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The impact of cultural values on green purchase intentions through ecological awareness and perceived consumer effectiveness: An empirical investigation

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The findings of a quantitative study about Chinese consumers regarding how cultural values, environmental awareness, and perceived consumer effectiveness (PCE) influence their green purchase intentions are presented in this article. This study aimed to explain these crucial factors' direct and indirect effects on green purchases and the impact of cultural values and environmental awareness on PCE. Specifically, a conceptual model was suggested and empirically tested using survey information gathered from 371 customers from China, and the SmartPLS-SEM approach was applied. The results indicated that PCE significantly influences consumers' intentions to make green purchases, and through environmental awareness and PCE, cultural values, directly and indirectly, influence Chinese consumers' green buying intentions. This study offers novel perspectives on consumer behavior for purchasing environment-friendly products.

KEYWORDS

Chinese consumers' green purchase intentions, cultural values, environmental awareness, perceived consumer effectiveness (PCE), IPMA, smartpls 3.0

1 Introduction

The ongoing technological and industrial revolution has influenced people's quality of life, particularly in environmental protection (Boeve-de Pauw and Van Petegem, 2013; Zimmer et al., 1994; Milfont and Duckitt, 2010). So, consumer ecological awareness has increased dramatically in recent decades (Hojnik and Mitja, 2016; Mylan et al., 2015), resulting in a shift in customer buying criteria toward more consideration of environmental and cultural issues (Sheng et al., 2019; Zameer and Yasmeen, 2022). These ecological, health and social issues influence customer desire for safer and friendlier solutions, which drive this expansion (Pothitou et al., 2016; Sajid et al., 2022). Furthermore, some companies have followed this expansion to produce organic and environmentally friendly items. Many consumers have expressed an unparalleled desire to

purchase these items (Nimse et al., 2007; Lee et al., 2014). These intentions to buy green products create more interest to researchers, and some cultural and environmental factors that influence green purchase intentions (GPI) remain unclear.

One area of green purchasing intention research gaining traction among academics and researchers is the influence of customers' cultural values (Sheng et al., 2019). Culture is characterized as "a collective programming of the mind that distinguishes one group from another" (Hofstede, 2001, p. 255), and it is a significant factor in consumer behavior. Several studies have examined cultural orientations at the national level (Boeve-de Pauw and Van Petegem, 2013; Schmitz et al., 2014), but the present study examined collectivism and long-term orientation (LTO) at a personal level. Culture is ingrained in every individual, generating different views and behaviors (Riley et al., 2012; Cho et al., 2013). Even within a single culture, individuals' cultural values may differ significantly (McCarty & Shrum, 2001). As a result, collectivism and LTO may be better able to explain the complicated patterns of green purchase intentions.

Moreover, these cultural beliefs do, in fact, influence green purchase intentions when it comes to ecologically friendly items (Riley et al., 2012). Collectivism and LTO as cultural values have been chosen since they are the most frequently established drivers of pro-environmental behavior (Leonidou et al., 2010). According to environmental psychologists (Fraj-Andrs and Mart nez-Salinas, 2007), consumers with a broader understanding of environmental issues will act in ways that are more ecologically beneficial and consistent with their values. These cultural value orientations influence environmental attitudes and ecological concerns, which drive consumer intention to purchase environmentally friendly items. In addition, due to cultural differences and approaches towards green products, this study also examined the mediating effects of environmental awareness on the relationship between cultural values and green purchase intentions.

Furthermore, the present study emphasized the process by which green purchase intentions are broadly described from an individualized perspective that places cultural values and attitudes at the center. Ecologically concerned individuals believe in self-evaluation within the context of the environmental problem and relate to the degree to which these individuals believe that their activities impact fixing a problem. These self-evaluations are known as perceived consumer effectiveness (PCE). High PCE is necessary to encourage consumers to turn their good thoughts into actual purchases (Vermeir and Verbeke, 2006). For this reason, the role of PCE in leading to green purchasing intentions was explored. The study started by outlining green purchase intentions and providing a literary context for the suggested direct and indirect effects of cultural values and environmental awareness on the propensity to make green purchases.

Through environmental awareness and PCE, this study aimed to investigate the impact of cultural values on green purchase intentions. In various aspects, it departed from the past research, which primarily focused on the effects of cultural values, personality, lifestyle, cost and development consciousness, ecologically conscious consumer behavior, and green purchase intentions (Chan, 2001; Sánchez and Lafuente, 2010; Schmitz et al., 2014; Jiang and Kim, 2015; Sheng et al., 2019); whereas the present study bridged the gap by examining the impact of cultural values on green purchase intentions using environmental awareness and PCE.

The current study's first significant addition was based on the theory of planned behavior, establishing the groundwork for PCE in the culture and environment spectrum by demonstrating its relevance and significance. PCE well describes consumers' responses to cultural values and improved green purchasing intents. Second, it established obligations for consumers to protect and fix the damages done to the environment as antecedents using cultural values, which helps to reinforce the suggested model. Third, it provided a mediation model for examining the interplay between environmental awareness, PCE, cultural values, and green purchasing intentions. Finally, this study made a methodological addition by combining the recently established importance-performance map analysis (IPMA) with the partial least squares technique to explain the suggested model better. As a result, the findings of this study have some practical implications for practitioners looking to increase green purchase intentions in global development.

2 The theoretical framework

As shown in Figure 1, the resulting model included the doctrine of the mean (collectivism and LTO) as independent variables, ecological concerns, environmental attitude, and PCE as a mediator in the process. Furthermore, this research assumed that PCE plays a critical role, making it a powerful construct. It aids in determining consumers' thinking about environmental issues and how to fix them. Furthermore, green purchase intention was the dependent variable in this study, and ecological concerns, environmental attitude, and PCE serve as mediators.

3 Literature review and hypothesis development

3.1 Theory of planned behavior

Consumer attitudes and behavior are crucial to identifying green purchasing in the environmental domain (Fraj-Andrs

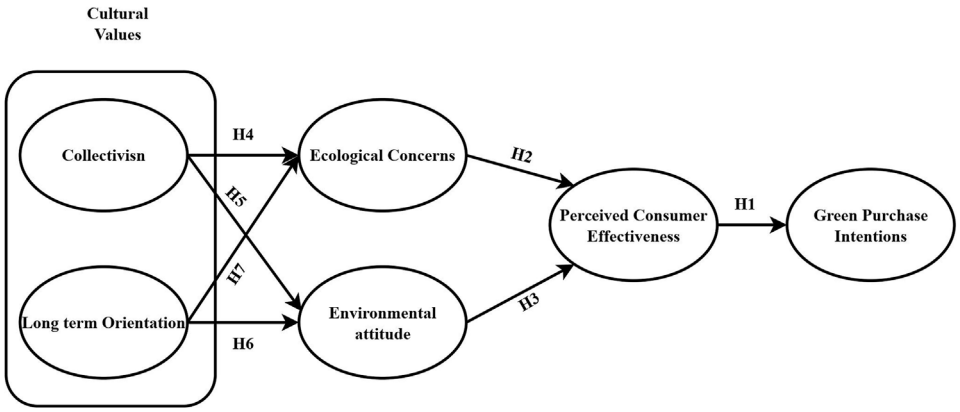

FIGURE 1
The theoretical framework.

and Mart nez Salinas, 2007; McCarty and Shrum, 2001; Kabadayı et al., 2015). Theory of planned behavior (TPB) explains that people are more inclined to engage in specific behaviors if they think doing so will result in favorable outcomes and more control over behavior (Ajzen, 1991). Both general attitudes reflect opinions about environmental issues and specific perspectives, such as judgments about particular eco-friendly items and environmentally friendly behaviors. Also, PCE may be a reference point for people considering participating in environmental preservation and pro-environmental behaviors (Kabadayı et al., 2015). Understanding pro-environmental behavior requires thinking collectivism and LTO (Leonidou et al., 2010). According to Sharma (2010), most collectivists are prepared to put the needs of the group before their own; as a result, they are more inclined to act in an environmentally friendly way because it benefits the whole society. Similarly, consumers who think long-term are more prone to protect the environment by building a sustainable future for their families and themselves (Leonidou et al., 2010).

3.2 Green purchase intentions

The buying of green products is linked to green consumerism (Jansson et al., 2010), and consumers involved in these activities are known as "green consumers" (Lu et al., 2015). Environmental activism, sustainable consumption behavior, and ecological conscious behavior are some of the terms used to describe the intentions; and acting in a way that is good for the environment (Hirsh, 2010; Wesley et al., 2012; Lee et al., 2014). Green conduct entails more than just a change in attitude. It is usually connected with the use of products that are environmentally friendly—or do not harm the environment (Hasnah, 2014) or purchasing environmentally friendly products (Wang, 2014). Moreover, Kautish and Sharma's (2020) study intended to advance and broaden previous work on green marketing by incorporating pro-environmental behavioral patterns and critically investigating the crucial constructs of willingness to be environmentally friendly and environmentally conscious consumer behavior.

Customers highly concerned about the environment are thought to have a good attitude toward green products, which is related to their high level of purchase intent. Concern for the environment directly and significantly impacts attitudes toward green products, which further affects the intention to purchase such products (Sharma et al., 2022). The pro-environmental behavior consists of public and private spheres as two main domains (Stern, 1999), and the present study focused on the private domain. The private realm comprises all environmental impacts from personal and home goods purchases, consumption, and disposal (Stern, 1999).

Individual customers' environmentally friendly purchase behavior is influenced by their cultural beliefs (McCarty and Shrum, 2001). Researchers believe that collectivist cultural norms and consumers' long-term perspectives substantially impact consumers' purchasing intentions for environmentally friendly items (Nguyen et al., 2017). For Chinese consumers, collectivism and LTO are a part of their traditional culture and tied to their intentions to purchase green products.

Unlike prior studies on green consumption, this study examined the direct and indirect impact of cultural values (collectivism and LTO) on green purchase intentions by focusing on environmental concerns and PCE. Cultural values, ecological concerns, and PCE were considered significant antecedents of green purchasing intentions, which was the main crux of this study.

3.3 Relationship between perceived consumer effectiveness and green purchase intentions

PCE is defined as the ability to influence outcomes, which captures endless views about the effectiveness of consumer choices in general (Wesley et al., 2012). PCE is also described as the self-assessment within the context of the issue and refers to the level of consumers' belief that their activities make a difference in fixing a problem (Berger and Corbin, 1992). A high PCE must remind customers to turn their happy feelings into actual purchases (Vermeir and Verbeke, 2006). Keeping in view, the consumers who have a favorable attitude toward green consumption are more likely to support green consumption practices when they feel they can contribute to the solution of the environmental crisis (Vermeir and Verbeke, 2006; Lee et al., 2014).

Recently, it was found that behavioral control, attitudes, and subjective (or social) norms are accurate predictors of environmentally friendly consumer behavior (e.g., Vermeir and Verbeke, 2006). Similarly, a person's perception of their capacity to impact issues with environmental resources is also measured by perceived consumer effectiveness, and this study showed that environmental awareness and recycling intents considerably reduce the adverse effects on green purchase behavior of perceived consumer effectiveness and readiness to practice environmental friendliness (Kautish et al., 2019). TPB, frequently used to investigate green consumer behavior (Ajzen, 1991), links PCE closely to perceived behavioral control. According to TPB, an individual's intention to behave in a given way can be explained in a causal sequence by their attitudes toward conduct, perceptions of social pressure, and perceptions of the difficulty of the behavior (i.e., perceived behavioral control). People's perceptions of how easy or difficult it is to do the desired activity are perceived as behavioral control (Ajzen, 1991). Similarly, it is believed that PCE benefits green purchase intentions because people's conduct is significantly influenced by their confidence in their capacity to accomplish it. H1 was formulated based on the abovementioned literature (please see Section 3.7 Hypotheses).

3.4 Relationship between ecological awareness and perceived consumer effectiveness

The present study has combined the concepts of ecological concerns and environmental attitudes as ecological awareness. It is about the awareness of the concerns and effects of our attitudes and behaviors on the ecosystems and environment around us individually and collectively (Caporali, 2021).

3.4.1 Ecological concerns

Ecological concerns, also known as environmental consciousness, are a person's viewpoint, attitude, and level of concern for the environment (Said et al., 2003). Ecological concerns, environmental consciousness for the environment, and an understanding of its conservation value are the elements of ecological concern (Hirsh, 2010). Many of the environmental problems we face today are the direct result of human activity, so that behavioral remedies may be required (Oskamp, 2000). Since fixing ecological issues at the individual level is different from group perspectives, environmental concerns must be measured (Kautish et al., 2021). In other words, their individualistic mindfulness or attention to environmental issues is unrelated to their collective tendencies (such as garbage recycling) to address the problems with nature on a global scale (Tandon et al., 2020). Human behavior significantly impacts the global ecology, for better or worse. Therefore, consumers think they can influence the outcomes, and their activities make a difference in fixing environmental problems (Berger and Corbin, 1992). Consumers with more significant ecological concerns will involve themselves more and consider setting these concerns. Based on these facts, H2 was developed for the present study (please see Section 3.7 Hypotheses).

3.4.2 Environmental attitude

Kahn and Kahn (2006) defined an attitude as a person's positive or negative reactions, to a thing, object, place, or phenomena and as a predictor of behavior (Ajzen, 1991). Applying this to the environmental world, environmental attitude is a person's capacity to assess the environment's state with a particular level of agreement (Milfont and Duckitt, 2010). Steg et al. (2014) defined pro-environmental behavior as "any action that improves the quality of the environment, whether or not it results from pro-environmental intent" (p. 105). Attitude is the predictor of behavior, so environmental attitude leads to pro-environmental behaviors (Yang et al., 2022). A green (environmental) attitude plays a crucial role as a mediating variable in value orientation and green purchase behavior relationship (Kautish and Sharma, 2019). Moreover, the environmental attitude helps a consumer assess and perceive the environment and guides him to improve the quality. This attitude fuels the consumers to fix the ecological issues and allows them to buy eco-friendly products. So, the current study could hypothesize H3 (please see Section 3.7 Hypotheses).

3.5 Relationship between cultural values and environmental awareness

Cultural values are a philosophy representing a way of thinking and how to behave in a particular society (Chang

and Yang, 2014), also known as software of minds (Hofstede, 2001). As previously stated, cultural values promote moral ideas such as a holistic perspective, collectivism's virtues, and harmony among the community (Bashir et al., 2013). These values play a significant part in the Chinese people's daily life (Chang and Yang, 2014). The present study investigated collectivism and LTO, two dimensions of cultural values. Comprehending pro-environmental behavior requires understanding collectivism and LTO (Leonidou et al., 2010).

3.5.1 Collectivism

According to collectivism, individuals are tightly tied as members of one or more groups, such as family, peers, and society (Triandis, 1995). Most collectivists are willing to put the group's aims ahead of their own (Sharma, 2010); as a result, they are more inclined to act ecologically friendly because it is good for the collective (Zhuang et al., 2021). When faced with social difficulties related to green purchasing behavior, they are more likely to display cooperative behavior and forego personal rewards (Kim and Choi, 2005; Leonidou et al., 2010). Collectivists are more concerned about ecological concerns as they think about the whole society or group. Moreover, the collective approach also plays a vital role in forming positive environmental attitudes in the community (Chowdhury et al., 2021). So, it could be hypothesized as H4 and H5 (please see Section 3.7 Hypotheses).

3.5.2 Long-term orientation

LTO is defined as "cultivating virtues geared toward future rewards, particularly preservation and thrift" (Hofstede, 2001, p. 260). It measures how much of an individual's perspective is pragmatic and future-oriented rather than short-term (Hofstede, 2001). Long-term-oriented people cherish both the future and the past and put effort into long-term planning, traditions, hard struggle, and perseverance (Bearden et al., 2006). Similarly, these people also think about the ecological concerns of society as they plan long-term objectives (Chowdhury et al., 2021). Moreover, consumers who think long-term are more likely to protect the environment by establishing stable conditions that will allow their families and themselves to prosper (Leonidou et al., 2010). These LTOs help consumers build their eco-friendly attitudes, leading them toward pro-environmental behavior. So, it can be hypothesized as H6 and H7 (please see Section 3.7 Hypotheses).

3.6 The mediating role of environmental awareness and perceived consumer effectiveness

Collectivists are frequently more concerned for the general welfare, including the environment, because they are more prepared to put groups' aims before their own (Sharma, 2010). Many people believe that it is their responsibility to preserve the environment for the benefit of their communities (Cho et al., 2013; Zhuang et al., 2021). Collectivists are more likely to forego personal costs and the additional difficulty associated with pro-environmental behavior because they believe in its efficacy (Kim and Choi, 2005). Several early studies of environmental behavior, particularly green purchasing, have shown a favorable association between collectivism and ecological concerns (e.g., McCarty and Shrum, 2001; Leonidou et al., 2010). The pro-environmental literature explains that PCE is believed to be a function of how consumers think about their potential to contribute positively and influence the environment (Cho et al., 2013). So, the present study hypothesized H8 and H9 (please see Section 3.7 Hypotheses).

Long-term focused people typically respect families and traditions and make plans for the future. As a result, they adopt a mindset of environmental protection for their kids and themselves to succeed in the future (Leonidou et al., 2010). Regarding environmental protection, empirical studies have shown that consumers with LTO are aware of a more positive outlook on the environment (Milfont and Duckitt, 2010). Consumers with LTO seek advice and help from significant people since they are more likely to manage their money correctly and examine alternatives when involved in green purchases (Hofstede, 2001; Sharma, 2010). Consumers with a favorable attitude toward the environment are likelier to engage in the corresponding behaviors (Tanner and Kast, 2003). According to Antonetti and Maklan (2014), individual sensations of post-consumption remorse and pride increase PCE in sustainable consumption. So, there is a need to study cultural values that promote PCE and its relationship with green purchase intentions. Based on these facts, H10 and H11 were constructed for this study (please see the following Hypotheses section).

3.7 Hypotheses

Keeping in view all the literature mentioned above, the following hypotheses were formulated:

H1: PCE has a positive impact on green purchase intentions.
H2: Ecological concerns have a positive relationship with PCE.
H3: Environmental attitude has a positive effect on PCE.
H4: Collectivism has a positive impact on ecological concerns.
H5: Collectivism has a positive effect on environmental attitudes.
H6: LTO has a positive effect on environmental attitude.
H7: LTO has a strong positive impact on ecological concerns.
H8: Ecological concerns mediate the relationship between collectivism and green purchase intentions.
H9: PCE mediates the relationship between collectivism and green purchase intentions.
H10: Environmental attitude mediates the relationship between LTO and green purchase intentions.
H11: PCE mediates the relationship between LTO and green purchase intentions.

TABLE 1 Demographic profile.

Characteristics		Frequency	%
Gender	Male	83	22.4
	Female	288	77.6
Age	Below 17	01	0.27
	18–22	135	36.4
	23–27	128	34.5
	28–31	37	9.97
	32–35	25	6.74
	36–41	18	4.85
	Above 41	27	7.27
Education	High School and Below	13	3.5
	Bachelors	211	56.9
	Masters	128	34.5
	PhD and above	19	5.1
Monthly income	<3000 RMB	215	57.9
	3,000–3,999	52	14.0
	4,000–4,999	17	4.6
	5,000–5,999	26	7.0
	>6,000	61	16.5
Marital status	Single	282	76.0
	Married	89	24.0
Total		371	100

4 Methodology

4.1 The participants

The population analyzed in this study was consumers involved in green product buying. The criteria for selecting consumers were a) consumers must have experience in buying products and have not bought green products, and b) consumers must know their culture and environment very well. A random sample of 371 consumers was selected from various cities across China using the non-probability sampling technique. Table 1 displays the demographic information.

4.2 The instrument

In addition to such demographic information as gender, age, marital status, income, and education, a five-point Likert scale was used to examine individual responses. The scale was increased from 1 to 5, with one denoting strong disagreement and five representing strong agreement. The scale was first created in English with support from literature before being translated into Chinese. The forward and backward translation method was used for all constructs to assure translation accuracy (Sperber et al., 1994). Table 2 summarizes the scale, and the complete scale with their factor loadings is included in Appendix A.

4.3 Data collection procedures

The survey was constructed, and data were collected on Survey Star, a platform popular by researchers in China. The survey was distributed to different Chinese customer groups. It provided the participants with information about the study, and their participation was voluntary.

4.4 Data analysis methods

To evaluate the model's significance, the Smart PLS-SEM 3.0 used a non-parametric approach known as bootstrapping. The partial least square-structural equation modeling (PLS-SEM) method was employed in this investigation since it is a well-liked method for examining new research trends and developing models rather than only providing confirmation (Urbach and Ahlemann, 2010). Additionally, the decision to use PLS-SEM was based on its capacity to simultaneously estimate causal links among all latent components while addressing measurement errors in the structural model (Kautish et al., 2022). Predictive accuracy, relevance, and path modeling were calculated using the bootstrapping method (Gaskin et al., 2018). The present study assessed the measurement model (i.e., reliability and validity), structural model, mediation analysis, and the IPMA.

The proposed model's reflective constructs were assessed utilizing reliability and validity tests. Factor loadings, average variance extracted (AVE), discriminant validity, composite reliability, and Cronbach's alpha values were calculated to assess validity and reliability (Kautish et al., 2022). The factor loadings had large values, so no measurement items were deleted. According to Hair et al. (2016), convergent validity is established if the AVE, composite reliability, and factor loadings are greater than 0.50, 0.70, and 0.60 respectively. Furthermore, the Fornell-Larcker and Heterotrait-Monotrait ratio (HTMT) criteria were used to determine discriminant validity. The off-diagonal values for each construct must be less than the square roots of AVE values (Fornell and Larcker, 1981). The HTMT ratio is also a measure of variable similarity (Kautish et al., 2020a, Kautish et al., 2020b; Kautish and Sharma, 2019). To meet the HTMT requirement, all values must be less than 0.90 (Henseler et al., 2015). The structural model was examined after verifying the measurement model's validity and reliability.

TABLE 2 A summary of the scale.

Measures	Items	Source
Green purchase intentions	3 items	Lu et al. (2015)
Collectivism	5 items	McCarty and Shrum (2001); Sharma, (2010)
LTO	6 items	Sharma, (2010); Yoo et al. (2011)
PCE	4 items	Kabadayı et al. (2015); Lee et al. (2014); Wesley et al. (2012)
Ecological concerns	5 items	Fontes et al. (2021)
Environmental attitude	4 items	McCarty and Shrum, (2001)

TABLE 3 Items, Cronbach's alpha, standard loading, composite reliability (CR), and average variance extracted (AVE).

Constructs	Cronbach's alpha	CR	AVE
Collectivism	0.829	0.879	0.593
LTO	0.870	0.904	0.612
Ecological concerns	0.823	0.872	0.578
Environmental attitude	0.895	0.927	0.761
PCE	0.811	0.877	0.647
Green purchase intentions	0.840	0.903	0.757

To address the recent research, various hypotheses were developed based on the body of literature. For the structural model study, seven hypotheses were formulated. PCE and environmental awareness predicted green purchase intentions. A bootstrapping process with 5,000 samples was used to construct the path coefficients and accompanying *t*-values to determine the significance of the path and the loadings (Kautish et al., 2020a). It was also expected that cultural values would impact environmental awareness and PCE. T-values greater than 1.196 further clarified the significance of the hypotheses (Kautish et al., 2020b). Moreover, the importance of environmental awareness and PCE as a mediator between cultural values and green purchase intentions was further explored through mediation analysis. The current study focused on bootstrapping and used the most recent conventions to examine the mediating functions of various constructs.

In partial least squares (PLS)-SEM, the IPMA is a valuable and systematic instrument that visually displays the difference between the relevance and performance of the variables and widens the conventional route coefficient estimations in a more investigative manner. IPMA's primary goal is to determine which antecedents have good performance but are low in relevance and vice versa (Sarstedt et al., 2017).

The adjusted R^2-value for GPI is 42.9%, 58.1% for PCE, 34% for EC, and 41.6% for EA. The standardized root mean square (SRMR) value was also calculated as part of the bootstrapping technique to measure model fitness. The SRMR value for the structural model employed in this investigation was 0.069, which fell within the permissible range of 0–1 (Hooper et al., 2008).

5 Results

5.1 The measurement model

The measurement model was used to authenticate the reliability and validity of the instrument, and all of the presented values in Table 3 were within the prescribed range.

The square root of each AVE on the diagonal was compared to the correlation coefficients (off-diagonal) for each construct in the relevant rows and columns; the square root of each construct's AVE was greater than its correlation with another construct. As seen in Table 4, this requirement was also met (Fornell and Larcker, 1981).

All constructs had an HTMT ratio of less than 0.90; this requirement was also met (Kautish et al., 2022), as indicated in Table 5. As a result, the constructs' discriminant validity was established.

5.2 The structural model

The path coefficients of the proposed model obtained from the bootstrapping technique are shown in Figure 2. The result of H1 revealed that PCE significantly impacted GPI ($\beta = 0.656$, $t = 16.176$). H2 evaluated the relationship between EC and PCE, and the results showed a significant relationship between these constructs ($\beta = 0.332$, $t = 5.214$). Similarly, H3 found a significant positive relationship between EA and PCE ($\beta = 0.482$, $t = 7.326$). The impact of COL on EC was also significant and positive ($\beta = 0.201$, $t = 3.905$), proving H4. H5 investigated the relationship between COL and EA and explained the significant positive relationship ($\beta = 0.283$, $t = 4.713$). LTO had a strong positive impact on EA ($\beta = 0.441$, $t = 6.925$). and it was investigated in H6. In relation to H7, LTO impacted positively on EC ($\beta = 0.521$, $t = 9.254$). Table 6 summarizes the findings.

TABLE 4 Discriminant validity—Fornell-Larcker criterion.

Construct	Collectivism	Environmental attitude	Ecological concerns	Green purchase intentions	LTO	PCE
Collectivism	0.770					
Environmental attitude	0.602	0.872				
Ecological concerns	0.584	0.751	0.760			
Green purchase intentions	0.605	0.763	0.673	0.870		
LTO	0.723	0.646	0.668	0.577	0.782	
PCE	0.617	0.730	0.696	0.656	0.717	0.804

Note: Diagonals (italic) values are the square root of the AVE, values of each respective construct.

TABLE 5 The HTMT (Heterotrait-Monotrait ratio).

Construct	Collectivism	Environmental attitude	Ecological concerns	Green purchase intentions	LTO	PCE
Collectivism						
Environmental Attitude	0.694					
Ecological concerns	0.652	0.842				
Green Purchase Intentions	0.719	0.839	0.792			
LTO	0.844	0.729	0.753	0.668		
PCE	0.737	0.848	0.807	0.781	*0.842*	

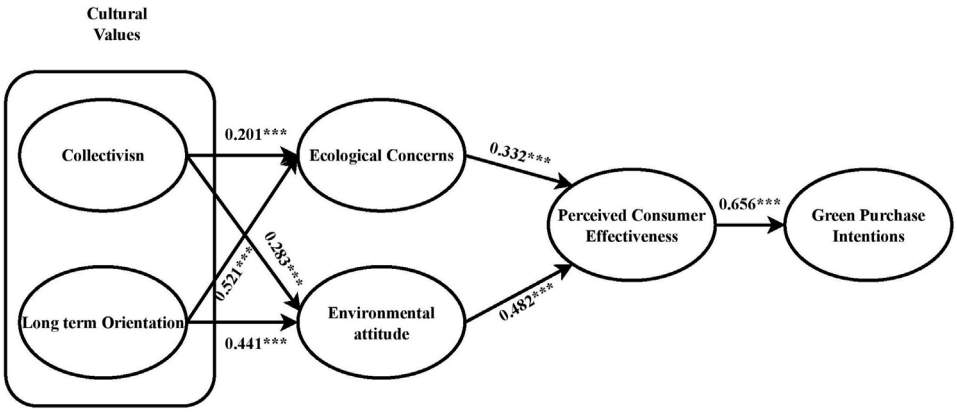

FIGURE 2
Path coefficients of the proposed model.

5.3 The mediation analysis

According to the findings, COL had a considerable direct effect on GPI. The indirect influence of COL on GPI via EC and PCE was also significant. As a result, both direct and indirect effects were significant. Moreover, LTO also showed a substantial relationship with GPI, and the indirect impact of LTO on GPI through EA and PCE was also substantial. The conditions were met according to the latest convictions (Zhao et al., 2010; Hayes 2013; Hussain et al., 2021), proving that EC, EA, and PCE played as mediators.

The present study also calculated the variance accounted for (VAF), which determines the intensity of the indirect effect relative to the total impact (VAF = indirect effect/total effect),

TABLE 6 Structural relationships and hypothesis testing.

Hypothesis	Path	Path coefficient	*T* statistics	*p* values	Decision
H1	PCE→ GPI	0.656	16.176	<0.01	Supported
H2	EC→PCE	0.332	5.214	<0.01	Supported
H3	EA→PCE	0.482	7.326	<0.01	Supported
H4	COL →EC	0.201	3.905	<0.01	Supported
H5	COL→EA	0.283	4.713	<0.01	Supported
H6	LTO→EA	0.441	6.925	<0.01	Supported
H7	LTO→EC	0.521	9.254	<0.01	Supported

TABLE 7 The mediation effects.

Relationship	Direct effect	Indirect effect	Total effect	VAF (%)	Type of mediation
COL→GPI	0.328				
COL→EC→GPI		0.572*.484 = 0.277	0.605	45.78	Partial
COL→GPI	0.323				
COL→PCE→GPI		0.457*.618 = 0.282	0.605	46.61	Partial
LTO→GPI	0.142				
LTO→EA→TA		0.646*.676 = 0.437	0.579	75.47	Partial
LTO→GPI	0.219				
LTO→PCE→GPI		0.718*.499 = 0.358	0.577	62.04	Partial

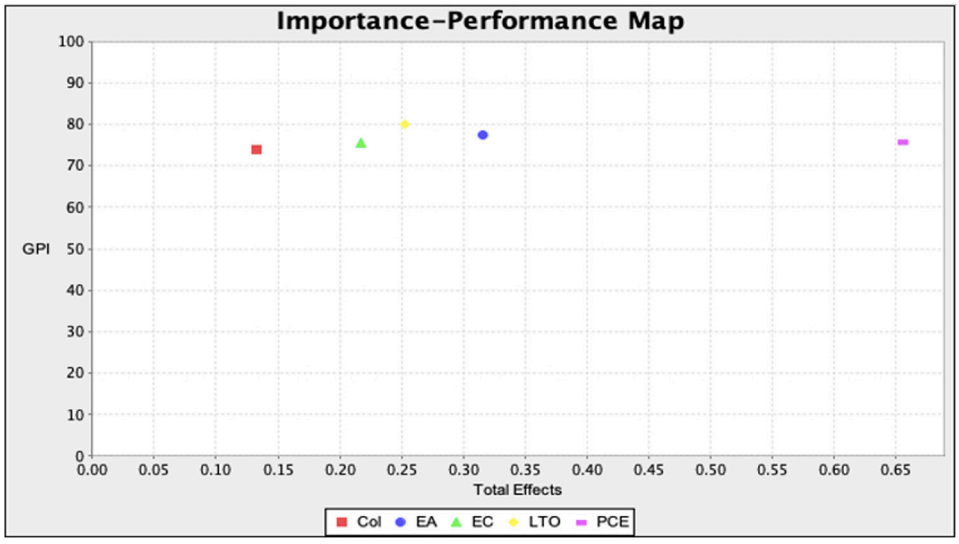

FIGURE 3
The IPM

and found that there was partial mediation between all the mediating hypotheses. As a result, hypotheses H8, H9, H10 and H11 are accepted. The results are shown in Table 7.

5.4 The importance-performance map

GPI was a dependent construct in our model, and five antecedents predicted it: Col, LTO, EC, EA, and PCE. Col had an importance value of 0.133 and a performance value of 73.841, as shown in Figure 3. LTO had a more importance value of 0.253 and a performance value of 80.094. EC had an importance value of 0.218 and a performance value of 75.648, whereas EA had an importance value of 0.316 and having importance value of 77.420. PCE was the last predictor having an importance value of 0.656 and a performance value of 75.739. Comparing these constructs (Col, LTO, EC, EA, and PCE), PCE was a much more critical construct, whereas LTO was substantial in performance. As a result, marketers should focus on PCE as an essential construct and LTO as performance to enhance the GPI.

6 Discussion and conclusions

Cultural values and environmental awareness have influenced human behavior, including changes in consumption patterns and behaviors. They have also affected people's lifestyles, buying intentions, needs and wants, and how they consume products and services. During these cultural and environmental changes, one prominent tendency is an upsurge in green purchasing. The findings demonstrate that consumers' cultural values (COL and LTO) enhance green purchase intentions by improving environmental attitudes, ecological concerns and PCE and reducing the perceived inconvenience of green purchasing. Although various studies on GPI have been undertaken, the parameters that govern this construct remain unknown. This study filled in the gaps, discovering that GPI is impacted by the COL, LTO, EC, EA, and PCE. Furthermore, the R^2 value demonstrates that COL, LTO, EC, EA, and PCE are effective predictors of GPI.

In the current era of globalization, cultural values play a crucial role in consumer behavior. According to the findings, the impact of COL and LTO on ecological concerns and environmental attitudes are found, and they have a strong positive relationship. This builds on Chan (2001) and Leonidou et al.'s (2010) previous work on the impact of collectivism and LTO on environmental attitudes. Chinese culture is genuinely believed to be a collectivist culture compared to individualism (Hofstede, 2001; Essays, 2013), so the findings are backed by previous literature. Chinese consumers who strongly identify with such cultural values will be more likely to take proactive actions to conserve the natural environment for their and others' future well-being (Leonidou et al., 2010). As a result, consumers' green purchase intentions are favorably connected with an eco-centric perspective and a long-term view on the matter (Tandon et al., 2021).

Environmental attitude, in particular, has the most significant impact on perceived consumer effectiveness, whereas ecological concerns have less effect on PCE (Kautish et al., 2019). Keeping in view, the consumers who have a favorable attitude toward green consumption are more likely to support green consumption practices when they believe they can help solve the environmental problem (Vermeir and Verbeke, 2006; Lee et al., 2014). So, the results of the current study are consistent with the literature (Kautish et al., 2019; Tandon et al., 2020). Furthermore, data analysis revealed that PCE is a significant antecedent of their green purchasing intention (Kautish and Sharma, 2020). This discovery follows prior research findings in the field, highlighting the essential relationship between PCE and a consumer's GPI (Antonetti and Maklan, 2014; Y. Lee et al., 2014; Kabadayı et al., 2015).

This study was limited in the following three ways. First, it only focused on green products and green purchase intentions in general, rather than specific categories of ecologically friendly goods. Varied green goods may yield different results, which deserve additional exploration. Second, this study only used cross-sectional data for analysis. Longitudinal studies can be more helpful for the justification of the impact of cultural values and environmental awareness on GPI over time. Finally, the sample size was small, which could not generalize the results to the whole population. Large sample size from every part of China can solve this issue.

In light of these limitations, the following conclusions were made. The goal of this study was to determine the factors that influenced GPI, as well as the link between these factors and GPI. Based on TPB, it created and tested a mediation model to capture the influence of cultural values (COL and LTO) on green purchase intentions through environmental awareness and PCE. The suggested conceptual model's robustness was evaluated using quantitative analysis (PLS-SEM). The results revealed that ecological awareness and PCE were the most critical factors in converting green purchase intentions via cultural values. The results of the empirical study also demonstrated that environmental awareness and PCE influenced the effects of collectivism and long-term orientation. It also showed that these cultural values were the most critical constructs affecting green purchase intentions. This study's findings also revealed that environmental awareness and PCE partially mediated the relationship between cultural values and GPI. Furthermore, this research emphasized the importance and usefulness of PCE, recognizing them as a novel way to improve GPI. These findings also added to the expanding body of literature indicating that PCE created self-awareness and fixed the environmental issues, which aided in developing the suggested model.

This research added to the body of knowledge in the following ways. First, the cultural values include the belief that Chinese consumers are dedicated to working as a group and thinking about society. These unique beliefs aid the community in enhancing green purchase intentions, which would be impossible without environmental awareness and perceived consumer effectiveness. This study also introduced PCE as an essential variable in building a consumer-society relationship via cultural values in enhancing green purchase intentions. Second, by including PCE, this study improved understanding of the cultural values and environmental concerns in green purchasing. This study helped understand consumers' thinking better and fix environmental issues by enhancing green purchase intentions. Third, it provided empirical support for the suggested model of cultural values, ecological awareness and PCE in green purchase behavior. This study used PCE as an intervening variable. It tended to be the link between cultural values and consumers' GPI. It clarified the GPI of consumers on their culture more precisely.

This study's findings have ramifications for marketers, producers, retailers and policymakers who want to establish green marketing strategies and support green consumption. The study's results suggest that Chinese consumers place a lot of importance on the doctrine of the mean, and changes in values can be effectively achieved by information processing (advertising). Marketers can enhance green purchase intentions through advertising to appeal to Chinese consumers who connect most strongly with the Doctrine of the Mean, making green purchasing decisions easier.

The results of the present study demonstrated that environmental awareness and PCE positively mediate the relationship between cultural values and green purchase intentions. Government and private entrepreneurs can collaborate with non-governmental organizations and institutions to launch more campaigns to increase consumer environmental awareness for environmental protection (Sharma et al., 2022). These awareness campaigns can be constructed to persuade Chinese consumers about buying environmentally friendly products. Furthermore, these campaigns also give problem-fixing strategies to consumers about the environment, just like they think in PCE.

Finally, this study investigated the impact of cultural values, environmental awareness and PCE on green purchasing intentions, which could also pave the way for a bright future for China's green products sector. These findings could help manufacturers invest in green products since cultural values, and environmental awareness are more likely to become habits in the future.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Appendix A: The measurement items with factor loadings

Items	Description	Factor loadings
Collectivism (McCarty and Shrum (2001); Sharma (2010))		
COL-1	I work hard for the goals of a group, even if it does not result in personal recognition	0.705
COL-2	I am a cooperative participant in group activities	0.801
COL-3	Group members should stick together, even if they disagree	0.776
COL-4	The well-being of my group members is essential to me	0.789
COL-5	I enjoy sharing items and spending time with my group members	0.776
Long-term orientation (Sharma (2010); Yoo et al. (2011))		
LTO-1	Careful management of money is essential to me	0.735
LTO-2	I do not give up easily, even if I fail in my firsta attempt	0.790
LTO-3	I believe in planning for the long term	0.831
LTO-4	I value personal steadiness and stability	0.814
LTO-5	I work hard for success in the future	0.872
LTO-6	I don't mind giving up today's fun for success in the future	0.628
Ecological Concerns (Fontes et al. (2021))		
EC-1	I am extremely worried about the state of the world's environment and what it will mean for future generations	0.786
EC-2	Mankind is severely abusing the environment	0.836
EC-3	When humans interface with nature, it often produces disastrous consequences	0.715
EC-4	The balance of nature is very delicate and easily upset.	0.714
EC-5	Humans must live in harmony with nature to survive	0.742
Environmental Attitude (McCarty and Shrum (2001))		
EA-1	Environmental protection is essential to me when making purchases	0.842
EA-2	Environment-friendly products are essential to reduce environmental pollution	0.892
EA-3	Environment-friendly products are essential to save natural resources	0.907
EA-4	If I can choose between Environment friendly and conventional products, I prefer environment-friendly products	0.847
Perceived Consumer effectiveness (Kabadayı et al. (2015); Lee et al. (2014); Wesley et al. (2012))		
PCE-1	I feel I can help solve natural resource problems by conserving water and energy	0.838
PCE-2	Through my personal choices, I can contribute to the solution of environmental issues	0.881
PCE-3	I am concerned about the environment	0.876
PCE-4	What I purchase as a consumer affects the nation's environmental problems	0.684
Green Purchase Intentions (Lu et al. (2015))		
GPI-1	When I have a choice between two equal products, I purchase the one less harmful to other people and the environment	0.864
GPI-2	I have switched products for ecological reasons	0.871
GPI-3	I make a special effort to buy paper and plastic products that are made from recycled materials	0.876