

-RESEARCH ARTICLE-

THE IMPACTS OF ENVIRONMENTAL KNOWLEDGE AND GREEN PERCEIVED VALUE ON CHINESE CONSUMER GREEN PURCHASING BEHAVIOUR

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—Abstract—

Green purchasing refers to the practice of allocating financial resources to support sustainable initiatives and the conservation of natural resources. By incorporating elements of green growth within a sustainable and environmentally coherent economic framework, it directly contributes to addressing challenges in green development. Historically, consumers' environmental awareness has been regarded as the primary determinant influencing their propensity to acquire green products. Nevertheless, the perceived value of such products remains a critical factor shaping consumers' intention to engage in eco-friendly purchases. This study investigates the interrelations among consumer behaviour, green purchasing, green perceived value, and environmental awareness. To validate the hypotheses, the research adopted quantitative analytical techniques. Data were collected via a structured survey, yielding 550 primary responses, which were subsequently processed and examined using the AMOS and SPSS statistical software packages. The results confirm the validity of all proposed theoretical propositions.

Keywords: Environmental Knowledge, Green Perceived Value, Green Purchasing

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Behaviour, Chinese Consumers, Sustainability.

INTRODUCTION

Green purchasing, despite being a catalyst for economic growth, poses considerable threats to environmental sustainability due to the overexploitation of natural resources. Many nations rely on natural resources as a source of revenue and employment. Nevertheless, global ecological challenges necessitate collective accountability from governments, non-governmental organisations (NGOs), consumers, international institutions, businesses, and local communities. The principles of green and sustainable development emphasise maintaining ecological equilibrium and promoting a healthy environment. Within the policy framework established by the 20th National Congress of the Communist Party of China, sustainable development demands coordinated efforts across all societal sectors to achieve substantive progress (Zhang & Xi, 2024). Green consumption, defined by environmentally responsible and sustainable purchasing practices, is increasingly accepted, with numerous countries actively advocating it as an emergent consumption paradigm.

Environmental knowledge is consistently recognised as the principal driver of green consumer behaviour in multiple studies. Furthermore, awareness of environmental issues and the consequences associated with purchasing eco-products encourages the adoption of such products (Rustam et al., 2020). Green perceived value (GPV) reflects the overall benefit consumers perceive from green products and services relative to the costs associated with switching to environmentally friendly alternatives (Amin & Tarun, 2021). The present study addresses the following objectives: exploring the construct of GPV, examining consumers' environmental knowledge and green purchasing patterns, and analysing Chinese consumers' attitudes and intentions regarding eco-friendly products. Consumer evaluations of green consumption are regarded as critical determinants influencing green purchase intentions (Trong Nguyen et al., 2023).

Existing research highlights a notable “attitude-behaviour gap” between favourable attitudes towards environmentally friendly products and actual purchasing behaviour. Scholars argue that although individuals may develop positive perceptions regarding environmental conservation, societal behaviour does not always reflect a corresponding level of eco-conscious action during shopping (Borusiak et al., 2021). To better understand the determinants of green purchasing behaviour, the classical attitude-behaviour theory has been extended to the “attitude-green purchase intention” model. While prior studies by Zhao et al. (2024) have examined this framework, they have not sufficiently clarified the mechanisms through which green purchasing behaviour is cultivated. Consequently, these studies have had limited impact on enhancing green consumption patterns in the marketplace. Contributing factors to the discrepancy between green attitudes and green purchasing behaviour include

insufficient knowledge and limited perception of green value. Although consumers are aware of the environmental advantages of green consumption, this awareness does not consistently translate into purchasing actions.

- RO1: To investigate the effect of environmental knowledge and GPV on consumer green purchasing behaviour.
- RO2: To evaluate the empirical model's fit in assessing the influence of these factors on green purchasing behaviour.

LITERATURE REVIEW

Environmental Knowledge on Consumer Green Purchasing Behaviour

Environmental knowledge can be classified into two main categories: knowledge of environmental protection and knowledge of green products. According to the norm activation model, consumers who recognise the beneficial effects of green products and feel a responsibility to mitigate pollution are more likely to purchase these products (Sun et al., 2022). Environmental consciousness refers to consumers' awareness of environmental quality and related issues, which increases their likelihood of selecting environmentally friendly products (Degirmenci & Breitner, 2017; Higuera-Castillo et al., 2019). Recognition of the environmental harm caused by conventional road-fuel vehicles also enhances attention to the positive ecological impact of green products (Yeow & Loo, 2022). Key factors influencing consumer decisions include product price, type, brand, and degree of greenness (Kojcic & Kuzmanovic, 2022). Moreover, functional characteristics and emotional values represent two critical dimensions in positioning products within the green market (Amin et al., 2015). The influence of eco-labels on green product decision-making has become more pronounced as consumers increasingly demonstrate label awareness (Kumar & Basu, 2023). On this basis, the study proposes the following hypothesis:

H1: *The environmental knowledge has a significant impact on consumers' green purchasing behaviour.*

H0: *Environmental knowledge has no substantial impact on consumers' green purchasing behaviour.*

The Influence of the Green Perceived Value on Consumer Green Purchasing Behaviour

Purchasing decision-making represents the outcome of a process that encompasses the accumulation of information, evaluation, and final decision, all of which are shaped by consumer behaviour. According to Dang et al. (2021), consumer behaviour comprises a set of psychological processes, including cognitive, emotional, and social factors, which influence purchasing decisions. From another perspective, the value perceived by consumers plays a pivotal role in shaping interactions between

consumers and businesses or organisations. Prior research indicates that perceived value has undergone significant changes in recent years, largely reflecting the actual performance and experience of the product (Doszhanov & Ahmad, 2015; Yusoff et al., 2023). Furthermore, green products have increasingly become standard in the market, with consumers often willing to pay a premium due to the attributes associated with these products, which significantly influence decision-making and consumption patterns. Nevertheless, certain green products fail to achieve high perceived value among consumers, presenting challenges in their circulation and market adoption. On the basis of this literature, the following hypothesis is proposed:

H2: *The green perceived value has a significant impact on consumers' green purchasing behaviour.*

H0: *Green perceived value does not have a strong impact on consumers' green purchasing behaviour.*

Figure 1 illustrates the conceptual framework underpinning the present study.

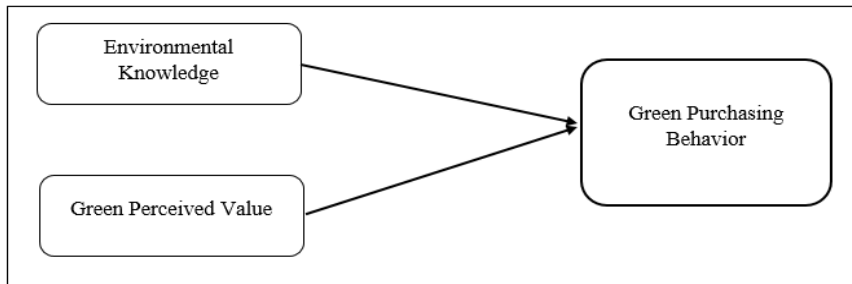


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

The study aims to investigate the green purchasing behaviour of Chinese consumers, along with the moderating roles of environmental consciousness and green perceived value. To achieve this, a quantitative research approach is employed to quantify the relationships among the relevant variables using structural equation modelling (SEM). The methodology encompasses the definition of the target population, sampling procedures and their justification, and determination of the sample size. Additionally, the study addresses data collection methods, instrumentation, ethical considerations, and the case study approach, in line with the submission requirements of journals that prioritise case-based research.

Research Method

The methodology adopted in this study is entirely quantitative, involving the analysis of correlations among multiple variables within a large population. Probability sampling is employed to ensure that the selected sample accurately represents the

population distribution. The objective of this research is to examine Chinese consumers' green purchasing behaviour in relation to their environmental knowledge and perceived green value. SEM is particularly suitable for addressing the complexities arising from the presence of multiple variables, many of which are latent constructs. SEM is extensively applied in consumer behaviour research, as it facilitates testing of hypothesised relationships and enables assessment of both direct and indirect effects on consumer decision-making (Nurhidayati & Sukri, 2025).

Sampling and Population

The sample for this study comprises Chinese consumers who have purchased green products, defined as products that exert minimal negative impact during production, use, and disposal, in accordance with sustainable practices such as resource conservation, pollution control, and ecosystem protection (Yeow & Loo, 2022). Given the vast size and diversity of the Chinese population, it is not feasible to recruit all green product consumers. Consequently, a random sampling method is employed, as it provides each unit in the population with an equal probability of selection. This approach allows researchers to draw generalisable conclusions about the entire population based on the analysis of the sample (Sarstedt et al., 2018).

Sample Size

Sample size is a critical consideration in SEM studies, as the reliability and robustness of the results are heavily dependent on it. It is generally recommended that a minimum of 200 cases be used, although this may vary according to the complexity of the models under investigation (Whittaker & Schumacker, 2022). Following the guideline of having up to ten participants per variable, and with 55 variables included in this study, a sample of 550 participants is considered sufficient. This sample size enhances the likelihood of detecting significant relationships among variables, reduces error variance, and improves the generalisability of the findings (Nurhidayati & Sukri, 2025).

Data Collection

To fulfil the objectives of this study, an online questionnaire was designed and administered to Chinese consumers who had previously purchased green products. The survey was specifically developed to assess respondents' environmental literacy, their attitudes towards the value of green products, and the frequency of their green product purchases. To enhance response rates and inclusivity, the questionnaire was made available in both English and Chinese. Distribution was conducted via widely used Chinese social media platforms, including WeChat and Taobao, to effectively reach the target population. To reduce the risk of misinformation, the survey targeted individuals with prior experience and knowledge of green products, utilising relevant websites related to environmental awareness and sustainable consumption. Both

snowball and random sampling techniques were employed, whereby respondents were encouraged to complete the survey and share it with others who met the study's inclusion criteria, thereby extending the reach of the sample (Gregar, 2023).

Instrumentation

The principal constructs examined in this study are environmental knowledge (EK), GPV, and green purchasing behaviour (GPB), with multiple measurement scales employed. These scales were adapted from prior research, with modifications to align with the Chinese context.

1. Environmental Knowledge: The EK scale was adapted from Zhao et al. (2020) as well as Yang et al. (2022). It comprises two components: environmental protection theory and green product theory. These dimensions assess participants' general knowledge regarding environmental issues and their understanding of green product performance.
2. Green Perceived Value: The GPV framework, formulated by Nadifa and Hati (2023), consists of five dimensions that capture the various ways in which green products provide benefits to consumers.
3. Green Purchasing Behaviour: The GPB instrument, developed from Zhang and Dong (2020), categorises green purchasing behaviour based on consumer attitudes, purchase intentions, and actual buying actions. It encompasses multiple behavioural characteristics related to the acquisition of green products and other factors influencing such purchases.

Ethical Considerations

Ethical considerations in research involving human participants are of paramount importance. This study adhered to the guidelines established by the Institutional Review Board (IRB). To ensure confidentiality, all responses were anonymised, and participants were not required to provide any personally identifying information. The collected data were securely stored and accessed exclusively by members of the research team.

RESULTS AND DISCUSSION

Preparation of Data

Table 1 summarises the abbreviations employed throughout the study.

Table 1: Variable Abbreviation

Variable Name	Abbreviation
Environmental Knowledge	EK
Green Perceived Value	GPV

Variable Name	Abbreviation
Green Purchasing Behaviour	GPB
Environmental Protection Knowledge	EPK
Green Product Knowledge	GPK
Functional Value	FV
Emotional Value	EV
Social Value	SV
Green Value	GV
Economic Value	ECV

Demographic Characteristics

Table 2 displays the demographic characteristics of the participants.

Table 2: Characteristics of the Sample

Demographic Characteristics		Frequency	Percentage (%)
Gender	Male	239	43.5
	Female	311	56.5
Age	Under 18 Years Old	2	0.4
	18-25 Years Old	166	30.2
	26-30 Years Old	234	42.5
	31-40 Years Old	87	15.8
	Over 41 Years Old	61	11.1
Monthly Income	Below RMB 3,000	139	25.3
	RMB 3000-5000	107	19.5
	RMB 5001-8000	179	32.5
	RMB 8,001-15,000	104	18.9
	RMB 15,000 and Above	21	3.8
Educational Background	High School Students and Below	54	9.8
	High School or Junior College Degree	209	38.0
	Bachelor's Degree	149	27.1
	Postgraduate Degree and Above	138	25.1
Marital Status	Unmarried	144	26.2
	Married	268	48.7
	Others	138	25.1
Occupation	Student	53	9.6
	Corporate Staff	23	4.2
	Civil Servant or Public Institution Employee	66	12.0
	Housewife	209	38.0
	Retirees	174	31.6
	Others	25	4.5

Reliability and Validity Tests

Reliability Test

Table 3 illustrates the reliability of the study variables. Each variable assessed in this

research demonstrates satisfactory internal consistency, as indicated by the Cronbach's alpha values. All α -values exceed 0.7, representing an acceptable level of reliability (Izah et al., 2023).

Table 3: Summary of Reliability Test

Variables	No. of Items	Cronbach's Alpha	Remarks
EK	10	0.914	Excellent
GPV	19	0.929	Excellent
GPB	4	0.812	Good

Confirmatory Factor Analysis of the Three Variables

Table 4 indicates that all indicators of the confirmatory factor analysis (CFA) measurement model reach an acceptable threshold.

Table 4: Model Fit Indicators of CFA Measurement Model

Model Fit Indicators	Threshold	Estimate
RMSEA	<0.08	0.054
GFI	>0.9	0.938
CFI	>0.9	0.956
TLI	>0.9	0.945
IFI	>0.9	0.956
NFI	>0.9	0.931
χ^2/DF	[1,5]	2.617

Convergent Validity Analysis

Convergent validity was assessed by calculating the average variance extracted (AVE) for each construct. A construct is considered to achieve convergent validity when its AVE is 0.5 or higher (Baharum et al., 2023). Composite reliability (CR) evaluates the influence of underlying factors on a construct within structural equation modelling (Kalkbrenner, 2023). As noted by Izah et al. (2023), a CR value of 0.6 or greater is required to demonstrate the consistency of a latent construct. As presented in Table 5, the standardised factor loadings of all measurement items meet the prescribed criteria. Accordingly, this study confirms a high level of convergent validity across the five variable scales employed.

Table 5: The Results of Convergent Validity Analysis

Latent Variable	Observation Variable	Standardized Factor Loading	S.E.	C.R.	P	CR	AVE
EK	EPK	0.743				0.7417	0.5897
	GPK	0.792	0.083	13.312	0.000		
GPV	FV	0.715				0.8388	0.5105

	EV	0.703	0.071	14.942	0.000		
	SV	0.74	0.062	15.666	0.000		
	GV	0.66	0.062	14.081	0.000		
	ECV	0.751	0.076	15.866	0.000		
GPB	GPB1	0.745				0.8137	0.5223
	GPB2	0.686	0.055	14.767	0.000		
	GPB3	0.749	0.055	16.01	0.000		
	GPB4	0.709	0.053	15.23	0.000		

Discriminate Validity Analysis

According to Purwanto and Sudargini (2021), discriminant validity is assessed by comparing each scale with other dimensions. The square root of the AVE is presented along the diagonal, while the correlation coefficients are positioned below it. The square root of the AVE is crucial, as discriminant validity is confirmed when it exceeds the corresponding correlation coefficients (Purwanto & Sudargini, 2021). As shown in Table 6, the study demonstrates satisfactory discriminant validity.

Table 6: Discriminant Validity

	EK	GPV	GPB
EK	0.7679		
GPV	0.453	0.7145	
GPB	0.454	0.492	0.7227

DESCRIPTIVE ANALYSIS

Table 7 shows that the mean scores range between 3.00 and 5.00, reflecting moderate levels across all variables (Nave & Franco, 2024). This indicates that respondents hold diverse perspectives regarding the variables under investigation.

Table 7: Summary of Descriptive Finding

Variables	Minimum	Maximum	Mean	Standard Deviation
EK	1	5	3.4029	0.86588
GPV	1	5	3.3935	0.70737
GPB	1	5	3.6645	0.74534

SEM

Model Fit Indicators of the SEM

The framework was analysed and validated using SEM (Figure 1). Prior to testing, the goodness-of-fit indices were applied to assess the model's adequacy. The results indicate that SEM is suitable for this study. Fit criteria recommended by scholars

(Goretzko et al., 2023; Kline, 2023; Nurhidayati & Sukri, 2025) are summarised in Table 8.

Table 8: Goodness of Fit Index of the SEM

Goodness of Fit Index	Estimate Required	Measurement Model
RMSEA	<0.08	0.054
GFI	>0.9	0.938
CFI	>0.9	0.956
TLI	>0.9	0.945
IFI	>0.9	0.956
NFI	>0.9	0.931
χ^2/DF	[1,5]	2.617

SEM Diagram

Figure 2 depicts the SEM diagram.

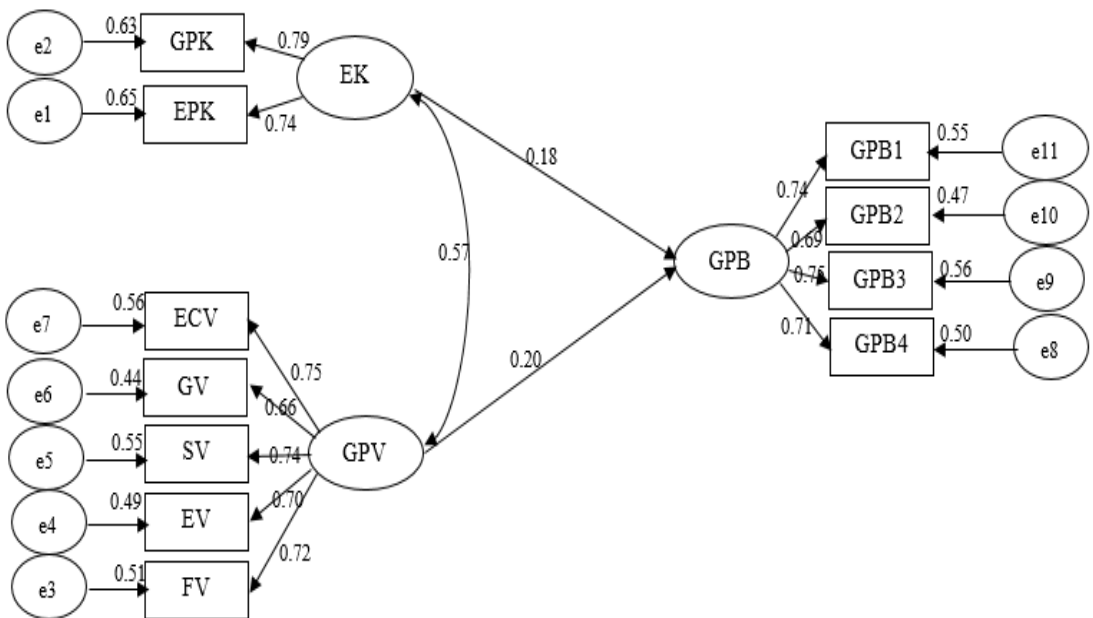


Figure 2: SEM Diagram

Direct Effect Analysis

Table 9 demonstrates that environmental knowledge exerts a positive influence on green purchasing behaviour (B = 0.183, p < 0.01), thereby supporting H1. Likewise, green perceived value shows a significant positive effect (B = 0.196, p < 0.01), resulting in the rejection of the null hypothesis for H2 and confirming its support.

Table 9: Direct Effect Analysis

Direct Effects	Standardized Estimate (B)	S.E.	C.R.	P	Hypothesis
EK → GPB	0.183	0.078	2.525	0.012	H1
GPV → GPB	0.196	0.081	2.947	0.003	H2

DISCUSSION

The Impact of Environmental Knowledge on Consumer Green Purchasing Behaviour

The empirical findings indicate that environmental knowledge positively predicts green purchasing behaviour, thereby supporting H1. This is consistent with the observations of [Gkargkavouzi et al. \(2019\)](#) and [Meyer \(2015\)](#), who identify environmental knowledge as a critical determinant of sustainable consumption. Furthermore, increased environmental knowledge is associated with greater engagement in pro-environmental behaviours ([Macias, 2015](#); [Rusyani et al., 2021](#)).

The Impact of Green Perceived Value on Consumer Green Purchasing Behaviour

The empirical analysis indicates that GPV has a significant positive effect on green purchasing behaviour, thereby supporting H2. This finding aligns with [Sun et al. \(2022\)](#) and [Ban et al. \(2022\)](#). According to the theory of planned behaviour (TPB), intention to act is influenced by attitudes ([Hagger et al., 2022](#)), with perceived value positively associated with purchasing behaviour ([Bizon et al., 2023](#)). An elevated perceived value strengthens consumer intention to act ([Wanping, 2024](#)). [Tanrikulu \(2021\)](#) emphasise that perceived value addresses consumer needs, exchange value, and purchasing decisions. As a subjective construct, it shapes behaviour through emotional responses and consumption experiences ([Wondirad et al., 2023](#)). The results also support H1, confirming that EK strongly predicts the adoption of green products. This corroborates the findings of [Meyer \(2015\)](#) and [Gkargkavouzi et al. \(2019\)](#), who identified EK as a key determinant in sustainable consumption. A positive association exists between higher EK and pro-environmental behaviour ([Macias, 2015](#); [Rusyani et al., 2021](#)). EK increases awareness and encourages sustainable consumption practices, such as recycling, waste reduction, and purchasing eco-friendly products ([Rustam et al., 2020](#)). Consumers' education, whether through formal learning or informative initiatives, contributes to fostering green behaviour ([Varela-Candamio et al., 2018](#)). Environmental literacy within training and educational programmes enhances awareness and promotes green purchases ([Trong Nguyen et al., 2023](#)).

Despite the established link between EK and green purchasing behaviour, an attitude-behaviour gap persists, where environmental knowledge does not always translate into action ([Borusiak et al., 2021](#)). Other factors, such as convenience, price sensitivity,

and social influence, can moderate this relationship. Consumers may derive social value from green products, yet barriers like availability, cost, and peer behaviour may limit adoption. Consequently, policy and business strategies must ensure that sustainable products are affordable and accessible to facilitate behavioural change. Green perceived value comprises economic, functional, emotional, and social dimensions (Zhao et al., 2024). Consumers evaluate these attributes to conduct a cost–benefit analysis when considering green products. For example, characteristics such as durability, price, and health benefits increase the likelihood of purchase. This aligns with Dang et al. (2021), who assert that the perceived utility of sustainability enhances the GPV of green products. Marketing strategies that emphasise social and environmental benefits, including environmental protection, low carbon footprint, and ethical business practices, can further enhance GPV and attract consumers towards green consumption.

CONCLUSION

The primary objective of this study was to integrate previously fragmented constructs from the literature into a unified analytical model. The research examined the relationships between green purchasing behaviour and key determinants, including environmental knowledge and green perceived value. A structured survey questionnaire was employed to collect 550 primary responses, enabling a quantitative evaluation of the proposed hypotheses. Data analysis and model estimation were conducted using AMOS statistical software. The findings reaffirm the critical role of these factors, demonstrating that greater environmental knowledge enhances consumer responsibility and awareness, while favourable perceptions of green value significantly shape purchasing decisions. The study also identifies the presence of an attitude–behaviour gap, indicating that favourable environmental attitudes alone are insufficient to ensure consistent green purchasing behaviour. Practical constraints, such as product pricing and accessibility, substantially influence actual consumer actions. The results carry important implications for educational institutions, policymakers, and market stakeholders. Strengthening environmental education initiatives and ensuring the affordability and widespread availability of eco-friendly products should be prioritised to encourage sustainable consumption. To deepen understanding of consumer sustainability behaviour, future research is encouraged to incorporate additional psychological and socio-economic variables that influence green purchasing decisions.

STUDY IMPLICATIONS

Theoretical Implications

Research on green purchasing behaviour has predominantly focused on Western contexts, leaving non-Western settings comparatively underexplored. Cross-cultural

investigations are therefore critical for understanding how cultural dimensions shape green consumption patterns. Such studies would facilitate systematic comparisons between Western and non-Western societies and provide deeper insights into the ways cultural values influence environmental behaviour and green purchasing decisions.

Managerial Implications

Embedding environmental education within the basic education system is essential for cultivating sustained green awareness over the long term. This foundational approach can support China's sustainable development objectives by instilling environmentally responsible behaviours at an early stage. Social organisations also have a key role in advancing green education and fostering a pro-environmental social climate. In addition, the media should actively discourage non-green behaviours by highlighting their adverse consequences. Targeted and strategic reporting can strengthen public support for environmental regulations and promote green consumer behaviour.

LIMITATIONS AND FUTURE DIRECTIONS

This study is subject to several limitations. First, the generalisability of the findings may be constrained, as the sample comprises only Chinese consumers and may not be directly applicable to other cultural or economic contexts. Future research could adopt a cross-cultural design to examine variations in green purchasing behaviour across different regions. Additionally, the use of experimental or observational methodologies may yield more nuanced insights into consumer behaviour than self-reported survey data. Furthermore, the study focuses exclusively on environmental knowledge and green perceived value, without considering factors such as technological advancements, regulatory frameworks, or financial constraints. Future investigations may therefore explore the long-term effects of environmental education, the role of digital marketing in encouraging green product adoption, and the influence of emerging trends—such as sustainable packaging and the circular economy—on consumer preferences in developing economies.

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