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Effect of Environmental Concern, Green Perceived Value on Young Customers' Green Purchase Intention: The mediating Roles of Attitude toward Green Products and Perceived Behavior Control

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Abstract

This study examines the relationships between dual values such as personal value (environmental concern), consumption value (green perceived value), and green purchase intentions (GPI) among young Vietnamese consumers in the post-COVID-19 era. It explores the mediating roles of attitude toward green products (ATT) and perceived behavioral control (PBC). The survey involved 283 young consumers who have regularly purchased green products in Vietnam. Utilizing the PLS-SEM approach, we conducted mediation analyses to thoroughly investigate and test the proposed hypotheses. The results of this study indicate that both environmental concern (ENC) and green perceived value (GPV) positively influence green purchase intention (GPI). Notably, the study demonstrates the mediating role of attitudes toward green products. However, the proposed model did not identify perceived behavioral control as a mediator. The findings have significant practical implications for managers seeking to navigate the evolving purchasing behaviors of young consumers in Vietnam, particularly in shaping their attitudes toward environmentally conscious choices. Understanding the nuanced dynamics uncovered in this research can enable managers to deliberately influence the preferences and decisions of the environmentally concerned young consumer demographic. This study makes valuable contributions to the existing pro-environmental literature by incorporating the Stimulus-Organism-Response (SOR) framework and the Theory of Planned Behavior (TPB). Consequently, it provides crucial insights into the purchase intentions of young Vietnamese consumers, particularly those who choose green products.

Keywords

Consumer's attitude, Green perceived value, Environmental concern, Green purchase intention, Perceived behavior control

JEL Classification

M31, Q56

Introduction

Growing concerns about global warming, climate change, excessive natural resource use, and environmental degradation have led to an increased focus on environmentally conscious consumption in recent years. Global movements advocating for environmentally friendly choices have gained traction, contributing to heightened consumer awareness of environmental issues (Zaremohzzabieh et al., 2021). Greater awareness of environmental problems and a strong commitment to long-term sustainability characterize these movements. Consumers actively endorse environmentally friendly products to advance sustainable growth and alleviate environmental consequences (Cheung et al., 2015). This trend signifies a shift away from traditional consumption habits (Wang et al., 2021).

In Vietnam, the demand for green products has increased as consumers have become more conscious of their health and social benefits (Dekhili & Nguyen, 2021). Vietnamese consumers often choose green products to protect the environment, enhance their quality of life, support their health, contribute to society, and boost their psychological well-being (Nguyen et al., 2021). However, Western perspectives dominate much of the existing

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research on consumer beliefs and behaviors towards environmentally friendly products, with few studies focusing on Vietnam's environmentally conscious younger population (Dekhili & Nguyen, 2021). Young consumers are emerging as one of the most significant marketing drivers (Spero & Stone, 2004; Hoang & Tung, 2023). Although the younger generation is increasingly conscious of environmental issues and prepared to spend more on eco-friendly products, it is important to find out the specific elements that motivate the demand for these products and how these aspects impact their intention of making a purchase. This study seeks to fill the gap by providing insights on the purchase behavior of the younger demographic in relation to sustainable products, therefore facilitating the growth of the green product industry in growing markets like Vietnam.

Finding the elements affecting shifts in green purchasing habits has been the focus of previous studies (Paul et al., 2016; Prakash et al., 2019; Lavuri et al., 2023; Hoang & Tung, 2024). Scholars have analyzed the connections between values, eco-friendly decisions, and perceptions regarding behavior (Prakash et al., 2019; Harjadi & Gunardi, 2022; Lavuri et al., 2023). For instance, some researchers have investigated how health concerns (egoistic values) and environmental concerns (altruistic values) affect eco-friendly behavior (Prakash et al., 2019; Harjadi & Gunardi, 2022). This study identifies personal values related to the environment and values associated with green products as dual values. Personal value (altruistic value) motivates individuals to act for the well-being of others without considering personal benefits, while consumer values reflect how well a product meets a consumer's needs by evaluating its overall utility after considering advantages and costs. The value or utility of green products over traditional alternatives becomes crucial in decisions about green consumption (Biswas & Roy, 2015). However, studies indicate that personal values may not consistently result in a favorable attitude towards organic food and might reduce individuals' likelihood of purchasing green items in Vietnam (Pham et al., 2019; Duong et al., 2022). In contrast to other nations, ENC is closely associated with green consumption in several studies (Paul et al., 2016; Hamzah & Tanwir, 2021; Harjadi & Gunardi, 2022; Lavuri et al., 2023; Hoang & Tung, 2024). Nevertheless, there is a dearth of research that combines the two components of the environment—personal values such as environmental concern and consumption values such as green perceived value—in the context of green consumerism. Given these factors, our research aims to address two fundamental research questions (RQ)

RQ1: How do dual values (environmental concern and green perceived value) influence attitudes toward green products, perceived behavioral control, and the intention to purchase green products?

RQ2: What is the impact of attitude toward green products and perceived behavioral control on green purchase intention?

To answer these research questions, this study combines the stimulus-organism-response (SOR) paradigm with the Theory of Planned Behavior (TPB) (Ajzen, 1991). Our study also addresses gaps in existing research by using a novel paradigm that integrates dual values (environmental concern and green perceived value) as internal stimulus factors and TPB elements as psychological mediators. It explores individuals' motivations to make green purchase intentions using the SOR framework (Jacoby, 2002), with a focus on understanding green purchase intention (GPI). Examining this combined SOR framework with TPB might fill research gaps and provide practical insights for encouraging sustainable purchasing among the growing demographic of young consumers. Our findings offer substantial benefits to environmentally conscious organizations by enhancing their understanding of green purchasing intentions and stimulating the creation of innovative marketing strategies. Managers may utilize this information to produce advertising that emphasize the environmental benefits and value of their products. The following sections provide a detailed explanation of the theoretical foundations, hypotheses, research methods, analytical findings, and discussion

Literature Review

Theoretical background

The SOR framework and the TPB (Ajzen, 1991) are important psychological models for figuring out what makes people act in ways that are good for others and the environment (Testa et al., 2021; Kumari et al., 2022). Our study uses these models' fundamental psychological components to understand the intention to purchase green products. The SOR framework (Jacoby, 2002) consists of three components: stimulus, organism, and response. The TPB utilizes a rational-choice framework, which views human action as a result of individuals assessing costs and benefits. However, it does not account for non-rational, non-cognitive, emotional, and altruistic elements that can influence behavior (Duong, 2024). Non-rational, moral, and emotional factors often guide pro-environmental behaviors, not solely rational decision-making processes (Fu et al., 2021).

Jacoby (2002) criticized the static representation of the SOR model as fixed boxes connected by lines and arrows, arguing that it can cause confusion by failing to consider the overlapping characteristics of the three key components. He suggested incorporating additional aspects to enhance the SOR model. Testa et al. (2021) contend that relying on a single theory is insufficient to explain the complexity of consumer behavior. Consequently, this study integrates the TPB with the SOR framework to elucidate the complexities of behavior in a green consumption context. The study extends the TPB by incorporating dual-value elements such as environmental concern (ENC) and green perceived value (GPV). By including dual values as antecedents in the TPB, this study can create a more precise predictive framework that enhances understanding of pro-environmental activities. This

study illustrates how internal stimulus variables affect individuals (S), the environment, and the consumer's level of concern (O). Attitude (ATT) and perceived behavioral control (PBC) together influence the consumer's intention to purchase green products (R).

Environmental concern

Consumers who prioritize environmental issues have begun to reflect their concerns through their purchasing decisions (Emekci, 2019). Environmental concern (ENC) encompasses individuals' sentiments regarding environmental matters and serves as a driving force behind their pro-environmental intentions (Chen & Tung, 2014). Several studies have shown that ENC is a reflection of altruistic values (Prakash et al., 2019; Harjadi & Gunardi, 2022). Altruistic concepts are essential in influencing and improving consumer attitudes towards sustainability (Lavuri et al., 2023). Consumers are becoming ecologically aware due to their altruistic values, leading them to address environmental problems through eco-friendly purchases (Prakash et al., 2019; Harjadi & Gunardi, 2022). ENC significantly influences ATT and PBC (Paul et al., 2016; Hamzah & Tanwir, 2021; Varah et al., 2021). Both ENC and PBC influence GPI directly and indirectly through ATT mediation (Paul et al., 2016; Lavuri et al., 2023).

H1: ENC has a positive effect on ATT.

H2: ENC has a positive effect on PBC.

H3: ENC has a positive effect on GPI.

Green perceived value

Green perceived value (GPV) is the holistic evaluation by consumers of the entire advantages of a product or service, taking into account their environmental preferences, sustainable expectations, and ecological requirements (Chen, 2013). Customers tend to favor products when their advantages outweigh their costs, indicating their perceived value (Yang & Peterson, 2004). Perceived value plays a critical role in shaping consumers' attitudes and green purchase intentions (GPI) within the realm of sustainable consumption (Chen et al., 2012). Woo and Kim (2019) found that perceived value significantly influences customer attitudes and purchasing behavior towards green food. Similarly, Alam et al. (2023) found that the relationship between GPV positively impacted the TPB components in a Malaysian study.

H4: GPV has a positive effect on ATT.

H5: GPV has a positive effect on PBC.

H6: GPV has a positive effect on GPI.

Attitude toward green products

Attitude (ATT) is an individual's consistent cognitive assessment of the perceived advantages or disadvantages associated with a particular situation (Lavuri et al., 2023). Ajzen (1991) proposed that an individual's evaluation of the important consequences of engaging in certain behaviors shapes their attitudes. Previous studies suggest that favorable environmental attitudes significantly influence eco-friendly purchasing intentions (Paul et al., 2016; Kautish & Sharma, 2020; Harjadi & Gunardi, 2022; Lavuri et al., 2023). These significant findings prompted the formulation of the following hypothesis for this study:

H7: ATT has a positive effect on GPI.

Perceived behavioral control

Perceived behavioral control (PBC) refers to the "perceived ease or difficulty of carrying out a specific activity" (Ajzen, 1991, p. 188). It represents an individual's belief in their ability to achieve goals, rather than external challenges or the absence of rewards (Kautish & Sharma, 2020). According to Ajzen (1991), PBC positively influences both behavioral intentions and behaviors. Previous studies have highlighted the significant influence of PBC on human behavior, particularly regarding sustainable behaviors (Paul et al., 2016; Harjadi & Gunardi, 2022).

H8: PBC has a positive effect on GPI.

Based on prior research, a conceptual model has been conducted for this study (Figure 1).

Data and Methodology

Sample, data collection, and protocol

Data was collected from Vietnamese Generation Z customers who purchased green products. The procedure for collecting this data lasted three months, from June to August of 2023. A Google Forms survey was used to deliver the questionnaire. On a 5-point Likert scale, survey participants were asked to express their level of agreement or disagreement.

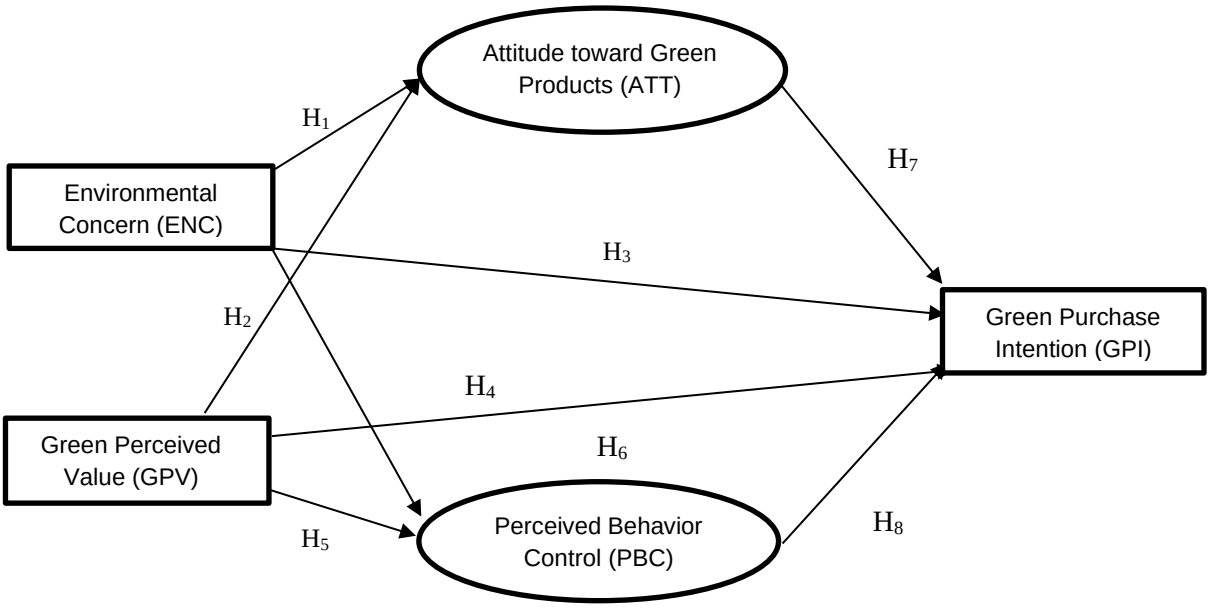

Fig. 1. The conceptual model.

Prior to analysis, the gathered survey responses were thoroughly screened to identify and exclude cases with significant missing data or careless responses. When participants submit identical scores to questionnaire items evaluating a concept, this is referred to as careless responding. As a result, replies were eliminated if a significant number of missing or uniform scores were found across items. Following the completion of this data screening procedure, the final verified sample included 283 relevant survey responses for analysis. This sample serves as the foundation for assessing green purchasing behavior using qualitative methodologies.

Measurement instrument and questionnaire design

This study used quantitative analysis, utilizing a convenient sampling approach to obtain and assess information. To address potential response bias, a back-translation procedure was implemented (Tyupa, 2011). Initially, a team of two experts independently translated the 21 original observed variables from English into Vietnamese based on previous studies, and vice versa. A group of three marketing specialists thoroughly examined both versions, addressing any discrepancies before conducting the survey. Before the official data compilation, a preliminary survey involving 100 samples was administered. Additionally, concise explanations were provided to ensure respondents had a clear understanding of the conceptual frameworks.

The measuring scale utilized in this study was modified from previous research to align with the particular circumstances of Vietnam. ENC was evaluated using a four-item scale created by Hamzah and Tanwir (2021). Varah et al. (2021) established a four-item ATT scale. A three-item measure of PBC was developed by Lavuri et al. (2023). Finally, five items for GPV and three items for GPI from Yadav and Pathak (2017) were used. The survey method was separated into three distinct stages. The first stage focused on identifying and selecting suitable participants. The second stage centered around the study's concepts. Lastly, the final stage involved gathering demographic data from the participants.

We tested the research model (Figure 1) and hypotheses using PLS-SEM analytic techniques. This technique is useful for making predictions and discovering new insights as it identifies latent variable scores, accurately predicts individual scores, and explains significant variances in indicators (Hair et al., 2019). Consequently, PLS-SEM has emerged as a powerful tool for prognostic modeling (Shmueli et al., 2019). The PLS-SEM analysis examines both measurement and structural models. Whereas the structural model evaluates the alleged connections between variables to test the research hypotheses, the measurement model investigates the connection between latent variables and their indicators. The software for the PLS-SEM analysis used SmartPLS 3 (Ringle et al., 2015).

Results

Descriptive statistics

Following a thorough evaluation procedure, we acquired a remarkable total of 283 valid responses, resulting in an impressive response rate of 75.2%. The sample comprised 114 males (40.3%) and 169 females (59.7%). The majority of participants had a university degree (167, 59%), while 64 (22.6%) had completed a college education, 34 (12%) had obtained a postgraduate degree, and 18 (6.4%) had finished high school. The participants'

occupations varied, with the most prevalent being officers (94, 33.2%), followed by students (67, 23.7%), sales/household workers (37, 13.1%), and other occupations (43, 15.1%). Less common roles included workers (24, 8.5%) and managers (18, 6.4%). In terms of income distribution, the majority (108, 38.2%) earned less than 10 million Vietnam Dong (VND), followed by those earning 10–20 million VND (82, 29%), 20–30 million VND (62, 21.8%), and over 30 million VND (31, 11%). Geographically, the southern region constituted the majority of the sample (218, 77%), with smaller representations from the northern region (38, 13.4%) and central region (27, 9.6%).

The reliability and validity assessment

Table 1 contains an extensive overview of the test findings. We evaluated the measuring model using a variety of criteria, consisting of reliability, convergent validity, and discriminant validity. Henseler et al. (2009) evaluated the dependability of the scale, considering it trustworthy when Cronbach's alpha and outer loadings were both less than 0.7. AVE ≥ 0.5 confirms convergent validity, indicating that the construct captures more variation than measurement errors (Fornell & Larcker, 1981). We assessed multicollinearity using VIF, considering VIF values ≤ 3 as acceptable.

Table 1. The reliability and validity assessment.

Constructs	Items	Outer loading	Cronbach's Alpha	CR	AVE	VIF
Environmental Concern (Hamzah & Tanwir, 2021)	ENC1	0.893	0.883	0.920	0.742	2.827
	ENC2	0.784				1.724
	ENC3	0.895				2.770
	ENC4	0.871				2.461
Green Perceived Value (Yadav & Pathak, 2017)	GPV1	0.889	0.920	0.939	0.755	2.859
	GPV2	0.836				2.612
	GPV3	0.882				2.825
	GPV4	0.871				2.924
	GPV5	0.867				2.893
Attitude toward Green Products (Varah et al., 2021)	ATT1	0.895	0.907	0.934	0.781	2.863
	ATT2	0.853				2.417
	ATT3	0.896				2.714
	ATT4	0.890				2.903
Perceived Behavior Control (Lavuri et al., 2023)	PBC1	0.897	0.876	0.924	0.801	2.408
	PBC2	0.893				2.383
	PBC3	0.895				2.342
Green Purchase Intention (Yadav & Pathak, 2017)	GPI1	0.912	0.887	0.930	0.815	2.665
	GPI2	0.880				2.306
	GPI3	0.916				2.786

Source: Results from Smart PLS 3

The HTMT (Heterotrait-Monotrait) values between each pair of constructs in this investigation are shown in Table 2. The greatest HTMT value recorded is 0.575 (ENC-ATT), which is less than 0.9 (Hair et al., 2019). This result implies that all constructs addressed in this study have demonstrated discriminant validity.

Table 2. The HTMT value.

Variable	ATT	ENC	GPI	GPV
ENC	0.575			
GPI	0.451	0.516		
GPV	0.386	0.487	0.438	
PBC	0.423	0.594	0.370	0.326

Note: ENC: Environmental Concern; GPV: Green Perceived Value; ATT: Attitude toward Green Products; PBC: Perceived Behavior Control; GPI: Green Purchase Intention. **Source:** Results from Smart PLS 3

The structural measurement assessment and result of PLS-SEM

To validate the structural model, we performed a bootstrapping technique consisting of 5000 samples (Hair et al., 2019). According to Hair et al. (2019), R^2 and Q^2 indices are commonly employed metrics to assess the quality of predictive models. The R^2 coefficient shows how well the independent factors (ENC and GPV) explain the variation in the dependent variable (ATT, PBC, and GPI). This shows how well the model can explain things. The R^2 adjusted values for ATT (28.5%), GPI (28.2%), and PBC (27.3%) show that the exogenous variables are able to adequately explain the variance of the endogenous variables. In social and behavioral science research, a model is considered satisfactory when the R^2 adjusted value exceeds 26% (Wetzels et al., 2009). However, R^2 does not indicate the model's predictive ability. We compute the Q^2 index using a blindfolding technique to address this aspect (Ringle et al., 2012). Moreover, the exogenous variables have predictive significance for their corresponding endogenous variables due to the fact that the Q^2 values exceed 0 (Hair et al., 2019).

Table 3. The R^2 and Q^2 indices.

Variables	R^2 Adjusted	Q^2
ATT	0.285	0.220
GPI	0.282	0.225
PBC	0.273	0.219

Note: ATT: Attitude toward Green Products; PBC: Perceived Behavior Control; GPI: Green Purchase Intention. **Source:** Results from Smart PLS 3

As depicted in Table 3, both R2 and Q2 values showcased acceptable levels for this particular model, thereby demonstrating its explanatory and predictive capabilities.

Table 4. The result of PLS-SEM.

Relationship	Hypothesis	Coefficient	St dev	T-statistics	P-values	Result
ENC -> ATT	H1	0.445	0.066	6.715	0.000	Accepted
ENC -> PBC	H2	0.487	0.057	8.490	0.000	Accepted
ENC -> GPI	H3	0.231	0.079	2.916	0.004	Accepted
GPV -> ATT	H4	0.164	0.066	2.486	0.013	Accepted
GPV -> PBC	H5	0.079	0.064	1.243	0.214	Rejected
GPV -> GPI	H6	0.213	0.067	3.167	0.002	Accepted
ATT -> GPI	H7	0.186	0.072	2.602	0.009	Accepted
PBC -> GPI	H8	0.074	0.063	1.181	0.238	Rejected

Note: ENC: Environmental Concern; GPV: Green Perceived Value; ATT: Attitude toward Green Products; PBC: Perceived Behavior Control; GPI: Green Purchase Intention. **Source:** Results from Smart PLS 3

Discussion

The findings of the study mostly verified the predictions, with the exception of H5 and H8. At a 5% significance level (Table 4), the supported hypotheses were congruent with current literature. Environmental Concern (ENC) significantly influenced ATT, PBC, and GPI, as proposed in H1 (β=0.445, $p < 0.05$), H2 (β=0.487, $p < 0.05$), and H3 (β=0.231, $p < 0.05$). The results indicate that high levels of ENC help individuals make more sustainable purchases, highlighting the importance of addressing ENC in consumers to promote sustainable procurement practices and solve environmental issues, consistent with previous studies by Paul et al. (2016) and Lavuri et al. (2023). Additionally, H4 (β=0.164, $p < 0.05$) and H6 (β=0.213, $p < 0.05$) were supported, indicating that GPV positively affects ATT and GPI, in line with the findings of Woo and Kim (2019) and Chen and Chang (2012). In contrast, Alam et al. (2023) discovered that green perceived value has a beneficial impact on PBC, but our study identified no direct influence between GPV and PBC in H5 ($\beta = 0.079$, $p > 0.05$), which is consistent with Sumaedi et al. (2016). Furthermore, H7 ($\beta = 0.186$, $p < 0.05$) suggests that ATT has a positive effect on GPI, consistent with findings by Chen et al. (2012) and Paul et al. (2016). Unlike Paul et al. (2016), who found a positive PBC-GPI relationship, H8 ($\beta = 0.074$, $p > 0.05$) was not supported, which aligns with the study of Lavuri et al. (2023) in the Indonesian context.

Antecedent factors, such as environmental concern (ENC), significantly influenced both ATT and PBC. However, GPV did not affect PBC, nor did PBC influence green purchase intention (GPI). Individuals who lack a strong self-concept as environmentally conscious consumers may not consider green value to be a significant factor in their ability to regulate their behavior (Becerra et al., 2019). Consequently, these findings can assist policymakers and managers in formulating and implementing regulations that promote environmental consciousness and improve consumer purchasing habits. Additionally, this study supports academics in deepening their understanding of

environmental behaviors, facilitating the development of strategies to attract young consumers to environmentally friendly products.

Conclusions

Theoretical implications

From a theoretical perspective, this study offers five significant contributions. First, it integrates the SOR framework and the TPB to create a unique model that elucidates green buying intentions in emerging markets such as Vietnam. This is crucial given the recent changes in green consumption following the COVID-19 pandemic (Leal Filho et al., 2022) and the need for more SOR-based green purchasing research (Kumari et al., 2022).

Secondly, previous research has heavily relied on TPB to explain purchasing intentions (Testa et al., 2021). This study combines dual personal values (ENC and GPV) with TPB characteristics to better assess green buying intentions in developing countries (Testa et al., 2021). The study extends the TPB model by explaining how customers' environmental values shape ATT, impacting purchasing intentions, and emphasizing the significance of perceived value-related advantages in altering behavior, particularly in the case of green products (Chen et al., 2012; Alam et al., 2023).

Thirdly, despite increased environmental awareness, young consumers do not readily form green intentions based purely on product value (Sumaedi et al., 2016). Family, friends, and ENC significantly influence purchasing decisions (Emekci, 2019). Considering extra GPV variables for green products is key to encouraging green consumption. This study finds that attitudes towards green products partially mediate the correlations between ENC, GPV, and GPI, broadening the TPB hypothesis in terms of green consumption.

Lastly, in contrast to the traditional TPB perspective, PBC does not significantly enhance green purchase intentions in Vietnam. While TPB suggests a positive impact of PBC (Ajzen, 1991), this study expands the research on PBC within the context of Vietnamese green consumption.

Managerial implications

The study provides valuable practical insights for stakeholders seeking to enhance Vietnam's green product value chain and boost acceptance among young consumers (Robichaud & Yu, 2022). The results highlight the positive impact of ENC and GPV on ATT, PBC, and GPI. Improving the availability of eco-friendly products, combined with clear research and development processes and expanded distribution channels, could provide consumers with more options and enhance their perception of sustainable goods (Lavuri et al., 2023). Collaborating with environmental technology providers and engaging consumers may help companies remain competitive. Providing information on environmental advantages can help buyers understand the environmental value of green products (Cheung et al., 2015). The study's results can assist policymakers in developing policies and activities related to green products to improve environmental conservation (Harjadi & Gunardi, 2022). Additionally, manufacturers should prioritize providing sustainable offers that deliver value (Lin & Niu, 2018). Aligning views of the value of green products with consumer intent through strategic positioning and marketing tactics is crucial for creating demand.

Limitation and future research directions

While this study provides valuable insights, it has certain limitations that create opportunities for further research. The focus on young Vietnamese consumers and the use of convenient sampling methods may limit the findings' generalizability. Future research might explore the effects of socioeconomic and psychological aspects on green consumer behavior. Additionally, gender-based analyses comparing Generations X and Y would be worthwhile. Expanding the scope to encompass other generations, geographic markets, and influential factors would enhance the foundational understanding of environmentally conscious consumption. Employing a combination of qualitative and quantitative methodologies could provide a more comprehensive understanding of this multidimensional consumer behavior. Addressing these limitations through more extensive research will further enhance the stream of knowledge regarding green purchasing intentions.

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