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Green Marketing Mix and Environmental Knowledge: Shaping Gen Z and Millennials' Sustainable Furniture Intentions

Soepatini*, Bintang Kharisma Putra, Rullynta Siska Suryandari, Rini Kuswati
Universitas Muhammadiyah Surakarta, Indonesia

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ABSTRACT: This study investigates how Indonesian Gen Z and millennials' purchase intentions for green furniture from Ace Hardware, IKEA, Informa, KANA Furniture, and Uwitan are shaped by the green marketing mix—product, price, place, and promotion. Its academic contribution lies in integrating environmental knowledge as a boundary condition into the marketing mix framework while embedding a skepticism-based perspective, thereby clarifying when specific green signals succeed or fail. A quantitative survey of 256 respondents was analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS. Findings indicate that green promotion, place, and price significantly influence purchase intentions, whereas green product does not. Environmental knowledge moderates the link between green product and place, suggesting its importance in sustainable consumption. This study advances green marketing scholarship by addressing the tension between persuasion and skepticism. Practically, it guides firms to build credibility and communicate sustainability initiatives more effectively to young consumers in emerging markets.

Keywords: Environmental Knowledge; Green Marketing Mix; Green Product; Green Price; Green Place; Green Promotion; Purchase Intention

*Corresponding Author: soepatini@ums.ac.id
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INTRODUCTION

Faced with an unstable economy, companies have no choice but to adjust to global changes after coronavirus, particularly in the hardest-hit sector of retail (Rizaty, 2022), including the furniture industry. Failure to adjust to consumer preferences and economic shifts will lead to a gradual loss of business. Suprapto et al., (2020) highlight that customer perceptions of a business play a pivotal role in shaping purchase intention. The worldwide business environment is experiencing significant change, fueled by rising environmental challenges and evolving consumer values. Thus, the application of green marketing can be viewed as a deliberate strategy to improve customer perceptions, ultimately extending customer reach through its positive impact on purchase intention. Many scholars emphasize that sustainable consumption is not merely a matter of product choice but also reflects deeper psychological and identity-driven processes. In this regard, Kuswati et al. (2021) state that pro-environmental self-identity is one of the constructs forming a sustainable consumption behavior. Such sustainable consumption behavior is the key to sustainable development. This highlights that consumer responses to green marketing cues are strongly shaped by identity and perceived responsibility toward the environment. The trend is notably prominent in Indonesia, where it is driven by the nation's largest demographic segments, Generation Z (born 1997–2012) and Millennials (born 1981–1996). In total, these two generations comprise a majority share of the nation's population, with Gen Z contributing 27.94% and Millennials 25.87% (GoodStats Data, 2023). Compared to earlier generations, Millennials and Generation Z demonstrate a greater tendency to adopt sustainable products, owing to their awareness of how environmental degradation threatens the sustainability of life on earth (Ichsan et al., 2024). While both generations show a strong inclination towards responsible consumption, their attitudes differ. Gen Z emphasizes sustainable consumption through lifestyle changes, with 82% willing to pay more for eco-friendly products and actively reducing single-use plastics (IDN Research Institute, 2024). In contrast, Millennials adopt sustainability more cautiously, integrating eco-friendly practices while balancing cost considerations and broader financial responsibilities (IDN Research Institute, 2025).

Rising awareness is being reflected in stronger consumer demand for sustainable products. Recent evidence indicates that consumers increasingly prefer purchasing from companies that demonstrate environmental commitment. One joint study by McKinsey and NielsenIQ discovered that products with ESG-related claims experienced 28% cumulative growth over five years, compared to 20% for those without such claims, and brands with higher shares of ESG-labeled products also reported stronger consumer loyalty (McKinsey & NielsonIQ, 2023). This indicates that environmental responsibility influences consumer preferences and is reflected in actual buying decisions. The rise of green consumerism signals a significant opportunity for businesses that can authentically address this demand. Research shows that one-third of consumers are willing to pay a premium for sustainable products, and firms increasingly recognize green marketing not only as a tool for fulfilling social responsibility but also as a pathway to achieving competitive advantage and long-term growth (Haba et al., 2023). As a major segment of the retail market, the furniture industry is not exempt from this shift, with companies like IKEA and Informa increasingly embracing green marketing practices (see Table 1 for the providers).

Table 1. List of Furniture Companies Implementing Green Marketing

Company	Types of environmental Care
ACE Hardware	Establishing environmental education institutions to spread awareness of the value of environmental preservation.
IKEA	Utilizing metal, wood, plastic, paper, and recycled materials in the manufacturing and marketing process.
Informa	Lowering retail establishments' reliance on carbon-based energy.
KANA Furniture	Sustainable forests are the source of raw materials.
Uwitan	Utilizing wood that has been legally certified and NC finishing products, which are odorless and suitable for children.

Source: Official Website (2025)

Table 1 shows several leading furniture companies in Indonesia that have adopted green marketing practices by by considering environmental trends in their activities. These initiatives clearly reflect the application of the green marketing mix—product, price, place, and promotion—as a strategic response to increasing consumer demand for sustainable products. Su & Li (2024) show that green product and green promotion significantly enhance green purchase intention, whereas green price and place have stronger impact on environmental attitudes. Moreover, the study highlights that environmental knowledge moderates the relationship between attitudes and purchase intention, indicating that well-informed consumers are more critical of green claims, underscoring the importance of authenticity in corporate sustainability communication. Hence, the sustainable practices adopted within the furniture sector are consistent with broader theoretical and empirical evidence on how the green marketing mix drives consumer behavior in emerging economies.

Although the demand for sustainable products continues to expand, it is simultaneously constrained by an escalating level of consumer skepticism. The proliferation of greenwashing practices—where firms exaggerate or misrepresent their environmental commitments—has undermined consumer trust, often leading to negative evaluations, reduced purchase intention, and even boycotts (Andreoli et al., 2025). This type of skepticism frames consumers as not merely evaluators of corporate claims but also as active actors who can sanction firms through resistance behaviors, underscoring the critical role of authenticity and transparency in sustainability communication. Consumer skepticism not only weakens trust but also shapes how individuals interact with sustainability claims. For instance, research shows that even highly environmentally conscious consumers often fail to distinguish between authentic and greenwashed products, which leads to confusion, reduced trust, and ultimately a decline in green purchase behavior (Urbański & Ul Haque, 2020). In addition, empirical evidence from Indonesia's fast fashion sector highlights that greenwashing significantly amplifies consumer skepticism, which negatively contributes to negative green word-of-mouth and ultimately harms brand reputation and credibility (Promalessy & Handriana, 2024). Thus, this study focuses on analyzing the effect of the green marketing mix on purchase intention in the furniture industry in Indonesi.

THEORETICAL REVIEW

Green Marketing

Emerging in response to heightened environmental issues, green marketing places emphasis not just on advertising but also on sustainable approaches to product design, production, packaging, and corporate communication. Polonsky (1994) defines green marketing as encompassing *"all activities designed to generate and facilitate exchanges intended to satisfy human needs and wants, while minimizing detrimental impacts on the natural environment"*. Green marketing—commonly described as sustainable marketing—involves managerial practices that focus on predicting, identifying, and addressing the needs of customers and society in a manner that balances profitability with environmental responsibility (Su & Li, 2024). This approach illustrates that green marketing is not confined to advertising but entails incorporating sustainability into the broader marketing mix, framing it as a critical strategic and ethical priority for businesses. Various definitions and structured concepts have emerged over time to reduce ecological consequences. Essential elements of green marketing include promoting environmentally safe products, minimizing environmental hazards in production and marketing, and adopting eco-friendly practices in production, packaging, and promotion. For the purposes of this study, however, the focus is directed toward the 4Ps of green marketing.

Green Marketing Mix and the "Black Box" of Consumer Decision-Making

The green marketing mix reflects firms' efforts to develop safe, biodegradable products through recyclable and eco-friendly packaging, energy-efficient resources, and environmentally responsible production processes. Structured around four dimensions—green product, green price, green place, and green promotion—it provides a comprehensive framework for environmentally oriented marketing activities (Mahmoud et al., 2024). Firms often adapt the marketing mix differently, employing either the 4Ps or 7Ps model. While the green marketing mix

reflects the traditional 4Ps, the critical task for marketers is to implement them creatively to achieve sustainability goals (T. O. Mahmoud, 2018). This research applies the “black box” model of consumer behavior, which focuses on the relationship between stimuli (the GMM elements) and consumer response (purchase intention), acknowledging that internal consumer characteristics (the "black box") influence this process. As highlighted by Singh & Ahlluwalia (2024), the consumer’s mind functions like a black box in which external stimuli, such as marketing actions, are filtered and interpreted through psychological motivations before manifesting as observable responses. Within the context of green marketing, elements of the green marketing mix—product, price, place, and promotion—act as stimuli that enter this black box, where consumers’ environmental attitudes, knowledge, and motivations shape how these inputs are processed. This means that the effectiveness of green marketing strategies depends not only on the external design of sustainable offerings but also on how consumers internally perceive, evaluate, and respond to them within their decision-making processes. For instance, eco-labels that lack standardization or transparency are perceived more as marketing tools than as genuine indicators of sustainability, thereby weakening their persuasive power

Signaling Theory, Greenwashing, and the Credibility of Environmental Claims

Signaling theory describes how companies apply marketing signals (e.g. eco-labels or green product claims) to signal otherwise unobservable attributes to consumers These signals in sustainable marketing will aim at minimizing information asymmetry by giving buyers confidence that a firm is committed towards the environment. But when signals are indistinct, unprovable or deceiving, they lose credibility and instead foster skepticism (Ali et al., 2021; Huh & Kim, 2024). Research shows that greenwashing—defined as the dissemination of deceptive environmental claims—undermines consumer trust and diminishes the effectiveness of eco-labels as reliable signals (Atkinson & Rosenthal, 2014; Fernandes et al., 2020). For instance, eco-labels that lack standardization or transparency are perceived more as marketing tools than as genuine indicators of sustainability, thereby weakening their persuasive power (Gosselt et al., 2019; Taufique et al., 2017). Therefore, the credibility of the environmental claims is found to be a determinant factor of the success of green marketing strategies in influencing purchase intentions.

Green Product

A green product refers to an item produced with non-toxic materials and environmentally responsible processes, and verified through certification by a recognized authority (Kumar & Ghodeswar, 2015). Green products are characterized as being safe for consumers while also minimizing negative impacts on the environment (Tsai et al., 2020). According to Karunarathna et al., (2020), the development of green products can be guided by the 5Rs—reuse, reconditioning, repair, remanufacture, and recycling—as outlined by Peattie & Crane (2005). The product represents the core of the green marketing mix and serves as the most crucial element of the overall green marketing strategy (T. O. Mahmoud, 2018).

Green Price

Price, as the payment required to obtain a product, is considered one of the most critical elements within the marketing mix (T. O. Mahmoud, 2018). Green pricing reflects the additional expenditure consumers usually bear for products with environmentally sustainable attributes (Nguyen-Viet, 2023). The concept of green pricing reflects a balance among social, environmental, and economic factors, ensuring both community and employee health alongside productive efficiency (T. O. Mahmoud, 2018). Thus, green price not only reflects the economic value of sustainable products but also serves as a strategic signal of corporate environmental responsibility, shaping consumers’ purchase and repurchase intentions in sustainability-driven markets.

Green Place

Green place refers to the strategic management of distributing eco-friendly products from production to consumption, where the availability and accessibility of such products play a crucial role given that relatively few consumers actively seek them solely for environmental reasons (Davari & Strutton, 2014). Green place, as a key element of the marketing mix, refers to the selection of distribution channels that both align with suitable markets and minimize environmental impact (M. A. Mahmoud et al., 2024). Place refers to the point of purchase, whether physical or virtual, and requires that product distribution occur through appropriate channels and in environmentally safe locations free from contamination (T. O. Mahmoud, 2018).

Green Promotion

Green promotion plays a critical role in influencing consumer attitudes and behaviors by communicating the environmental benefits of products and services. Green promotion involves offering truthful product information that aligns with consumers' moral and materialistic values (Hashem & Al-Rifai, 2011) and designing messages that resonate with environmentally conscious customers (T. O. Mahmoud, 2018). Utilizing green advertising can attract environmentally conscious customers, aiming to change buying habits to benefit both the environment and individuals. Establishing a strong customer relationship requires more than just producing quality products, competitive pricing, and distribution. Businesses must actively engage with customers, ensuring that their value proposition is effectively communicated. This entails organizing every communication as part of a thoroughly planned program. The primary promotional tools, as defined by Kotler & Armstrong (2017), include advertising, public relations, personal selling, sales promotion, direct marketing and its fastest growing (online, social media, and mobile marketing). These tools serve to build customer relationships, manage company image, and address any negative perceptions or events.

Environmental Knowledge

Environmental knowledge encompasses general understanding of facts, ideas, and connections related to the environment and ecosystems (Lo & Fryxell, 2003). In essence, it encompasses individuals' awareness of environmental issues, the key relationships that generate environmental impacts, an appreciation of ecological systems, and the shared responsibilities required for sustainable development (Lo & Fryxell, 2003). Environmental knowledge serves as a reflection of an individual's commitment to social and environmental sustainability, which in turn drives their interest in purchasing green products (Bhattacharya, 2019). Increased awareness of environmental issues among consumers can lead to more positive attitudes toward green products (Davari & Strutton, 2014). As a key component shaping consumer perspectives and actions, environmental knowledge plays an essential role (Moslehpour et al., 2023).

Purchase Intention

Purchase intention, as defined by Kuswandi (2023), is the perceived benefit that motivates consumers' decisions to buy a product, driven by their desire to own it. T. O. Mahmoud (2018) further describes it as the probability of a customer making a future purchase. Positive purchase intention encourages consumers to engage in actual buying behavior, whereas negative purchase intention deters them, with higher intention levels indicating greater likelihood of purchase (T. O. Mahmoud, 2018). Consumers increasingly prioritize environmentally friendly products, known as green products, over those with negative environmental impacts (T. O. Mahmoud et al., 2017). High environmental awareness leads consumers to opt for green products, reflecting in their stronger purchase intentions compared to less environmentally conscious consumers. Numerous studies affirm the significant impact of the green product hypothesis on consumer purchasing intentions (Febriani, 2019; Karunarathna et al., 2020; Ahmed et al., 2022; Kaur et al., 2022). This preference stems from the belief that choosing green products positively impacts the environment, driving consumers with heightened environmental awareness to prioritize them for health and environmental safety (Ginsberg & Bloom, 2004). This trend underscores the importance for manufacturers to develop eco-friendly products and raise

consumer awareness about supporting environmental sustainability through green product choices.
H1: Green products significantly influence purchase intentions.

Green pricing refers to the practice of setting higher prices for environmentally friendly products compared to non-environmentally friendly ones (Chekima et al., 2016). This pricing strategy can impact consumers' purchasing decisions, often acting as a deterrent for those with limited budgets (Bonini & Oppenheim, 2008). Despite this, research indicates that green pricing significantly affects consumer purchase intentions (T. O. Mahmoud et al., 2017; Karunarathna et al., 2020; Munamba & Nuangjamnong, 2021; Kaur et al., 2022). When consumers perceive green products as providing greater value than conventional alternatives, green pricing positively influences their purchase intentions (Chekima et al., 2016). Consumers who believe in the superior quality and value of green products are more likely to intend to purchase them. Manufacturers can also implement pricing strategies to narrow the price gap between green and conventional products, making green products more accessible. Hence, green pricing plays a crucial role in shaping consumer purchase intentions, and strategic pricing can boost the demand for green products.
H2: Green price has a significant influence on purchase intention.

Green places involve managing logistics to minimize transportation emissions, thus reducing the carbon footprint (Shil, 2012). Environmentally conscious consumers often prefer products from companies that adopt sustainable and eco-friendly business practices. Studies have shown that green places significantly influence consumer purchase intentions (T. O. Mahmoud et al., 2017; Karunarathna et al., 2020; Munamba & Nuangjamnong, 2021; Kaur et al., 2022). Green places help build consumer trust and enhance their purchase intent (T. O. Mahmoud, 2018). Brands with a strong reputation for sustainability and eco-friendly practices tend to be more trusted by consumers (Kang & Hur, 2012). Moreover, environmentally friendly locations contribute to a positive shopping experience, fostering consumer loyalty (Bashir et al., 2020). Thus, manufacturers should consider strategies to enhance their business sustainability and incorporate green practices to attract environmentally conscious consumers.
H3: Green place has a significant influence on purchase intention.

Green promotion is a marketing strategy designed to raise consumer awareness of environmentally friendly products and business practices. Numerous studies have shown that green promotions significantly influence consumer purchase intentions (T. O. Mahmoud et al., 2017; Karunarathna et al., 2020; Ahmed et al., 2022; Kaur et al., 2022;). By increasing awareness, green promotions encourage consumers to consider green products as viable purchasing options. Research indicates that effective green promotions enhance consumer purchase intentions (T. O. Mahmoud, 2018). These promotions must clearly communicate the benefits and advantages of green products, persuading consumers that choosing green products is beneficial for both the environment and society. Additionally, green promotions help build an environmentally conscious brand image and strengthen brand awareness among eco-conscious consumers.
H4: Green promotion has a significant influence on purchase intention.

The creation of green products must take environmental aspects into account to minimize negative impacts on nature (Davari & Strutton, 2014). Green products significantly influence consumer purchasing intentions; when a product is proven to be environmentally friendly, consumer intentions to purchase it increase. Consumers with knowledge about environmental issues are more likely to develop favorable attitudes toward green products (Ankit & Mayur, 2013). Research by T. O. Mahmoud (2018) confirmed that environmental knowledge strengthens the influence of green products on purchase intention. This finding is supported by previous studies that demonstrate how environmental knowledge enhances the impact of green products on purchase intentions (Ankit & Mayur, 2013; Ansar, 2013).
H5: Environmental knowledge moderates the relationship between green products and purchase intention.

Green price refers to a pricing strategy set by a company with environmental considerations, where "green" products typically cost more (Sinambela et al., 2022). Many consumers are willing to pay a premium if the product offers added value (Sofwan & Wijayangka, 2021). According to Memon et al. (2019), purchase intention is the consumer's decision-making process before buying a product or service. Individual consumers can enhance their quality of life by opting for and consuming environmentally friendly products (Shil, 2012). Research by T. O. Mahmoud (2018) confirmed that environmental knowledge strengthens the influence of green prices on purchase intention. This relationship is further supported by studies showing that environmental knowledge enhances the impact of green prices on purchase intention (Memon et al., 2019).
H6: Environmental knowledge moderates the relationship between green prices and purchase intention.

Green place refers to strategically positioning products in markets with consumers who are environmentally conscious, contributing to achieving company goals (Sofwan & Wijayangka, 2021). Research by Tirtayasa et al. (2021) indicated that environmental knowledge strengthens the relationship between green places and purchase intention. T. O. Mahmoud (2018) also confirmed that environmental knowledge enhances the impact of green places on purchase intention. This finding is supported by several previous studies showing that environmental knowledge amplifies the influence of green places on purchase intention (Ankit & Mayur, 2013).
H7: Environmental knowledge moderates the relationship between green place and purchase intention.

Green promotion aims to influence consumer habits by fostering favorable attitudes toward eco-friendly products. Consumer awareness is driven by their understanding of the importance of sustainability. Research by T. O. Mahmoud (2018) confirmed that environmental knowledge strengthens the influence of green promotion on purchase intention. This relationship is supported by several previous studies, indicating that environmental knowledge enhances the impact of green promotion on purchase intention (Rahbar & Wahid, 2011; Ankit & Mayur, 2013). This leads to the hypothesis construction, and all paths are presented in the Figure 1.
H8: Environmental knowledge moderates the relationship between green promotion and purchase intention.

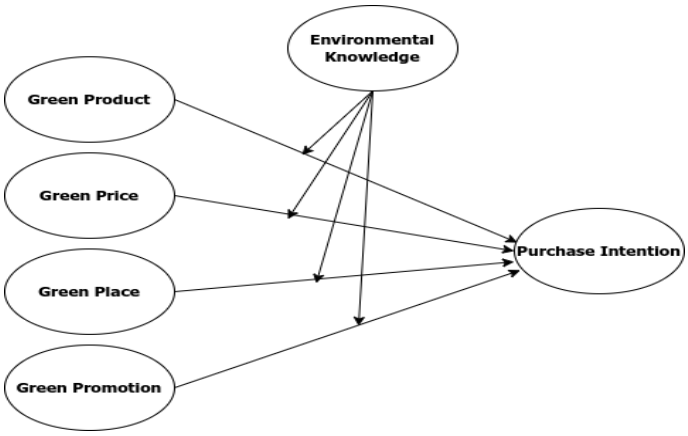

Figure 1. Research Model

RESEARCH METHOD

Data Collection and Sample

This research employed a structured online questionnaire as the primary tool for data collection. Responses were measured using a five-point Likert scale, ranging from 1 = Strongly disagree to 5 = Strongly agree. The population was defined as individuals in Indonesia with an interest in purchasing sustainable furniture. A non-probability purposive sampling technique was applied, yielding 256 valid responses from two generational cohorts: Gen Z (ages 17–26) and

Millennials (ages 27–42). The minimum sample size was justified based on model complexity, which included six latent constructs—Green Product (4 indicators), Green Price (4), Green Place (4), Green Promotion (4), Environmental Knowledge (4), and Purchase Intention (4)—for a total of 24 indicators. Following the "10-times rule" for PLS-SEM (Hair et al., 2017), the recommended minimum sample would be 240 (10 × the largest number of structural paths directed at a construct), thus the achieved sample size of 256 is adequate for the complexity of the model. The data is in Table 2.

Table 2. Description of Respondent Characteristics Based on Gender

Gender	Frequency	Percentage
Man	89	34.80%
Woman	167	65.20%
Total	256	100.00%

Based on the table above, the 256 respondents are categorized by gender. There are more females than males, with 167 women (65.2%) and 89 men (34.8%). The 256 respondents are divided into four age categories: 66 respondents aged 17-22 (25.8%), 164 respondents aged 23-28 (64.0%), 23 respondents aged 29-34 (9.0%), and 3 respondents aged 35-42 (1.2%). The 256 respondents are categorized by education level into five groups: 3 respondents with junior high school education (1.2%), 82 with high school education (32.0%), 17 with D1-DIV education (6.6%), 152 with undergraduate education (59.4%), and 2 with postgraduate education (0.8%). Out of 256 respondents, the largest occupation group is students, comprising 88 respondents (34.4%). The 256 respondents fall into four categories of monthly income: 48 respondents (18.8%) earn less than 2,000,000, 91 respondents (35.5%) earn between 2,000,001 and 5,000,000, 54 respondents (21.1%) earn more than 5,000,000, and 63 respondents (24.6%) have no income. Lastly, the majority of respondents in this study reside in Solo, with 57 individuals (22.3%).

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. The analysis followed the standard two-step procedure: (1) assessment of the outer model to evaluate validity, reliability, and multicollinearity; and (2) assessment of the inner model to test path coefficients, and R^2. Hypothesis testing was performed using the bootstrapping technique to obtain t-statistics and p-values. Moderated Structural Equation Modeling (MSEM) with Moderated Regression Analysis (MRA) was applied to assess the moderation effects.

RESULTS

The measurement model was first assessed to ensure construct reliability and validity before testing the structural relationships. Table 3 presents the results of factor loadings, variance inflation factor (VIF), average variance extracted (AVE), Cronbach's alpha, and composite reliability (CR) for all constructs. The loadings of all items were above the minimum threshold of 0.70, ranging between 0.71 and 0.86, thereby indicating strong item reliability. The VIF values ranged between 1.471 and 2.210, all well below the maximum acceptable limit of 5.0, confirming the absence of multicollinearity among the observed indicators. For convergent validity, the AVE values for all constructs exceeded the 0.50 cut-off, while Cronbach's alpha coefficients ranged from 0.765 to 0.855, surpassing the recommended level of 0.70. Similarly, CR values were consistently above 0.80, providing further evidence of internal consistency reliability. Collectively, these results demonstrate that the constructs meet the psychometric requirements for reliability and convergent validity, allowing further structural analyses to be confidently performed.

As evident in Table 3, the constructs of Green Product, Green Pricing, Green Placer, Green Promotion, Purchase Intention, and Environment all exhibit strong reliability and convergent validity. Among the constructs, Green Product achieved the highest composite reliability (CR = 0.902) with an AVE of 0.697, suggesting that the majority of variance in its indicators is explained by the latent construct itself. Similarly, Purchase Intention demonstrated a robust level of consistency (CR = 0.901; α = 0.853), reinforcing its reliability as a central outcome variable. Although the Environment construct presented the lowest AVE (0.646), it still exceeded the 0.50 threshold, thereby meeting the recommended criterion. These findings confirm that the

measurement model is statistically sound, and the constructs are well-specified for hypothesis testing. The rigorous evaluation of loadings, reliability, and validity further strengthens confidence in the subsequent analysis of the moderating effects of environmental knowledge and the predictive relationships within the structural model.

Table 3. Summary of Outer Model Measurements

Constructs	Items	Loading	VIF	AVE	Alpha	CR
	X11	0.861	2.210			
	X12	0.858	2.117			
Green Product	X13	0.758	1.632	0.697	0.855	0.902
	X14	0.858	2.193			
	X21	0.812	1.602			
Green Pricing	X22	0.710	1.636	0.582	0.765	0.847
	X23	0.722	1.620			
	X24	0.803	1.590			
	X31	0.767	1.532			
	X32	0.758	1.471			
Green Placement	X33	0.746	1.518	0.591	0.769	0.852
	X34	0.803	1.640			
	X41	0.748	1.503			
	X42	0.791	1.677			
Green Promotion	X43	0.844	1.995	0.652	0.821	0.882
	X44	0.842	1.951			
	Y1	0.846	2.188			
	Y2	0.860	2.210			
Purchase Intention	Y3	0.859	2.135	0.694	0.853	0.901
	Y4	0.766	1.644			
	Z1	0.805	1.825			
Environmental Knowledge	Z2	0.810	1.817	0.646	0.817	0.879
	Z3	0.855	1.978			
	Z4	0.741	1.489			

Following the confirmation of the measurement model's reliability and validity, the structural model was evaluated to test the proposed hypotheses. Table 4 summarizes the path coefficients, t-statistics, and significance levels for the hypothesized relationships among the constructs. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), and the bootstrapping procedure with 5,000 resamples was employed to assess the significance of the estimated paths.

Table 4. Summary of Hypothesis Findings

Paths	Effects	*p*-values	Decision
H1 Green Product (X1) → Purchase Intention (Y)	0.064	0.335	Not Supported
H2 Green Price (X2) → Purchase Intention (Y)	0.175	0.003	Supported
H3 Green Place (X3) → Purchase Intention (Y)	0.117	0.041	Supported
H4 Green Promotion (X4) → Purchase Intention (Y)	0.184	0.008	Supported
H5 Environmental Knowledge mod. Green Product to Purchase Intention	0.113	0.050	Supported
H6 Environmental knowledge as mod. green price to purchase intention	-0.063	0.376	Not Supported
H7 Environmental knowledge as mod. green place to purchase intention	-0.169	0.011	Supported
H8 Environmental knowledge as mod. green promotion to purchase intention	0.113	0.058	Not Supported
R2		0.659	

The hypothesis testing results, as presented in Table 4, reveal that not all dimensions of the green marketing mix exert the same level of influence on purchase intention. Green promotion, green place, and green price emerged as significant predictors, each demonstrating positive and statistically robust effects on consumers' willingness to purchase sustainable furniture. In contrast, the path from green product to purchase intention was not statistically significant, suggesting that product attributes alone are insufficient to drive consumer decisions in this context. This finding highlights the heightened sensitivity of Gen Z and millennial consumers to value communication, accessibility, and affordability rather than the mere presence of green product claims. Furthermore, environmental knowledge significantly moderated the relationship between green product and green place, reinforcing its role as a boundary condition that shapes how marketing cues are processed. Taken together, these results underscore the nuanced mechanisms through which marketing strategies influence young consumers' sustainable purchasing behavior in emerging markets.

DISCUSSION

This study underscores that the persuasive power of the green marketing mix is far from uniform, especially in the case of Indonesian Gen Z and Millennial consumers. These cohorts are celebrated for their ecological awareness (GoodStats Data, 2023; IDN Research Institute, 2024) yet simultaneously recognized for their deep skepticism toward corporate sustainability claims (Ali et al., 2021; Fernandes et al., 2020). The findings therefore extend ongoing debates about how environmental awareness and green skepticism interact to shape consumer intentions in emerging markets (Ahmed et al., 2022; Haba et al., 2023).

A first contribution arises from the observation that green price, green place, and green promotion retain persuasive strength. These dimensions can be interpreted through the logic of costly signaling (Atkinson & Rosenthal, 2014; Huh & Kim, 2024). A premium price is understood not merely as a mark-up but as an indicator of investment in sustainable production, resonating with arguments that consumers often view green price premiums as credible when they are tied to authentic costs of sustainability (Chekima et al., 2016; Mahmoud, 2018). Likewise, sustainable distribution strategies represent operational commitments that are difficult to falsify, aligning with Davari and Strutton's (2014) emphasis on the strategic weight of "place" in aligning consumer beliefs with behaviors. Transparent promotional messages also play a central role, confirming earlier findings that specificity and clarity in eco-labeling and advertising bolster credibility in skeptical markets (Atkinson & Rosenthal, 2014; Tsai et al., 2020). In these respects, the results reinforce the proposition that costly and verifiable signals remain effective in navigating markets where trust is fragile (Bonini & Oppenheim, 2008; Ginsberg & Bloom, 2004).

By contrast, the diminished impact of green product attributes represents a significant theoretical departure. Classical green marketing research often placed eco-labels and product certifications at the heart of persuasion (Polonsky, 1994; Peattie & Crane, 2005), assuming that product-level environmental claims directly foster purchase intentions. Yet this study demonstrates that such cues are no longer automatically persuasive, especially among younger consumers who have grown attuned to greenwashing. Prior studies confirm that ambiguous or unverified claims weaken credibility and erode willingness to buy (Nguyen et al., 2019; Kreczmańska-Gigol & Gigol, 2022). Andreoli et al. (2025) even highlight how persistent corporate greenwashing can trigger consumer boycotts. In this light, green product cues risk being interpreted as "cheap signals" —low-cost, easy to imitate, and therefore ineffective in contexts of distrust (Promalessy & Handriana, 2024; Urbański & Ul Haque, 2020). This finding complicates traditional views of the marketing mix and situates skepticism as a central determinant of signal credibility.

The moderating role of environmental knowledge adds further nuance. On the one hand, knowledge restores the value of product-level claims by allowing informed consumers to discriminate between vague slogans and credible certifications, consistent with Rahbar and Wahid (2011) and Taufique et al. (2017), who argue that literacy in environmental issues enhances evaluative capacity. On the other hand, knowledge appears to undermine claims about sustainable distribution systems. As Gosselt et al. (2019) and Nguyen et al. (2019) suggest, well-informed consumers are not only more capable of detecting authenticity but also more sensitive to corporate rhetoric and the complexities of supply chains. Knowledge thus fosters not only

support but also cynicism, confirming Fernandes et al.'s (2020) point that literacy can intensify distrust when firms fail to substantiate systemic claims.

Interestingly, environmental knowledge does not alter consumer responses to green price or green promotion. This resonates with studies showing that while consumers may accept the legitimacy of higher costs or transparent campaigns, they also remain wary of opportunistic "green premiums" or overly polished advertising narratives (Kaur et al., 2022; Singh & Ahluwalia, 2024). This reinforces the view that the knowledgeable consumer is neither uniformly receptive nor uniformly resistant but engages critically with each type of signal.

These results advance the literature by repositioning skepticism and knowledge not as background conditions but as active forces shaping the meaning of marketing signals. Where earlier scholarship celebrated the persuasive power of green claims (Ansar, 2013; Ankit & Mayur, 2013; Sinambela et al., 2022), this study demonstrates that persuasion is increasingly conditional: it depends on the costliness, verifiability, and credibility of the cues being deployed. By embedding skepticism within the analysis of the marketing mix, this research contributes to a more refined understanding of green marketing's effectiveness in emerging markets, showing how consumers can reward authenticity while penalizing perceived opportunism.

CONCLUSION AND FURTHER STUDY

This study enriches the understanding of green marketing mix effectiveness by showing that Indonesian Gen Z and Millennial consumers respond selectively to different sustainability cues. While green price, place, and promotion function as credible signals that shape purchase intentions, green product attributes lose persuasive power in markets where skepticism toward corporate claims is widespread. Environmental knowledge plays a double-edged role, restoring trust in credible product certifications while simultaneously heightening cynicism toward broader supply chain narratives. These findings extend green marketing scholarship by situating skepticism and knowledge as active forces that redefine the persuasive value of marketing signals. At the same time, the results caution firms against over-reliance on product-level claims without credible substantiation, as consumers increasingly differentiate between authentic investments and superficial rhetoric.

Nevertheless, several limitations should be acknowledged. The study is cross-sectional and relies on self-reported data, which constrains causal inference and may be subject to social desirability bias. Future research could employ longitudinal designs or experimental approaches to capture dynamic shifts in consumer skepticism and knowledge. Comparative studies across different product categories or cultural contexts could also illuminate whether these dynamics generalize beyond the sustainable furniture market in Indonesia. For practitioners, the findings underscore the need to move beyond symbolic green gestures and prioritize verifiable, costly commitments to sustainability. Companies that align communication strategies with transparent operations stand to cultivate credibility, while those engaging in ambiguous claims risk consumer backlash. In this sense, the study's practical message is clear: in an era of informed and skeptical consumers, only authenticity endures.

ETHICAL DISCLOSURE

All participants provided written informed consent prior to participation. They were informed about the study's purpose, their voluntary participation, the right to withdraw at any time, and the confidentiality of their responses.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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