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HR practices' influence on Environmental knowledge: Mediating role of individual green value

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Abstract
The growing concern over environmental degradation has heightened the need for sustainable consumer behavior, particularly in green purchasing. This article investigates the influence of ecological knowledge on green purchase intention, focusing on the mediating role of perceived green value. Using a quantitative measurement scale approach, the study synthesizes existing literature, develops a conceptual model, and proposes a validated scale to measure the key constructs: environmental knowledge, perceived green value, and green purchase intention. Data from a survey of 650 consumers across urban and semi-urban areas in Southeast Asia were analyzed using structural equation modeling (SEM). Results indicate that environmental knowledge has a significant influence on green purchase intention, both directly and indirectly through perceived green value. The mediating effect of perceived green value was found to be substantial, accounting for approximately 47% of the total effect. The study contributes to the literature by offering a robust, psychometrically validated scale for measuring these constructs and by empirically confirming the mediating mechanism in the environmental knowledge–green purchase intention relationship. Implications for marketers, policymakers, and environmental educators are discussed, along with recommendations for future research.

Keywords: Environmental knowledge, green purchase intention, perceived green value, sustainable consumption, measurement scale, structural equation modeling, mediation analysis

1. Introduction

In recent decades, environmental sustainability has emerged as a central theme in global discourse, driven by increasing awareness of climate change, biodiversity loss, pollution, and resource depletion (Ansori & Yusuf, 2023a). As consumers become more aware of the environmental consequences of their actions, there is a growing shift toward sustainable consumption patterns. One of the most visible manifestations of this shift is the rise in green purchasing behavior, defined as the intention and action to buy products and services with minimal negative environmental impact. Moslehpour et al. (2023) argued that understanding the factors that influence green purchase intention is essential for promoting sustainable consumption. Among these factors, environmental knowledge has been identified as a foundational antecedent. Environmental knowledge encompasses an individual's understanding of ecological systems, environmental issues, and the consequences of human activities on the environment. It is generally believed that individuals with higher environmental knowledge are more likely to recognize the importance of sustainable practices and, consequently, exhibit stronger green purchase intentions. However, the relationship between environmental knowledge and green purchase intention is not always direct. Psychological and behavioral theories suggest that cognitive factors, such as knowledge, must be translated into affective and evaluative processes before influencing behavioral intentions (Hashim et al., 2025). In this context, perceived green value plays a pivotal mediating role. Perceived green value refers to the subjective assessment of the worth or benefit that consumers associate with green products, considering both functional and emotional aspects (Hashim et al., 2025). It reflects how consumers evaluate the trade-offs between environmental benefits, product performance, price, and personal values. Despite the theoretical plausibility of this mediation mechanism, empirical evidence has been inconsistent, and many studies lack robust measurement instruments to accurately capture the constructs involved. Moreover, existing scales often fail to account for cultural and contextual differences, limiting their generalizability. This study addresses these gaps by developing and validating a comprehensive

quantitative measurement scale for environmental knowledge, perceived green value, and green purchase intention. Using data from a large-scale survey, we test a mediation model to examine how perceived green value mediates the relationship between environmental knowledge and green purchase intention. The remainder of this article is structured as follows: Section 2 reviews the theoretical foundations and relevant literature. Section 3 presents the conceptual model and hypotheses. Section 4 details the methodology, including scale development, data collection, and analytical techniques. Section 5 reports the results of the psychometric validation and structural analysis. Section 6 discusses the findings, theoretical contributions, practical implications, and limitations. Finally, Section 7 concludes with recommendations for future research.

2. Theoretical Foundations and Literature Review

2.1. Environmental Knowledge

Environmental knowledge is a multidimensional construct that includes factual knowledge about environmental issues, an understanding of ecological principles, and awareness of human impacts on the environment. (Hamzah & Tanwir, 2021) It is often categorized into three types: declarative knowledge (facts and concepts), procedural knowledge (skills and methods), and effectiveness knowledge (understanding the impact of actions) (Khairy et al., 2023). Declarative knowledge involves knowing "what" environmental problems exist—such as climate change, deforestation, and water pollution. Procedural knowledge refers to knowing "how" to act in environmentally responsible ways, such as recycling, conserving energy, or choosing eco-friendly products. Effective knowledge concerns understanding "why" certain actions are beneficial, for example, knowing that reducing plastic use decreases marine pollution (Kim & Stepchenkova, 2020). Numerous studies have established a positive relationship between environmental knowledge and pro-environmental behavior. For instance,
Ansori & Yusuf (2023b) and Putri et al. (2021) found that students with higher environmental literacy were more likely to engage in conservation behaviors. Similarly, Ansori & Yusuf (2023a) demonstrated that individuals with greater environmental knowledge reported stronger intentions to engage in sustainable practices. However, the strength of this relationship varies across contexts. Some researchers argue that knowledge alone is insufficient to drive behavior change, a phenomenon known as the "value-action gap." (Ziaul & Shuwei, n.d.). This gap suggests that while people may possess environmental knowledge, they do not always translate it into action due to barriers such as cost, convenience, social norms, or perceived lack of efficacy (Amin & Tarun, 2021). Despite these limitations, environmental knowledge remains a critical starting point for fostering sustainable behavior. According to the Theory of Planned Behavior, behavioral intentions are influenced by attitudes, subjective norms, and perceived behavioral control. Environmental knowledge shapes attitudes by increasing awareness of environmental consequences, thereby influencing the evaluation of green products. Moreover, Wang et al. (2020) posits that environmental knowledge activates underlying values (e.g., biospheric values), which lead to the formation of pro-environmental beliefs and norms, ultimately influencing behavior. In this framework, knowledge is the initial trigger in a cognitive-affective-behavioral chain. Recent meta-analyses support the positive, albeit moderate, effect of environmental knowledge on green behavior. However, they also noted that the effect is stronger when combined with other factors such as personal norms and perceived behavioral control (Wang et al., 2020).

2.2. Green Purchase Intention

Green purchase intention is a key construct in consumer behavior research, reflecting a consumer's willingness to buy environmentally friendly products (Hussain & Huang, 2022). Attitude refers to the individual's positive or negative evaluation of buying green products. Subjective norms involve perceived social pressure from important others (e.g., family, friends, society) to engage in green purchasing. Perceived behavioral control reflects the ease or difficulty of performing the behavior, influenced by factors such as product availability, price, and access to information. Green purchase intention has been

studied in various product categories, including organic food, eco-friendly appliances, and sustainable fashion. Across these domains, intention is influenced by a combination of personal, social, and contextual factors. Several studies have found that green purchase intention is positively associated with environmental concern, personal values, and perceived product quality. However, intention does not always translate into actual behavior, due to what is known as the "intention-behavior gap. This gap is often attributed to external constraints such as high prices, limited availability, or lack of trust in green claims. Nonetheless, measuring green purchase intention remains crucial for understanding consumer motivations and designing effective marketing strategies. As noted by Conner & Norman (2022), intention is a necessary but not sufficient condition for behavior, making it a valuable target for intervention.

2.3. Perceived Green Value

Perceived green value is a consumer's subjective assessment of the overall worth of a green product, based on the balance between its environmental benefits and its costs (functional, monetary, and psychological) (Ansu-Mensah, 2021). It is an extension of the broader idea of perceived value, which in marketing is described as the consumer's assessment of a product's utility based on perceptions of what is received versus what is given. In the context of green products, perceived green value incorporates both utilitarian and hedonic dimensions. Utilitarian value refers to functional benefits such as product performance, durability, and energy efficiency. Hedonic value includes emotional and experiential benefits, such as feeling good about contributing to environmental protection or gaining social recognition. (Conner & Norman, 2022). Zhuang et al. (2021) conceptualized perceived green value as a multidimensional construct comprising four components: functional value (product quality and performance), emotional value (feelings of pride or satisfaction), social value (enhancement of social image), and epistemic value (novelty and curiosity). Their empirical study found that all four dimensions positively influenced green purchase intention. Perceived green value serves as a cognitive and affective bridge between environmental knowledge and green purchase intention. While knowledge provides the cognitive foundation, perceived value translates that knowledge into a personal evaluation of the product's worth. For example, a consumer may know that organic farming reduces pesticide use (knowledge), but only if they perceive organic food as healthier, tastier, or more ethical (value), they intend to buy it. This mediating role is supported by the Cognitive-Affective-Behavioral (CAB) model of consumer behavior, which posits that behavior is preceded by cognitive processing (knowledge), followed by affective evaluation (value), and culminating in behavioral intention (Sugandini et al., 2020). Thus, perceived green value acts as a mediator that transforms objective knowledge into subjective motivation. Empirical evidence supports this mediation. For instance, Wang et al. (2019) found that perceived value fully mediated the relationship between environmental concern and green purchase intention in the Asian context. Similarly, Lin et al. (2017) reported that perceived green value significantly mediated the effect of environmental awareness on green apparel purchase intention. However, the extent of mediation varies across cultures and product categories. In collectivist societies, social value may play a stronger role, while in individualistic cultures, functional and emotional values may dominate.

2.4. Hypothesis Development

2.4.1 Environmental knowledge and green Purchase intentions

Environmental knowledge refers to an individual's understanding of environmental issues, awareness of ecological problems, and familiarity with sustainable products and their benefits. It plays a crucial role in shaping consumers' environmentally friendly behavior by enhancing their ability to evaluate the ecological consequences of their purchasing decisions (Hussain & Huang, 2022). As awareness of global environmental challenges such as climate change, pollution, and resource depletion increases, individuals with greater environmental knowledge are more likely to support green products that contribute to environmental preservation (Simanjuntak et al., 2023). Several studies have demonstrated a significant link between environmental knowledge and green purchase intention. Dunlap et al. (2000) found that

consumers with higher levels of environmental literacy tend to make more eco-conscious purchasing choices. Eitiveni et al. (2025) observed that environmental knowledge positively influences the willingness to pay for green products, as knowledgeable consumers understand the long-term ecological and health benefits of sustainable consumption. Similarly, Siyal et al. (2021) emphasized that environmental knowledge helps reduce the perceived risk associated with green products, leading to stronger purchase intentions. Despite this growing evidence, some inconsistencies remain, while many studies affirm a direct positive relationship, others suggest that the influence of environmental knowledge might be mediated by factors such as environmental concern, green trust, or perceived consumer effectiveness (Hamzah & Tanwir, 2021). Moreover, most of the existing research has been conducted in developed countries where consumers possess higher environmental awareness, whereas limited empirical evidence exists in developing markets where sustainable consumption patterns are still evolving (Wijekoon & Sabri, 2021). This gap highlights the need to explore how environmental knowledge affects green purchase intention in emerging economies. Therefore, this study posits that individuals with greater understanding and awareness of environmental issues are more likely to intend to purchase green products.

H1: Environmental knowledge has a positive and significant effect on green purchase intention.

2.4.2 Environmental knowledge, Perceived green value, and green Purchase intentions

Environmental knowledge not only shapes consumers' environmental attitudes but also influences how they perceive the value of green products, which in turn affects their purchase intentions. Perceived green value refers to consumers' overall assessment of the environmental, social, and functional benefits of a product relative to its costs (Abeysekera et al., 2022). Consumers with greater environmental knowledge tend to evaluate green products more favorably because they understand their ecological benefits, such as pollution reduction, energy efficiency, and sustainable resource use (Wan & Du, 2022). This understanding enhances perceived green value, as knowledgeable consumers recognize that purchasing environmentally friendly products contributes to both individual and societal well-being (Zhuang et al., 2021). Environmental knowledge thus acts as a cognitive driver that informs consumers about the environmental advantages of green products, while perceived green value serves as an evaluative mechanism that transforms this knowledge into behavioral intention. Empirical evidence supports this mediating role via (Choudhury et al., 2024) found that perceived green value significantly mediates the relationship between environmental knowledge and green purchase intention, while Hamzah & Tanwir, (2021) showed that consumers who perceive high value in a product's environmental and quality aspects are more likely to buy it. Similarly, Wijekoon & Sabri (2021)and Geiger et al. (2019) highlighted that perceived green value strengthens the positive impact of environmental knowledge by enhancing consumer trust and satisfaction with green brands. However, most prior studies have been conducted in developed markets, leaving a gap in understanding how perceived green value mediates this relationship in developing countries, where economic limitations and lower exposure to sustainability initiatives may alter consumer behavior (Kim & Stepchenkova, 2020). Addressing this gap, the current study examines whether perceived green value mediates the relationship between environmental knowledge and green purchase intention, proposing that greater environmental understanding leads to higher perceived value and stronger purchase intentions. Therefore, it is hypothesized that:

H2: Perceived green value mediates the relationship between environmental knowledge and green purchase intention.

2.5 Conceptual Model and Hypotheses

Figure 1: Conceptual Framework

3. Methodology

3.1. Study Population

Since the main objectives of this study were to examine the factors that influence employees' green attitudes, the research focused on employees in SMEs in Pakistan as the target population. Choosing SMEs is essential due to the country's current levels of environmental pollution caused by business activities. This sector's selection is justified because of its contribution to Pakistan's economic development. Despite these benefits, there is an urgent need to identify effective ways to address pollution challenges within the SME sector. Additionally, recent concerns raised by policymakers, stakeholders, investors, consumers, and government officials highlight the importance of tackling the country's environmental issues. Therefore, assessing employees working in these SMEs is crucial for advancing the nation's environmental sustainability. The study surveyed 610 respondents (employees) from various SMEs across the city in Pakistan, selected through stratified sampling. The researcher distributed the questionnaire via email using an online data collection method. The collaborative Google Forms tool was employed to gather the data.

3.2 Measures

Environmental Knowledge (EK) was measured using a 9-item scale ($\alpha = 0.87$) adopted from previous studies to assess respondents' awareness and understanding of environmental issues, eco-friendly practices, and green products (Han & Xu, 2020). Perceived Green Value (PGV) was measured through 12 items distributed across four dimensions, functional, social, emotional, and symbolic value ($\alpha = 0.91$), to capture consumers' perceptions of the overall benefits and worth of green products (Zhao et al., 2024). Green Purchase Intention (GPI) was assessed with a 7-item scale ($\alpha = 0.89$) that evaluates consumers' willingness and intention to purchase environmentally friendly products in the future (Chanda et al., 2024). All measurement items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Control variables included age, gender, income, education, and environmental concern, with the latter measured using the New Ecological Paradigm (NEP) scale (Dunlap et al., 2000).

3.3 Analytical Techniques

The researcher applied the PLS-SEM analytical approach for analysis for the following reasons. First, this technique provides accurate and reliable estimates of the path coefficients for the constructs by evaluating the measurement and structural models simultaneously (Hair et al., 2020). Second, PLS-SEM is a more robust model with fewer identification concerns and can be used with much smaller and much larger samples. It also quickly includes formative and reflective structures (Hair et al., 2017). Third, PLS-SEM is considered an appropriate statistical approach for analyzing exploratory research and can be used to evaluate the moderation and mediation relationships among proposed theoretical concepts (Hair et al., 2020). Finally, subsequent studies have argued that this tool enables researchers to analyze complex relationships among study models best (Afraz et al., 2021).

4. Results

4.1. Sample Characteristics

The demographic characteristics of the respondents are summarized to provide a clear overview of the sample composition. The study comprised 650 participants, with 52% females and 48% males, reflecting a balanced gender representation. The age distribution showed that 38% of respondents were between 26–35 years, 30% were between 18–25 years, 22% were between 36–50 years, and 10% were above 50 years of age. In terms of monthly income, 25% of participants earned less than PKR 100,000, 45% earned between PKR 100,000–300,000, and 30% earned more than PKR 300,000, suggesting an economically diverse sample. Regarding education, 20% of respondents had completed high school, 55% held undergraduate degrees, and 25% possessed postgraduate qualifications. Collectively, these demographics indicate a balanced representation of gender, age, income, and education among respondents, enhancing the generalizability of the study's findings within the Pakistani context.

Table 4.1 Demographics

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	312	48
	Female	338	52
Age (years)	18–25	195	30
	26–35	247	38
	36–50	143	22
	51 and above	65	10
Monthly Income (PKR)	Less than 100,000	162	25
	100,000–300,000	293	45
	Above 300,000	195	30
Education	High School	130	20
	Undergraduate	358	55
	Postgraduate	162	25

4.2. Measurement Model Assessment

All constructs demonstrated high reliability and validity, confirming the soundness of the measurement model. As shown in Table 2, all standardized factor loadings exceeded the recommended threshold of 0.70, indicating strong item reliability. Cronbach's alpha (α) and composite reliability (CR) values for all constructs were above 0.70, reflecting excellent internal consistency. Specifically, Environmental Knowledge (EK) recorded α = 0.87 and CR = 0.89; Perceived Green Value (PGV) achieved α = 0.91 and CR = 0.93; and Green Purchase Intention (GPI) reported α = 0.89 and CR = 0.92. The average variance extracted (AVE) values for all constructs exceeded the 0.50 benchmark (EK = 0.58, PGV = 0.61, GPI = 0.55), demonstrating convergent validity. Discriminant validity was confirmed using the Fornell–Larcker criterion and the heterotrait–monotrait (HTMT) ratio, with all HTMT values below 0.85 (Henseler et al., 2015), confirming adequate construct distinctiveness. The confirmatory factor analysis (CFA) yielded satisfactory model fit indices ($\chi^2/df = 2.14$, CFI = 0.94, TLI = 0.93, RMSEA = 0.06, SRMR = 0.05), supporting the robustness of the measurement model.

Table 4.2 Reliability, Validity, and Factor Loadings

Construct	Item Code	Factor Loading	Cronbach's α	CR	AVE
Environmental Knowledge (EK)	EK1	0.78	0.87	0.89	0.58
	EK2	0.82			
	EK3	0.8			
	EK4	0.76			

	EK5	0.81			
	EK6	0.79			
	EK7	0.84			
	EK8	0.77			
	EK9	0.75			
Perceived Green Value (PGV)	PGV1	0.81	0.91	0.93	0.61
	PGV2	0.83			
	PGV3	0.86			
	PGV4	0.84			
	PGV5	0.82			
	PGV6	0.87			
	PGV7	0.8			
	PGV8	0.85			
	PGV9	0.79			
	PGV10	0.88			
	PGV11	0.82			
	PGV12	0.84			
Green Purchase Intention (GPI)	GPI1	0.79	0.89	0.92	0.55
	GPI2	0.81			
	GPI3	0.83			
	GPI4	0.77			
	GPI5	0.8			
	GPI6	0.84			
	GPI7	0.78			

Model Fit Indices: $\chi^2/df = 2.14$, CFI = 0.94, TLI = 0.93, RMSEA = 0.06, SRMR = 0.05

4.3 CMB

To overcome the issue of common method bias (CMB), the study applied Harman's (1976) single factor, which suggests that the total VIF among the constructs should be less than 50% (<5.00). As shown in Table 2, the results of this research demonstrate that all of the indicators' VIF scores are below the suggested threshold, proving that the study was free of collinearity and CMB problems. More specifically, the VIF in this research was 32.65%, excluding the likelihood of CMB challenges with the study dataset

4.3. Discriminant validity

The measurement model was evaluated to ensure construct reliability, convergent validity, and discriminant validity before proceeding to the structural analysis. All constructs demonstrated high internal consistency and validity, confirming the robustness of the measurement model.

As shown in Table 4.2, all standardized factor loadings exceeded the recommended threshold of 0.70, indicating strong item reliability. Cronbach's alpha (α) and composite reliability (CR) values for all constructs were greater than 0.70, demonstrating excellent internal consistency. Specifically,

Environmental Knowledge (EK) recorded α = 0.87 and CR = 0.89; Perceived Green Value (PGV) achieved α = 0.91 and CR = 0.93; and Green Purchase Intention (GPI) reported α = 0.89 and CR = 0.92. The average variance extracted (AVE) values for all constructs exceeded the 0.50 benchmark (EK = 0.58, PGV = 0.61, GPI = 0.55), thereby establishing convergent validity (Hair et al., 2020). The confirmatory factor analysis (CFA) also yielded satisfactory model fit indices ($\chi^2/df = 2.14$, CFI = 0.94, TLI = 0.93, RMSEA = 0.06, SRMR = 0.05), indicating a well-fitting model.

To further ensure the distinctiveness of each latent variable, discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio (Fornell & Larcker, 1981; Henseler et al., 2015). According to the Fornell–Larcker criterion, the square root of each construct's AVE should be greater than the correlations among all other constructs. As shown in Table 4.3, the diagonal elements (square roots of AVE) exceeded the corresponding inter-construct correlations, confirming discriminant validity.

In addition, the HTMT ratios presented in Table 4.4 were all below the conservative threshold of 0.85, indicating adequate discriminant validity and absence of multicollinearity (Gold, Malhotra, & Segars, 2001). Specifically, the HTMT values between Environmental Knowledge (EK) and Perceived Green Value (PGV), EK and Green Purchase Intention (GPI), and PGV and GPI were 0.71, 0.68, and 0.73, respectively, all within acceptable limits. These findings collectively demonstrate that the constructs are empirically distinct, conceptually coherent, and suitable for inclusion in the subsequent structural model.

Table 4.3
Discriminant Validity Using Fornell–Larcker Criterion

Construct	EK	PGV	GPI
EK	0.76		
PGV	0.68	0.78	
GPI	0.63	0.71	0.74

Table 4.4 Heterotrait–Monotrait (HTMT) Ratio of Correlations

Construct	EK	PGV	GPI
EK	—		
PGV	0.71	—	
GPI	0.68	0.73	—

5. Structural Model and Hypothesis Testing

After establishing the reliability and validity of the measurement model, the next step was to evaluate the structural model to test the hypothesized relationships among the constructs. The structural model assessment involved examining the path coefficients, coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2) following the guidelines of (Hair et al., 2020).

5.1 Model Evaluation

The results of the structural equation modeling (SEM) revealed satisfactory model fit indices, confirming the adequacy of the proposed model ($\chi^2/df = 2.06$, CFI = 0.95, TLI = 0.94, RMSEA = 0.05, SRMR = 0.04). The coefficient of determination (R^2) values indicated that Environmental Knowledge (EK) and Perceived Green Value (PGV) jointly explained 61% of the variance in Green Purchase Intention (GPI), while Environmental Knowledge alone accounted for 48% of the variance in PGV. These R^2 values exceed

the minimum recommended level of 0.26 for substantial explanatory power (Cohen, 1988), suggesting that the model possesses strong predictive capability.

Furthermore, the Stone–Geisser Q^2 test values obtained through blindfolding were greater than zero ($Q^2 = 0.42$ for GPI and $Q^2 = 0.37$ for PGV), confirming predictive relevance (Hair et al., 2020). The f^2 effect size values also indicated that EK had a medium-to-large impact on PGV ($f^2 = 0.34$) and a moderate impact on GPI ($f^2 = 0.19$), while PGV had a large effect on GPI ($f^2 = 0.46$). These findings confirm the significance and strength of the proposed paths.

5.2 Hypothesis Testing Results

The hypothesized relationships were examined using bootstrapping procedures with 5,000 resamples to assess the significance of direct and indirect effects. The standardized path coefficients (β), t-values, confidence intervals (CI), and p-values are reported in Table 5.1.

Table 5.1
Hypothesis Testing Results

Hypothesis	Path	β	t-value	95% CI	p-value	Support
H1	EK → GPI	0.32	7.85	[0.25, 0.39]	<0.001	Supported
H2	EK → PGV	0.48	10.26	[0.40, 0.55]	<0.001	Supported
H3	PGV → GPI	0.51	9.47	[0.42, 0.58]	<0.001	Supported
H4	Indirect effect (EK → PGV → GPI)	0.245	6.18	[0.198, 0.296]	<0.001	Supported

Note: Bootstrapping with 5,000 samples; confidence intervals (CI) generated at 95% bias-corrected level.

All four hypotheses were supported by the data. Environmental Knowledge exerted a significant direct effect on Green Purchase Intention ($\beta = 0.32$, $p < 0.001$), confirming H1. Moreover, Environmental Knowledge had a strong positive effect on Perceived Green Value ($\beta = 0.48$, $p < 0.001$), supporting H2, while Perceived Green Value significantly predicted Green Purchase Intention ($\beta = 0.51$, $p < 0.001$), supporting H3.

The mediation analysis further revealed that the indirect effect of Environmental Knowledge on Green Purchase Intention through Perceived Green Value was positive and significant ($\beta = 0.245$, 95% CI [0.198, 0.296]), thereby confirming H4. The total effect ($\beta = 0.565$) suggests that Perceived Green Value mediates approximately 43% of the total relationship between Environmental Knowledge and Green Purchase Intention. This finding provides empirical support for the cognitive–affective–behavioral (CAB) model, indicating that knowledge (cognition) influences behavior primarily through evaluative mechanisms such as perceived value (affect).

5.3 Summary of Structural Model Results

The results of the SEM analysis validate the proposed theoretical framework and highlight the central role of Perceived Green Value as a mediating construct. The high explanatory power ($R^2 = 0.61$) and predictive relevance ($Q^2 > 0$) indicate that the model effectively captures the key determinants of Green Purchase Intention. Thus, Environmental Knowledge acts as a foundational cognitive driver that shapes consumers' perception of the value of green products, which in turn translates into stronger intentions to purchase environmentally friendly products.

6. Discussion

6.1. Theoretical Contributions

This study makes several contributions to the literature. First, it confirms the mediating role of perceived green value in the environmental knowledge–green purchase intention relationship, providing empirical support for the cognitive-affective-behavioral pathway. This finding aligns with the VBN theory and the CAB model, emphasizing that knowledge alone is insufficient without affective evaluation. Second, the study develops and validates a comprehensive, psychometrically sound scale for measuring environmental knowledge, perceived green value, and green purchase intention. Unlike previous scales that focus on single dimensions, this scale captures the multidimensionality of perceived green value, enhancing its applicability across contexts. Third, the results highlight the importance of both cognitive and affective factors in driving sustainable consumption. While environmental knowledge is essential, its impact is amplified when consumers perceive green products as valuable.

6.2. Practical Implications

For marketers, the findings suggest that promoting green products should go beyond providing information. Campaigns should emphasize the functional, emotional, and social value of green products to enhance perceived green value. For example, highlighting health benefits (functional), pride in sustainability (emotional), and social approval (social) can strengthen consumer intentions. For policymakers, investing in environmental education can yield long-term benefits by increasing both knowledge and perceived value. Public awareness campaigns should be designed to translate knowledge into personal relevance. For educators, integrating environmental knowledge with value-based learning can foster sustainable behavior. Schools and universities should incorporate experiential learning that connects knowledge with real-world applications.

6.3. Limitations and Future Research

This study has several limitations. First, the sample is limited to Southeast Asia, so findings may not generalize to other regions. Future research should test the model in Western and African contexts. Second, the cross-sectional design limits causal inference. Longitudinal studies are needed to examine how changes in knowledge and perceived value influence intention over time. Third, self-reported data may be subject to social desirability bias. Future studies could use behavioral measures or experimental designs. Finally, the scale could be extended to include additional mediators, such as trust in green claims or perceived behavioral control.

7. Conclusion

This study demonstrates that environmental knowledge positively influences green purchase intention, both directly and indirectly through perceived green value. The development and validation of a robust quantitative measurement scale provides a valuable tool for researchers and practitioners. By understanding the mediating role of perceived green value, stakeholders can design more effective strategies to promote sustainable consumption. As the world faces escalating environmental challenges, fostering green purchase behavior is not just a consumer choice but a collective responsibility.

References

Abeysekera, I., Manalang, L., David, R., & Grace Guiao, B. (2022). Accounting for Environmental Awareness on Green Purchase Intention and Behaviour: Evidence from the Philippines. *Sustainability (Switzerland)*, *14*(19). https://doi.org/10.3390/su141912565

Afraz, M. F., Bhatti, S. H., Ferraris, A., & Couturier, J. (2021). The impact of supply chain innovation on competitive advantage in the construction industry: Evidence from a moderated multi-mediation model. *Technological Forecasting and Social Change*, *162*. https://doi.org/10.1016/j.techfore.2020.120370

Amin, S., & Tarun, M. T. (2021). Effect of consumption values on customers' green purchase intention: a mediating role of green trust. *Social Responsibility Journal*, *17*(8), 1320–1336.

https://doi.org/10.1108/SRJ-05-2020-0191
Ansori, S., & Yusuf, R. (2023a). Addressing the Global Environmental Crisis: Strategies for Sustainable Development. In *West Science Social and Humanities Studies* (Vol. 01, Issue 02).
Ansori, S., & Yusuf, R. (2023b). Addressing the Global Environmental Crisis: Strategies for Sustainable Development. In *West Science Social and Humanities Studies* (Vol. 01, Issue 02).
Ansu-Mensah, P. (2021). Green product awareness effect on green purchase intentions of university students': an emerging market's perspective. *Future Business Journal*, *7*(1). https://doi.org/10.1186/s43093-021-00094-5
Chanda, R. C., Isa, S. M., & Ahmed, T. (2024). Factors influencing customers' green purchasing intention: evidence from developing country. *Journal of Science and Technology Policy Management*, *15*(5), 1056–1084. https://doi.org/10.1108/JSTPM-03-2022-0044
Choudhury, N., Mukherjee, R., Yadav, R., Liu, Y., & Wang, W. (2024). Can machine learning approaches predict green purchase intention? -A study from Indian consumer perspective. *Journal of Cleaner Production*, *456*. https://doi.org/10.1016/j.jclepro.2024.142218
Conner, M., & Norman, P. (2022). Understanding the intention-behavior gap: The role of intention strength. In *Frontiers in Psychology* (Vol. 13). Frontiers Media S.A. https://doi.org/10.3389/fpsyg.2022.923464
Dunlap, R. E., Van, K. D., Primen, L., Mertig, A. G., & Jones, R. E. (2000). *Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale*.
Eitiveni, I., Utami, N. P., & Wiriya, P. (2025). Factors influencing intentions and green computing behavior among university students: the perspective of theory of interpersonal behavior and norm activation model. *Sustainable Futures*, *10*. https://doi.org/10.1016/j.sftr.2025.101473
Geiger, S. M., Geiger, M., & Wilhelm, O. (2019). Environment-specific vs. general knowledge and their role in pro-environmental behavior. *Frontiers in Psychology*, *10*(APR). https://doi.org/10.3389/fpsyg.2019.00718
Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, *109*, 101–110. https://doi.org/10.1016/j.jbusres.2019.11.069
Hair, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use "PLS-SEM or CB-SEM: updated guidelines on which method to use." In *Organizational Research Methods, MIS Quarterly, and International Journal* (Vol. 1, Issue 2).
Hamzah, M. I., & Tanwir, N. S. (2021). Do pro-environmental factors lead to purchase intention of hybrid vehicles? The moderating effects of environmental knowledge. *Journal of Cleaner Production*, *279*. https://doi.org/10.1016/j.jclepro.2020.123643
Han, R., & Xu, J. (2020). A comparative study of the role of interpersonal communication, traditional media, and social media in pro-environmental behavior: A China-based study. *International Journal of Environmental Research and Public Health*, *17*(6). https://doi.org/10.3390/ijerph17061883
Hashim, M., Márquez, F. P. G., Baig, S. A., Asif, M., Nazim, M., & Sibtain, M. M. (2025). Sustainable Leadership and Green Innovations: Catalysts for Sustainable Business Performance in the Textile Sector of Pakistan. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.70301
Hussain, S., & Huang, J. (2022). The impact of cultural values on green purchase intentions through ecological awareness and perceived consumer effectiveness: An empirical investigation. *Frontiers in Environmental Science*, *10*. https://doi.org/10.3389/fenvs.2022.985200
Khairy, H. A., Elzek, Y., Aliane, N., & Agina, M. F. (2023). Perceived Environmental Corporate Social Responsibility Effect on Green Perceived Value and Green Attitude in Hospitality and Tourism Industry: The Mediating Role of Environmental Well-Being. *Sustainability (Switzerland)*, *15*(6).

https://doi.org/10.3390/su15064746
Kim, M. S., & Stepchenkova, S. (2020). Altruistic values and environmental knowledge as triggers of pro-environmental behavior among tourists. In *Current Issues in Tourism* (Vol. 23, Issue 13, pp. 1575–1580). Routledge. https://doi.org/10.1080/13683500.2019.1628188
Lin, J., Lobo, A., & Leckie, C. (2017). The role of benefits and transparency in shaping consumers' green perceived value, self-brand connection, and brand loyalty. *Journal of Retailing and Consumer Services*, *35*, 133–141. https://doi.org/10.1016/j.jretconser.2016.12.011
Moslehpour, M., Chau, K. Y., Du, L., Qiu, R., Lin, C. Y., & Batbayar, B. (2023). Predictors of green purchase intention toward eco-innovation and green products: Evidence from Taiwan. *Economic Research-Ekonomska Istrazivanja* , *36*(2). https://doi.org/10.1080/1331677X.2022.2121934
Putri, N. W. A., Wahyuni, N. M., & Yasa, P. N. S. (2021). The Effect of Attitude in Mediating Environmental Knowledge towards the Purchase Intention of Green Cosmetic Product. *Jurnal Ekonomi & Bisnis JAGADITHA*, *8*(2), 202–208. https://doi.org/10.22225/jj.8.2.2021.202-208
Simanjuntak, M., Nafila, N. L., Yuliati, L. N., Johan, I. R., Najib, M., & Sabri, M. F. (2023). Environmental Care Attitudes and Intention to Purchase Green Products: Impact of Environmental Knowledge, Word of Mouth, and Green Marketing. *Sustainability (Switzerland)*, *15*(6). https://doi.org/10.3390/su15065445
Siyal, S., Ahmed, M. J., Ahmad, R., Khan, B. S., & Xin, C. (2021). Factors influencing green purchase intention: Moderating role of green brand knowledge. *International Journal of Environmental Research and Public Health*, *18*(20). https://doi.org/10.3390/ijerph182010762
Sugandini, D., Muafi, M., Susilowati, C., Siswanti, Y., & Syafri, W. (2020). Green supply chain management and green marketing strategy on green purchase intention: SMEs cases. *Journal of Industrial Engineering and Management*, *13*(1), 79–92. https://doi.org/10.3926/jiem.2795
Wan, Q., & Du, W. (2022). Social Capital, Environmental Knowledge, and Pro-Environmental Behavior. *International Journal of Environmental Research and Public Health*, *19*(3). https://doi.org/10.3390/ijerph19031443
Wang, H., Ma, B., & Bai, R. (2019). How Does Green Product Knowledge Effectively Promote Green Purchase Intention? *Sustainability*, *11*(4), 1193. https://doi.org/10.3390/su11041193
Wang, L., Wong, P. P. W., & Narayanan, E. A. (2020). The demographic impact of consumer green purchase intention toward Green Hotel Selection in China. *Tourism and Hospitality Research*, *20*(2), 210–222. https://doi.org/10.1177/1467358419848129
Wijekoon, R., & Sabri, M. F. (2021). Determinants that influence green product purchase intention and behavior: A literature review and guiding framework. In *Sustainability (Switzerland)* (Vol. 13, Issue 11). MDPI AG. https://doi.org/10.3390/su13116219
Zhao, H., Furuoka, F., Rasiah, R. A., & Shen, E. (2024). Consumers' Purchase Intention toward Electric Vehicles from the Perspective of Perceived Green Value: An Empirical Survey from China. *World Electric Vehicle Journal*, *15*(6). https://doi.org/10.3390/wevj15060267
Zhuang, W., Luo, X., & Riaz, M. U. (2021). On the Factors Influencing Green Purchase Intention: A Meta-Analysis Approach. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.644020
Ziaul, I. M., & Shuwei, W. (n.d.). *Environmental Sustainability: A Major Component of Sustainable Development Volume: 4 Number: 3 Page: 900-907*.