the environmental value of products and fully understand the environmental impact of products, which increases the possibility of them buying green products. Therefore, environmental value is regarded as an important mediation variable. Future research may further test the mediating role of environmental value between green product knowledge and green purchase intention. (2) Personal values are the basis for the formation of individual attitudes and behavior. In the field of marketing, values affect consumers' purchasing behavior. Usually personal values are divided into altruistic values and egoistic values. Consumers with altruistic values care about the welfare of society and others, while consumers with egoistic values are more concerned about their own interests. Therefore, personal values are regarded as an important moderating variable. Future research may study the moderating effect of personal values between green trust, perceived consumer effectiveness, and green purchase intention.

Author Contributions: H.W. conducted the research and wrote the draft. B.M. participated in discussion of the research framework and put forward valuable suggestions. H.W. and R.B. modified and edited the paper.

Funding: This study was supported by the National Natural Science Foundation of China (Grant No. 71672008), Beijing Natural Science Foundation (Grant No.9162012), and Special Fund for Joint Development Program of Beijing Municipal Commission of Education.

Acknowledgments: The author thanks the participating respondents for their time and effort.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Danjelico, R.; Pujari, D. Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *J. Bus. Ethics* **2010**, *95*, 471–486. [\[CrossRef\]](#)
2. Wang, X.; Pacho, F.; Liu, J.; Kajungiro, R. Factors Influencing Organic Food Purchase Intention in Developing Countries and the Moderating Role of Knowledge. *Sustainability* **2019**, *11*, 209. [\[CrossRef\]](#)
3. Gursoy, D.; McCleary, K.W. An integrative model of tourists' information search behavior. *Ann. Tour. Res.* **2004**, *31*, 353–373. [\[CrossRef\]](#)
4. Hutchinson, J.W.; Eisenstein, E.M. Consumer learning and expertise. In *Handbook of Consumer Psychology*; Haugtvedt, C.P., Herr, P.M., Kardes, F.R., Eds.; Lawrence Erlbaum Associates: New York, NY, USA, 2008.
5. Kleiner, A. What does it mean to be green? *Harvard. Bus. Rev.* **1991**, *69*, 38–42.
6. Rex, E.; Baumann, H. Beyond ecolabels: What green marketing can learn from conventional marketing. *J. Clean. Prod.* **2007**, *15*, 567–576. [\[CrossRef\]](#)
7. Kumar, B. Theory of planned behaviour approach to understand the purchasing behaviour for environmentally sustainable products. *Indian Inst. Manag.* **2012**, 2–43.

8. Mostafa, M.M. Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *Int. J. Consum. Stud.* **2007**, *31*, 220–229. [[CrossRef](#)]
9. Bartiaux, F. Does environmental information overcome practice compartmentalization and change consumers' behaviours? *J. Clean. Prod.* **2008**, *16*, 1170–1180. [[CrossRef](#)]
10. Pedersen, E.R.; Neergaard, P. Caveat emptor—Let the buyer beware! Environmental labelling and the limitations of green consumerism. *Bus. Strategy Environ.* **2006**, *15*, 15–29. [[CrossRef](#)]
11. Zsóka, A.N. Consistency and “awareness gaps” in the environmental behaviour of Hungarian companies. *J. Clean. Prod.* **2008**, *16*, 322–329. [[CrossRef](#)]
12. Ellen, P.S.; Wiener, J.L.; Cobb-Walgren, C. The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *J. Public Policy Mark.* **1991**, *10*, 102–117. [[CrossRef](#)]
13. Zeithaml, V.A. Consumer perceptions of price, quality and value: A means-end model and synthesis of evidence. *J. Mark.* **1998**, *52*, 2–22. [[CrossRef](#)]
14. Kanchanapibul, M.; Lacka, E.; Wang, X.; Chan, H.K. An empirical investigation of green purchase behaviour among the young generation. *J. Clean. Prod.* **2014**, *66*, 528–536. [[CrossRef](#)]
15. Newton, J.D.; Tsarenko, Y.; Ferraro, C.; Sands, S. Environmental concern and environmental purchase intentions: The mediating role of learning strategy. *J. Bus. Res.* **2015**, *68*, 1974–1981. [[CrossRef](#)]
16. Liobikienė, G.; Mandravickaitė, J.; Bernatoniene, J. Theory of planned behavior approach to understand the green purchasing behavior in the EU: A cross-cultural study. *Ecol. Econ.* **2016**, *125*, 38–46. [[CrossRef](#)]
17. Wheeler, M.; Sharp, A.; Nenycz-Thiel, M. The effect of ‘green’ messages on brand purchase and brand rejection. *Australas. Mark. J.* **2013**, *21*, 105–110. [[CrossRef](#)]
18. Zhao, H.-H.; Gao, Q.; Wu, Y.-P.; Wang, Y.; Zhu, X.-D. What affects green consumer behavior in China? A case study from Qingdao. *J. Clean. Prod.* **2014**, *63*, 143–151. [[CrossRef](#)]
19. Chen, Y.-S. The drivers of green brand equity: Green brand image, green satisfaction, and green trust. *J. Bus. Ethics* **2010**, *93*, 307–319. [[CrossRef](#)]
20. Chen, Y.S.; Chang, C.H. Enhance green purchase intentions: The roles of green perceived value, green perceived risk and green trust. *Manag. Decis.* **2012**, *50*, 502–520. [[CrossRef](#)]
21. Bang, H.K.; Ellinger, A.E.; Hadjimarcou, J.; Traichal, P.A. Consumer Concern, Knowledge, Belief, and Attitude toward Renewable Energy: An Application of the Reasoned Action Theory. *Psychol. Mark.* **2000**, *17*, 449–468. [[CrossRef](#)]
22. Brucks, M. The effects of product class knowledge on information search behavior. *J. Consum. Res.* **1985**, *12*, 1–16. [[CrossRef](#)]
23. Murray, K.B. A test of services marketing theory: Consumer information acquisition activities. *J. Mark.* **1991**, *55*, 10–25. [[CrossRef](#)]
24. Salonen, A.O.; Åhlberg, M.K. The path towards planetary responsibility-expanding the domain of human responsibility is a fundamental goal for lifelong learning in a high-consumption society. *J. Sustain. Dev.* **2012**, *5*, 13–26. [[CrossRef](#)]
25. Vermeir, I.; Verbeke, W. Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecol. Econ.* **2008**, *64*, 542–553. [[CrossRef](#)]
26. Harris, L.C.; Goode, M.M.H. Online servicescapes, trust, and purchase intentions. *J. Serv. Mark.* **2010**, *24*, 230–243. [[CrossRef](#)]
27. Padel, S.; Foster, C. Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *Brit. Food. J.* **2005**, *107*, 606–625. [[CrossRef](#)]
28. Schlosser, A.E.; White, T.B.; Lloyd, S.M. Converting web site visitors into buyers: How web site investment increases consumer trusting beliefs and online purchase intentions. *J. Mark.* **2006**, *70*, 133–148. [[CrossRef](#)]
29. Shen, B.; Wang, Y.; Lo, C.K.; Shum, M. The impact of ethical fashion on consumer purchase behavior. *J. Fash. Mark. Manag.* **2013**, *16*, 234–245. [[CrossRef](#)]
30. Konuk, F.A.; Rahman, S.U.; Salo, J. Antecedents of green behavioral intentions: A cross-country study of Turkey, Finland and Pakistan. *Int. J. Consum. Stud.* **2015**, *39*, 586–596. [[CrossRef](#)]
31. Kim, Y.; Choi, S.M. Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *Adv. Consum. Res.* **2005**, *32*, 592–599.
32. Berger, I.E.; Corbin, R.M. Perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviors. *J. Public Policy Mark.* **1992**, *11*, 79–89. [[CrossRef](#)]

33. Laroche, M.; Bergeron, J.; Barbaro-Forleo, G. Targeting consumers who are willing to pay more for environmentally friendly products. *J. Consum. Mark.* **2001**, *18*, 503–520. [\[CrossRef\]](#)
34. Biswas, A.; Roy, M. Green products: An exploratory study on the consumer behaviour in emerging economies of the east. *J. Clean. Prod.* **2015**, *87*, 462–468. [\[CrossRef\]](#)
35. Lin, P.C.; Huang, Y.H. The influence factors on choice behavior regarding green products based on the theory of consumption values. *J. Clean. Prod.* **2012**, *22*, 11–18. [\[CrossRef\]](#)
36. Chen, Y.S.; Chang, C.H. Towards green trust The influences of green perceived quality, green perceived risk, and green satisfaction. *Manag. Decis.* **2013**, *51*, 63–82. [\[CrossRef\]](#)
37. He, X.; Zhan, W. How to Activate Moral Norm to Adopt Electric Vehicles in China? An Empirical Study Based on Extended Norm Activation Theory. *J. Clean. Prod.* **2018**, *172*, 3546–3556. [\[CrossRef\]](#)
38. Yadav, R.; Pathak, G.S. Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *J. Clean. Prod.* **2016**, *135*, 732–739. [\[CrossRef\]](#)
39. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1988**, *103*, 411–423. [\[CrossRef\]](#)
40. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*; Prentice Hall: Upper Saddle River, NJ, USA, 2010.
41. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
42. Aiken, L.S.; West, S.G. *Multiple Regression: Testing and Interpreting Interactions*; Sage: Newbury Park, CA, USA, 1991.
43. Baron, R.M.; Kenny, D.A. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *J. Pers. Soc. Psychol.* **1986**, *51*, 1173–1182. [\[CrossRef\]](#) [\[PubMed\]](#)
44. Preacher, K.J.; Hayes, A.F. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behav. Res. Meth, Ins. C* **2004**, *36*, 717–731. [\[CrossRef\]](#)
45. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*; Guilford Press: New York, NY, USA, 2013.
46. Lee, Y.K.; Kim, S.; Kim, M.S.; Choi, J.G. Antecedents and interrelationships of three types of pro-environmental behavior. *J. Bus. Res.* **2014**, *67*, 2097–2105. [\[CrossRef\]](#)
47. Cho, Y.N.; Thyroff, A.; Rapert, M.I.; Park, S.Y.; Lee, H.J. To be or not to be green: Exploring individualism and collectivism as antecedents of environmental behavior. *J. Bus. Res.* **2013**, *66*, 1052–1059. [\[CrossRef\]](#)
48. Dagher, G.K.; Itani, O. Factors influencing green purchasing behaviour: Empirical evidence from the Lebanese consumers. *J. Consum. Behav.* **2014**, *13*, 188–195. [\[CrossRef\]](#)
49. Barber, N.A.; Bishop, M.; Gruen, T. Who pays more (or less) for pro-environmental consumer goods? Using the auction method to assess actual willingness-to-pay. *J. Environ. Psychol.* **2014**, *40*, 218–227. [\[CrossRef\]](#)
50. Steg, L.; Perlaviciute, G.; Van derWerff, E.; Lurvink, J. The significance of hedonic values for environmentally-relevant attitudes, preferences and actions. *Environ. Behav.* **2014**, *46*, 163–192. [\[CrossRef\]](#)
51. Shamdasani, P.; Chon-Lin, G.; Richmond, D. Exploring green consumers in an oriental culture: Role of personal and marketing mix factors. *Adv. Consum. Res.* **1993**, *20*, 488–493.
52. Rao, S.S.; Truong, D.; Senecal, S.; Le, T.T. How buyers' expected benefits, perceived risks, and e-business readiness influence their e-marketplace usage. *Ind. Mark. Manag.* **2007**, *36*, 1035–1045.
53. Straughan, R.; Roberts, J. Environmental segmentation alternatives: A look at green consumer behavior in the new millennium. *J. Consum. Mark.* **1999**, *16*, 558–575. [\[CrossRef\]](#)