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THE IMPACT OF PERCEIVED GREENWASHING ON BRAND LOYALTY AMONG YOUNG CONSUMERS IN HANOI'S FASHION INDUSTRY

O IMPACTO DA PERCEPÇÃO DE GREENWASHING NA LEALDADE À MARCA ENTRE OS JOVENS CONSUMIDORES DO SETOR DE MODA DE HANÓI

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Abstract
This study examines the impact of perceived greenwashing on brand loyalty among young consumers in the fashion industry in Hanoi. It also investigates the mediating roles of brand trust and brand commitment, as well as the moderating role of perceived authenticity. A mixed-methods approach was employed, including expert interviews and a quantitative survey of 306 consumers aged 18–30. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software. The results indicate that perceived greenwashing negatively affects both brand trust and brand loyalty. In contrast, brand trust has a positive effect on both brand commitment and brand loyalty, while brand commitment also contributes to enhancing brand loyalty. Notably, perceived authenticity mitigates the negative impact of greenwashing on brand trust. This study contributes to clarifying the mechanism through which greenwashing influences relationship marketing outcomes and provides managerial implications for fashion companies to develop transparent green communication strategies in order to

Resumo
Este estudo examina o impacto da percepção de greenwashing na lealdade à marca entre jovens consumidores do setor da moda em Hanói. Ele também investiga os papéis mediadores da confiança na marca e do compromisso com a marca, bem como o papel moderador da percepção de autenticidade. Foi empregada uma abordagem de métodos mistos, incluindo entrevistas com especialistas e uma pesquisa quantitativa com 306 consumidores com idades entre 18 e 30 anos. Os dados foram analisados utilizando a Modelagem de Equações Estruturais por Mínimos Quadrados Parciais (PLS-SEM) por meio do software SmartPLS. Os resultados indicam que a percepção de greenwashing afeta negativamente tanto a confiança na marca quanto a lealdade à marca. Em contrapartida, a confiança na marca tem um efeito positivo tanto no comprometimento com a marca quanto na lealdade à marca, enquanto o comprometimento com a marca também contribui para aumentar a lealdade à marca. Notavelmente, a autenticidade percebida atenua o impacto negativo do greenwashing sobre a confiança na marca. Este estudo contribui para esclarecer o mecanismo pelo qual o

sustain trust and engagement among young consumers.

Keywords: Greenwashing. Brand Loyalty. Brand Trust. Brand Commitment. Perceived Authenticity.

greenwashing influencia os resultados do marketing de relacionamento e fornece implicações gerenciais para que as empresas de moda desenvolvam estratégias de comunicação verde transparentes, a fim de sustentar a confiança e o engajamento entre os jovens consumidores.

Palavras-chave: *Greenwashing. Lealdade à Marca. Confiança na Marca. Compromisso com a Marca. Autenticidade Percebida.*

1 INTRODUCTION

Amid the rapid growth of the global sustainable products market, a concerning academic paradox has emerged: despite the increasing prevalence of green communication efforts, consumer skepticism has risen proportionally (Sun *et al*., 2023). This paradox challenges the foundational assumption of green marketing and raises questions about the true efficacy of sustainable communication strategies in building trust. In the fashion industry, a sector responsible for approximately 10% of global carbon emissions (Niinimäki *et al*., 2020), the boundary between genuine corporate social responsibility and *greenwashing* is becoming increasingly blurred. This phenomenon extends beyond the mere dissemination of misleading information, as defined by Lyon and Maxwell (2011), and has evolved into sophisticated perceptual manipulation techniques capable of undermining the stability of long-term brand relationships.

Drawing on Signaling Theory, environmental commitments are expected to function as *quality signals* that reduce information asymmetry (Connelly *et al*., 2011). However, as *greenwashing* becomes pervasive, these signals may produce counterproductive effects, generating *noise* and eroding the foundation of trust - a core construct in Commitment–Trust Theory (Morgan & Hunt, 1994). Although the negative relationship between perceived *greenwashing* and brand loyalty has been widely documented, empirical findings remain inconsistent. Specifically, while some studies report a significant negative impact of *greenwashing* on loyalty, others find that certain brands are able to maintain customer attachment in the short term or under specific conditions despite facing environmental accusations (Testa *et al*., 2021). This

inconsistency suggests the existence of moderating mechanisms that have not yet been fully explored in current relationship marketing models.

To address this gap, the novelty of this study is distinctly articulated across three strategic dimensions. First, the core breakthrough lies in the reconceptualization of Brand Authenticity. Rather than treating it merely as a conventional variable, the study argues that authenticity functions as a *signal-repair mechanism*, enabling consumers to reinterpret and mitigate the negative impact of *greenwashing* signals. Thereby, the study extends the traditional approach of Signaling Theory—which is inherently unidirectional - into a dynamic framework where negative signals and corrective signals interact to shape consumer responses. Second, the study goes beyond isolated effects by simultaneously integrating serial mediation and *moderated mediation* to provide a most comprehensive explanation of the entire psychological process from perception to behavior. Finally, contextual novelty is established as this model is tested in Hanoi, Vietnam - representing a transitional economy characterized by weak institutional enforcement, an absence of strict regulatory frameworks, and an increasingly high level of skepticism among young consumers toward sustainability claims (Nguyen & Yang, 2023).

By deploying this novel analytical framework, the study directly contributes to three major academic foundations. First, it provides empirical evidence from a transitional economy lacking effective control mechanisms and enforcement for environmental claims, where institutional trust remains limited. Second, the research deepens Signaling Theory by demonstrating the capacity to restore the credibility of the signaling system through authenticity under conditions where environmental signals are distorted by *greenwashing*. Third, it clarifies the mechanism underlying loyalty formation by explaining the transition from negative perception to loyal behavior in the fashion industry—a sector characterized by high ethical and emotional sensitivity. Finally, the findings offer practical managerial implications for firms seeking to build sustainable brands in the Vietnamese market.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Theoretical background

This study integrates two complementary theoretical frameworks - Signaling Theory and Commitment–Trust Theory - to explain consumers' responses to environmental messages.

Signaling Theory serves as the foundational lens for understanding how firms communicate *intangible* attributes (e.g., sustainability) through green signals to reduce information asymmetry (Spence, 1973). When such signals are perceived as lacking credibility (i.e., greenwashing), they create cognitive dissonance and damage brand credibility.

Commitment–Trust Theory provides a framework for analyzing key mediating psychological states. Trust and commitment are not only outcomes of credible signals but also act as the *glue* that sustains long-term loyalty (Morgan & Hunt, 1994).

Integration: The combination of these two theories enables the study to trace the process from consumers' reception and interpretation of signals (Signaling), to subsequent changes in trust and commitment, and ultimately to the formation of loyal behavior within the relationship marketing framework.

2.2 Hypothesis development

2.2.1 Greenwashing perception and relationship outcomes

Greenwashing perception (GWP) reflects the extent to which consumers believe that a firm's environmental claims are exaggerated, misleading, or not supported by actual practices (Delmas & Burbano, 2011). When consumers perceive inconsistencies between sustainability messages and firms' actual behaviors, environmental signals may be interpreted as opportunistic and lacking transparency, triggering consumer skepticism and reducing the perceived credibility of these signals. According to Signaling Theory (Connelly *et al*., 2011), signals that are perceived as inauthentic can erode consumer trust, as they increase uncertainty regarding the firm's true motives (Chen & Chang, 2013;

Khan *et al*., 2023). Prior studies, including prior systematic reviews (de Freitas Netto *et al*., 2020), indicate that greenwashing perception undermines brand trust by violating consumers' expectations of honesty and social responsibility (Testa *et al*., 2021; Zhang *et al*., 2024). This relationship is likely to be particularly critical in emerging markets such as Vietnam, where regulatory frameworks are still evolving and skepticism toward sustainability claims is rapidly increasing (Wang *et al*., 2024).

H1: Greenwashing perception (GWP) negatively affects brand trust (BT).

Beyond its direct impact on trust, greenwashing perception may also weaken the relational bond between consumers and brands. Given that brand trust is a key antecedent of brand commitment, the erosion of trust caused by greenwashing may further diminish consumers' commitment to the brand. Brand commitment (BC) reflects a consumer's desire to maintain a long-term relationship with a brand (Morgan & Hunt, 1994). When firms are perceived to engage in greenwashing, consumers may question their ethical values and goodwill, thereby reducing their willingness to sustain the relationship (Sun *et al*., 2023; Wang *et al*., 2024). This erosion of commitment is likely to be especially pronounced among young consumers in transitional economies, who often rely on brand integrity for identity expression (Nguyen & Yang, 2023).

H2: Greenwashing perception (GWP) negatively affects brand commitment (BC).

Moreover, greenwashing perception (GWP) can diminish brand loyalty (BL), which represents a consumer's tendency to consistently repurchase and support a brand over time (Chaudhuri & Holbrook, 2001). When environmental claims are perceived as deceptive, brand credibility and integrity are compromised, leading to reduced repurchase intentions and advocacy, as consumers may experience feelings of betrayal and moral disapproval (Chen & Chang, 2013; Wang *et al*., 2024).

H3: Greenwashing perception (GWP) negatively affects brand loyalty (BL).

2.2.2 Brand trust, commitment, and loyalty

According to Commitment–Trust Theory, brand trust plays a central role in cultivating long-term relationships between consumers and brands (Morgan & Hunt, 1994). When consumers perceive a brand as honest and reliable, they are more likely to

form stronger relational bonds. Previous studies suggest that trust reduces perceived risk and enhances relationship stability (Garbarino & Johnson, 1999; Chaudhuri & Holbrook, 2001).

H4: Brand trust (BT) positively affects brand commitment (BC).

According to Commitment–Trust Theory, brand trust plays a central role in cultivating long-term relationships between consumers and brands (Morgan & Hunt, 1994). When consumers perceive a brand as honest and reliable, they are more likely to form stronger relational bonds. Previous studies suggest that trust reduces perceived risk and supports relationship stability (Garbarino & Johnson, 1999; Rather, Tehseen & Parrey, 2022).

H5: Brand trust (BT) positively affects brand loyalty (BL).

Furthermore, brand commitment reflects a consumer's enduring attachment to a brand and is often considered a driver of loyal behaviors. Highly committed consumers are more likely to sustain relationships and resist switching to competing brands (Fullerton, 2005). While these direct relationships are well established, their sequential roles in the context of greenwashing perception (GWP) remain underexplored, necessitating a deeper examination within ethical crisis scenarios (Rather, Tehseen & Parrey, 2022).

H6: Brand commitment (BC) positively affects brand loyalty (BL).

2.2.3 Serial mediating role of brand trust and brand commitment

Building on the integration of Signaling Theory and Commitment–Trust Theory, this study proposes a cascading mechanism linking perception to behavior. Specifically, greenwashing perception (GWP) acts as a negative signal that erodes brand trust (BT) by increasing consumer skepticism (Chen & Chang, 2013). According to Morgan and Hunt (1994), trust is a fundamental precursor to commitment; thus, a decline in trust leads to a breakdown in brand commitment (BC) the relational *glue* that sustains continuity. Ultimately, weakened commitment undermines long-term brand loyalty (BL). This serial mediation pathway explains how greenwashing perception (GWP) damages relational assets by sequentially disrupting key psychological constructs, which is supported by

recent empirical evidence on the sequential mediating roles of trust and commitment in marketing ethics (Rather, Tehseen & Parrey, 2022; Khan, Hussain & Naeem, 2023).

H7: Brand trust (BT) and brand commitment (BC) sequentially mediate the relationship between greenwashing perception (GWP) and brand loyalty (BL).

2.2.4 Moderating role of perceived authenticity

Perceived authenticity (AUT) reflects the consistency between a brand's core identity and its actual practices. Drawing on Attribution Theory, authenticity functions as a cognitive filter in consumers' evaluative processes. When a brand is perceived as highly authentic, consumers are more likely to make benevolent attributions. Even when concerns regarding greenwashing perception (GWP) arise, strong authenticity creates a *psychological buffer*, leading consumers to be more likely to interpret inconsistencies as unintentional rather than deliberate deception. As a result, the negative impact on brand trust is attenuated (Morhart *et al*., 2015; Torelli, Balluchi & Lazzini, 2023).

H8: Perceived authenticity (AUT) moderates the relationship between greenwashing perception (GWP) and brand trust (BT), such that the negative effect of GWP on BT is weaker when AUT is high.

Beyond its direct moderating effect on trust, perceived authenticity may also influence the entire mediating mechanism within the model. From an attribution perspective, authenticity shapes how consumers interpret firm motives, thereby influencing not only direct evaluations but also downstream relational processes (Zhang *et al*., 2024). This mitigates the negative impact of greenwashing perception (GWP) across the entire relationship formation process, including the indirect effects transmitted through trust and commitment. In structural equation modeling, this is conceptualized as moderated mediation, where a moderator influences the strength of an indirect effect (Hayes, 2022; Zhang *et al*., 2024).

H9: Perceived authenticity (AUT) moderates the indirect effect of greenwashing perception (GWP) on brand loyalty (BL) through brand trust (BT) and brand commitment (BC), such that the negative indirect effect is weaker when AUT is high.

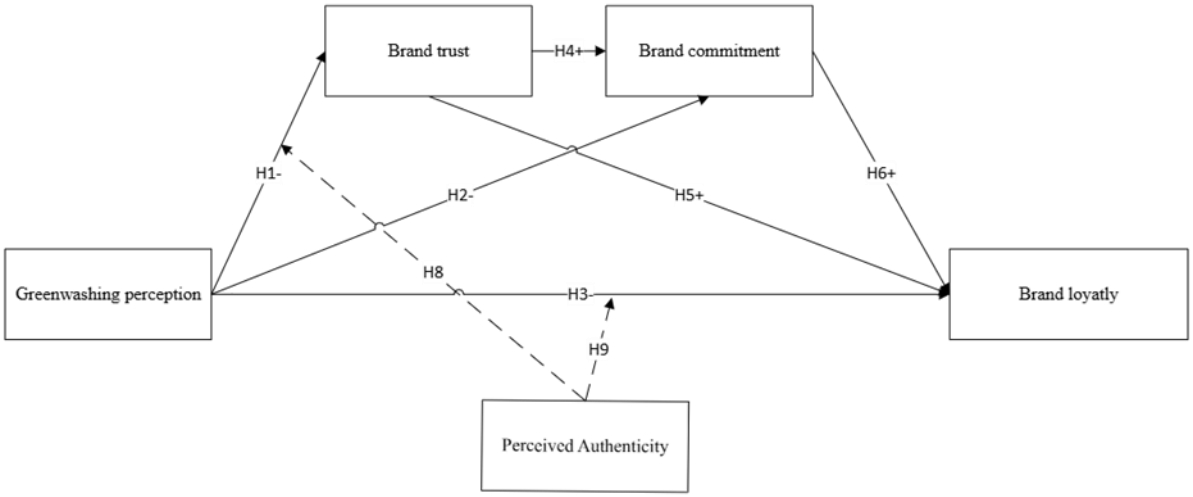
2.3 Research model

Based on the theoretical arguments and proposed hypotheses, this study develops a research model to explain the impact of greenwashing perception on brand loyalty within the context of the fashion industry. Specifically, the model posits that greenwashing perception weakens the consumer–brand relationship by reducing brand trust and brand commitment. In line with Commitment–Trust Theory, trust is expected to foster commitment, and both constructs play critical roles in shaping brand loyalty.

Additionally, the study incorporates perceived authenticity as a moderating variable that may influence how consumers interpret firms' environmental signals. The proposed research model is illustrated in Figure 1.

Figure 1

Proposed Research Model



3 RESEARCH METHODOLOGY

3.1 Research design

This study adopts a mixed-methods approach, combining qualitative and quantitative methods to develop and test the proposed research model. The integration of

these methods enhances the reliability of measurement scales and strengthens the rigor of the research findings (Creswell, 2014).

Prior to the main survey, expert interviews were conducted to refine the theoretical foundation and ensure the contextual relevance of the measurement scales. Specifically, by integrating insights from the literature review with practical perspectives from five experts in marketing and consumer behavior selected through purposive sampling the study aims to better understand how constructs such as greenwashing, brand trust, and brand loyalty are interpreted within the fashion industry. Semi-structured interviews focused on assessing the clarity, relevance, and measurability of observed variables. Based on the feedback obtained, the questionnaire was revised and finalized. As a result, the proposed research model consists of five constructs: Greenwashing Perception (GWP), Brand Trust (BT), Brand Commitment (BC), Perceived Authenticity (AUT), and Brand Loyalty (BL), each measured by five observed items.

Following the expert interviews, the survey questionnaire was further evaluated through a pilot test with a small group of respondents to assess question clarity and overall feasibility before conducting the main survey.

After finalizing the questionnaire, the quantitative phase was implemented via a structured survey to collect data from young consumers with experience in fashion brands. The collected data were used to test the research model and the proposed hypotheses.

3.2 Sampling and data collection

The target population of this study comprises young consumers aged 18 to 30 who are living, studying, or working in Hanoi and have prior experience with fashion brands. This group is selected because young consumers are generally more concerned about environmental and sustainability issues and tend to respond strongly to corporate social and environmental communications.

The study **employs a convenience sampling method**, a form of non-probability sampling, to reach respondents who meet the research criteria. This approach allows for efficient data collection from the target population under constraints of time and resources, and is widely used in consumer behavior research. Data were collected from

an online questionnaire designed using Google Forms and distributed through social media platforms such as Facebook and student community groups.

Regarding sample size, recent studies recommend a minimum of approximately 200 observations for PLS-SEM analysis to ensure estimation reliability and adequate statistical power for testing structural relationships (Hair *et al*., 2017). After data screening and cleaning, **a total of 306 valid responses were obtained**, exceeding the recommended threshold and ensuring sufficient reliability for model analysis.

3.3 Measurement scales

In this study, constructs such as greenwashing perception, brand trust, brand commitment, perceived authenticity, and brand loyalty are inherently abstract. Therefore, these constructs are operationalized using a set of observed variables adapted from previously validated scales.

The measurement items are adopted and refined from prior studies in green marketing and consumer behavior to ensure content validity. The adaptation process was supported by qualitative research and pilot testing to ensure that the items are appropriate for the Vietnamese context and the fashion industry.

The questionnaire was designed using a five-point Likert scale, ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"), to capture respondents' levels of agreement with statements related to the research constructs and to facilitate data analysis.

3.4 Data analysis method

After data collection, the dataset was cleaned, coded, and analyzed using SmartPLS software. The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed research model and hypotheses. PLS-SEM was selected for several reasons. First, the research model involves multiple latent constructs and complex relationships, including mediation and moderation effects. Second, PLS-SEM is suitable for exploratory and predictive research and performs well with relatively small sample sizes. Third, this method does not require strict assumptions

regarding data normality. Therefore, PLS-SEM is considered appropriate for analyzing the proposed model (Hair *et al*., 2019).

The data analysis procedure consists of two main steps. First, the measurement model is evaluated to assess the reliability and validity of the scales, including composite reliability, convergent validity, and discriminant validity. Second, the structural model is assessed to examine the relationships among constructs, including direct effects, mediating effects, and moderating effects. In addition, the bootstrapping technique is employed to test the statistical significance of the estimated coefficients and to evaluate the robustness of the relationships in the model (Efron & Tibshirani, 1993).

3.5 Common method bias

As the data were collected from a single survey, common method bias (CMB) may potentially affect the results. To assess this issue, Harman's single-factor test was conducted. The results indicate that the first factor accounts for less than 50% of the total variance, suggesting that CMB is unlikely to be a serious concern in this study.

Furthermore, variance inflation factor (VIF) values were examined using the full collinearity approach. All VIF values were below the threshold of 3.3, indicating that common method bias does not pose a significant issue in the analysis.

4 RESEARCH RESULTS

4.1 Qualitative findings

The qualitative phase was conducted through in-depth interviews with five experts in the fields of marketing, brand communication, and sustainable marketing to evaluate the suitability of the research model and refine the measurement scales.

The findings indicate a strong consensus among experts that greenwashing practices can erode consumer trust, which in turn negatively affects brand commitment and brand loyalty. In addition, perceived authenticity is identified as a critical factor that helps mitigate the negative impact of greenwashing perception.

A summary of the expert insights is presented in **Table 1**.

Table 1

Summary of Expert Interview Results

Theme	Key Expert Insights	Research Implications
Greenwashing perception	Greenwashing is understood as claims or communication activities that make a product or brand appear more environmentally friendly than it actually is, without sufficient evidence or corresponding actions.	Confirms greenwashing perception as a key construct in the research model.
Manifestations of greenwashing	Commonly appears in vague claims, emphasis on minor environmental attributes, lack of supply chain transparency, or absence of third-party certifications.	Supports the development of measurement items for greenwashing perception.
Impact on brand trust	When detected, greenwashing significantly damages brand trust and the perceived ethical image of the brand, especially among young consumers.	Validates the relationship between greenwashing perception and brand trust.
Building brand trust	Firms should ensure transparency, provide third-party certifications, and disclose environmental data to demonstrate sustainability commitments.	Clarifies the antecedents of brand trust in a sustainable fashion context.
Role of trust in commitment	Trust is considered the foundation for building brand commitment and fostering long-term relationships.	Supports the hypothesis that brand trust positively influences brand commitment.
Drivers of brand loyalty	Positive past experiences, functional benefits, and the brand's ability to transparently address mistakes help sustain loyalty.	Explains the formation mechanism of brand loyalty.
Perceived authenticity	Authenticity is reflected in the consistency between communication and actual practices, transparency, and verifiable evidence.	Confirms perceived authenticity as an appropriate moderating variable.
Moderating role of authenticity	When perceived authenticity is high, consumers tend to evaluate negative information more cautiously.	Supports the moderating role of perceived authenticity in the relationship between greenwashing perception and consumer responses.
Evaluation of the research model	The proposed model—Greenwashing perception → Trust → Commitment → Loyalty, with perceived authenticity as a moderator—is considered appropriate.	Validates the overall conceptual framework of the study.

Source: Compiled by the authors

The qualitative findings further indicate that the constructs included in the research model are appropriate within the context of the fashion industry targeting young consumers. In addition, expert insights helped confirm the relationships among the research variables and refine the measurement scales prior to the quantitative phase.

4.2 Quantitative results

4.2.1 Preliminary scale assessment

Before the main data collection, a pilot test was conducted with 30 participants to evaluate the clarity of the questionnaire and identify potential issues related to wording or expression (Colton & Covert, 2015), thereby ensuring the construct validity of the measurement scales (Shadish *et al*., 2002). The results revealed that some participants had difficulty understanding the term "greenwashing." Therefore, a definition and illustrative examples were added to the questionnaire to enhance clarity.

4.2.2 Descriptive statistics

After data screening, a total of 306 valid responses were retained for analysis. The research model includes one independent variable, two mediating variables, one dependent variable, and one moderating variable, measured by 25 observed items.

According to Hair *et al*. (1998), the minimum sample size should be at least five times the number of observed variables (n = 5 × m). With 25 observed variables, the required minimum sample size is 125. Therefore, the final sample of 306 respondents is considered more than adequate for subsequent analyses.

Table 2

Descriptive statistics of the sample

No.	Factor	Category	Frequency	Percentage (%)
1	Gender	Male	121	39.5%
		Female	170	55.6%

		Other	15	4.9%
2	Age	Under 18	0	0%
		18-22	91	29.7%
		23-25	96	31.4%
		26-30	119	38.9%
		Above 30	0	0%
3	Occupation	Student	77	25.2%
		Office worker	80	26.1%
		Freelancer	67	21.9%
		Self-employed	69	22.5%
		Other	13	4.2%
4	Average income	Below 5 million VND	66	21.6%
		5–10 million VND	51	16.7%
		10 - 15 million VND	118	38.6%
		Above 15 million VND	71	23.2%

Source: Authors' survey data

The sample profile indicates a predominance of female respondents (55.6%), which is consistent with the characteristics of the fashion industry. All participants fall within the 18–30 age range, with the 26–30 group accounting for the highest proportion, ensuring alignment with the target population of the study.

Respondents represent diverse occupations and possess relatively moderate to high income levels, suggesting both purchasing power in fashion consumption and an awareness of brand-related values. Overall, the sample demonstrates good representativeness and is appropriate for the research objectives.

4.2.3 Evaluation of the research model

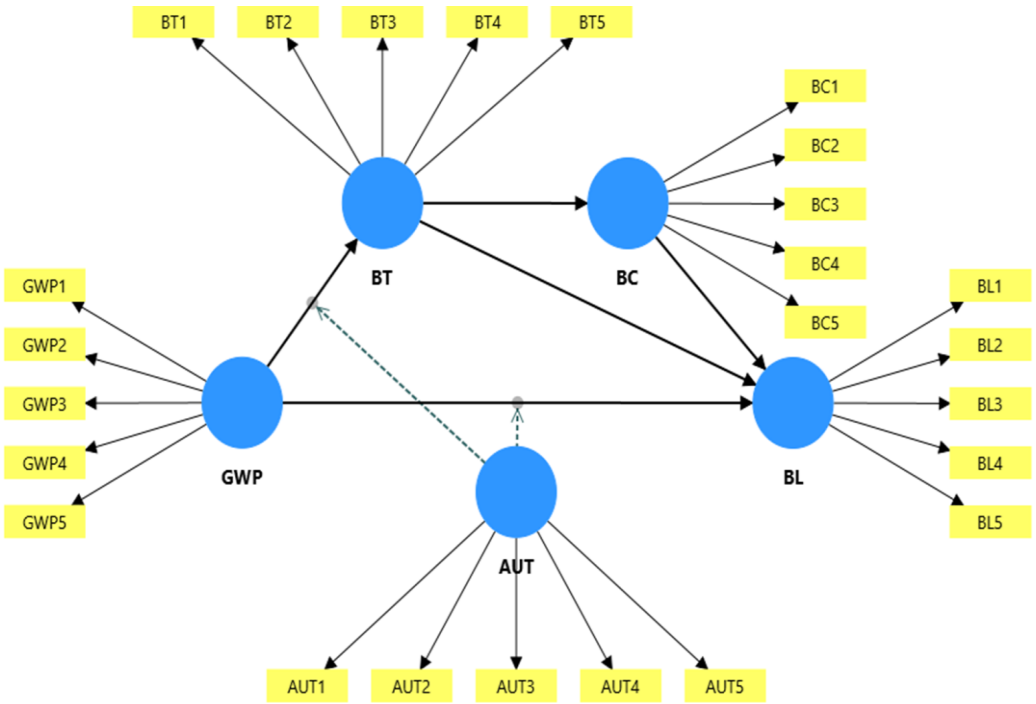
All constructs in the study were measured using a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). To ensure content validity, the measurement scales were adapted from prior studies (Trochim *et al*., 2016). Specifically,

the scales for greenwashing perception, brand trust, brand commitment, brand loyalty, and perceived authenticity were refined to fit the context of young consumers in the fashion industry.

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the support of SmartPLS software. The analysis procedure consisted of two stages: (1) evaluation of the measurement model through reliability and validity indicators, including Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), and Heterotrait–Monotrait ratio (HTMT); and (2) evaluation of the structural model using the bootstrapping technique to test the proposed hypotheses, along with examining R^2, f^2, and Q^2 values to assess the explanatory and predictive power of the model.

Figure 2

Research Model Implemented in SmartPLS 4



4.2.3.1 Measurement model assessment

The quality of the measurement scales was evaluated using Outer Loadings, Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE)

within the PLS-SEM framework. According to the recommendations of Hair *et al*. (2019), indicator loadings greater than 0.7, Cronbach's Alpha and CR values above 0.7, and AVE values exceeding 0.5 indicate acceptable reliability and convergent validity.

The results presented in **Table 3** show that all constructs meet the recommended thresholds. Specifically, all outer loadings exceed 0.7, confirming indicator reliability. In addition, Cronbach's Alpha and Composite Reliability values are above 0.7, demonstrating strong internal consistency. The AVE values for all constructs are greater than 0.5, indicating satisfactory convergent validity.

Table 3

Measurement Model Assessment Results

Construct	Outer Loading (min–max)	Cronbach's Alpha	CR	AVE	HTMT (max)
AUT	0.745 – 0.827	0.841	0.887	0.611	0.779
BC	0.748 – 0.801	0.847	0.891	0.621	0.862
BL	0.735 – 0.811	0.843	0.888	0.614	0.772
BT	0.706 – 0.838	0.853	0.895	0.630	0.862
GWP	0.704 – 0.798	0.846	0.890	0.618	0.636

The results indicate that all observed variables have outer loadings exceeding 0.7; therefore, no items were removed from the model. In addition, all constructs demonstrate satisfactory reliability and convergent validity, with Cronbach's Alpha ranging from 0.841 to 0.853, Composite Reliability (CR) from 0.887 to 0.895, and Average Variance Extracted (AVE) from 0.611 to 0.630. These findings suggest that the latent constructs adequately explain the variance of their indicators and meet the convergent validity criteria proposed by Fornell and Larcker (1981).

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The results show that the square root of AVE for each construct is greater than its correlations with other constructs, and all HTMT values are below the threshold of 0.90. Thus, discriminant validity is established, confirming that the constructs are empirically distinct.

4.2.3.2 Structural model assessment

After confirming the reliability and validity of the measurement model, the structural model was evaluated to test the proposed hypotheses. The bootstrapping method with 5,000 resamples was employed to estimate the stability and significance of the path coefficients.

Multicollinearity Assessment: Before testing the structural relationships, multicollinearity was examined using the Variance Inflation Factor (VIF). According to Hair *et al*. (2019), VIF values below 3 indicate no serious multicollinearity issues. The results show that VIF values range from 1.000 to 2.976, all below the recommended threshold, confirming the absence of multicollinearity concerns in the model.

Hypothesis Testing: The results of the path coefficient analysis are presented in **Table 4**.

Table 4

Path Coefficient Results

Relationship	β	STDEV	T-value	P-value
AUT → BL	0.302	0.040	7.594	0.000
AUT → BT	0.549	0.037	15.005	0.000
AUT × GWP → BL	0.035	0.033	1.059	0.290
AUT × GWP → BT	0.316	0.037	8.421	0.000
BC → BL	0.377	0.055	6.837	0.000
BT → BC	0.734	0.024	30.497	0.000
BT → BL	0.309	0.057	5.392	0.000
GWP → BL	-0.323	0.043	7.443	0.000
GWP-> BC	-0.154	0.042	3.667	0.000
GWP → BT	-0.384	0.035	10.886	0.000

The findings reveal that most hypothesized relationships are statistically significant. Specifically, greenwashing perception (GWP) has a significant negative

effect on brand trust (BT) (β = -0.384, p < 0.001), brand commitment (BC) (β = -0.154, p < 0.001), and brand loyalty (BL) (β = -0.323, p < 0.001), confirming its detrimental impact on consumer–brand relationships.

In contrast, perceived authenticity (AUT) exerts a strong positive effect on brand trust (β = 0.549, p < 0.001) and brand loyalty (β = 0.302, p < 0.001), highlighting its critical role in reinforcing positive consumer perceptions. Additionally, brand trust positively influences both brand commitment (β = 0.734, p < 0.001) and brand loyalty (β = 0.309, p < 0.001), while brand commitment also contributes to enhancing brand loyalty (β = 0.377, p < 0.001). These results support the sequential mechanism from trust → commitment → loyalty.

Regarding the moderating effects, the interaction between perceived authenticity and greenwashing perception (AUT × GWP) has a positive and statistically significant effect on brand trust (β = 0.316, p < 0.001), indicating that authenticity mitigates the negative impact of greenwashing on trust. However, the moderating effect of AUT × GWP on brand loyalty is not statistically significant (β = 0.035, p = 0.290), suggesting that this buffering role does not directly extend to loyalty.

Overall, the findings provide strong empirical support for the proposed model, except for the hypothesis regarding the moderating effect on brand loyalty.

Moderating Effects

Table 5

Results of Moderation Analysis

Moderating Relationship	β	T-value	P-value
AUT × GWP → BT	0.316	8.421	0.000
AUT × GWP → BL	0.035	1.059	0.290

The moderation analysis results provide important insights into the role of perceived authenticity (AUT). Specifically, the interaction term between AUT and greenwashing perception (GWP) has a positive and statistically significant effect on brand trust (BT) (β = 0.316, p < 0.001). This finding suggests that perceived authenticity acts as a "buffering mechanism," mitigating the negative impact of greenwashing on trust.

In other words, when consumers perceive a brand as authentic and transparent, they are less adversely affected by suspicions of greenwashing.

In contrast, the moderating effect of AUT on the relationship between GWP and brand loyalty (BL) is not statistically significant (β = 0.035, p = 0.290). This indicates that perceived authenticity alone is not strong enough to directly offset the negative impact of greenwashing on loyalty. A plausible explanation is that brand loyalty is a long-term outcome shaped by accumulated experiences, making it less susceptible to the influence of a single moderating factor. Instead, the effect of authenticity on loyalty is more likely to occur indirectly through mediating variables such as brand trust and brand commitment.

Explanatory Power of the Model

Table 6

Coefficient of Determination (R^2)

Dependent Variable	R^2	R^2 adjusted
BC	0.539	0.538
BL	0.638	0.633
BT	0.548	0.545

The results demonstrate that the model has substantial explanatory power for the dependent variables. Specifically, the model explains 63.8% of the variance in brand loyalty (BL), 54.8% in brand trust (BT), and 53.9% in brand commitment (BC). These values indicate that the proposed model provides a strong explanation of the key relationship marketing outcomes within the research context.

Mediation Analysis

Table 7

Indirect Effects Results

Relationship	β	T-value	P-value
GWP → BT → BC	-0.282	9.797	0.000
GWP → BT → BL	-0.118	4.532	0.000

GWP → BT → BC → BL	-0.106	5.442	0.000
BT → BC → BL	0.277	6.542	0.000

The results of the indirect effects analysis indicate that brand trust (BT) and brand commitment (BC) play significant mediating roles in the relationship between greenwashing perception (GWP) and brand loyalty (BL).

Specifically, greenwashing perception negatively affects brand trust, which in turn reduces brand loyalty through the mediating pathway of BT ($\beta = -0.118$; $p < 0.001$). In addition, the findings reveal a significant serial mediation mechanism, whereby GWP influences BL through the sequential pathway BT → BC ($\beta = -0.106$; $p < 0.001$). This suggests that the erosion of trust caused by greenwashing further weakens brand commitment, ultimately leading to a decline in consumer loyalty.

Furthermore, the indirect relationship between BT and BL through BC is also statistically significant ($\beta = 0.277$; $p < 0.001$), confirming the role of brand commitment as a key transmission mechanism through which trust is translated into loyal behavior.

Notably, when considering both direct and indirect effects simultaneously, the results show that both the direct effect (GWP → BL: $\beta = -0.323$; $p < 0.001$) and the indirect effects are negative. This indicates that greenwashing perception not only directly undermines brand loyalty but also exerts additional negative influence indirectly by disrupting the foundational components of the consumer–brand relationship.

Therefore, it can be concluded that brand trust and brand commitment serve as complementary mediators in the relationship between greenwashing perception and brand loyalty (Zhao *et al*., 2010). In other words, the detrimental impact of greenwashing is amplified through these psychological mechanisms rather than being mitigated.

Summary of Hypothesis Testing

Table 8

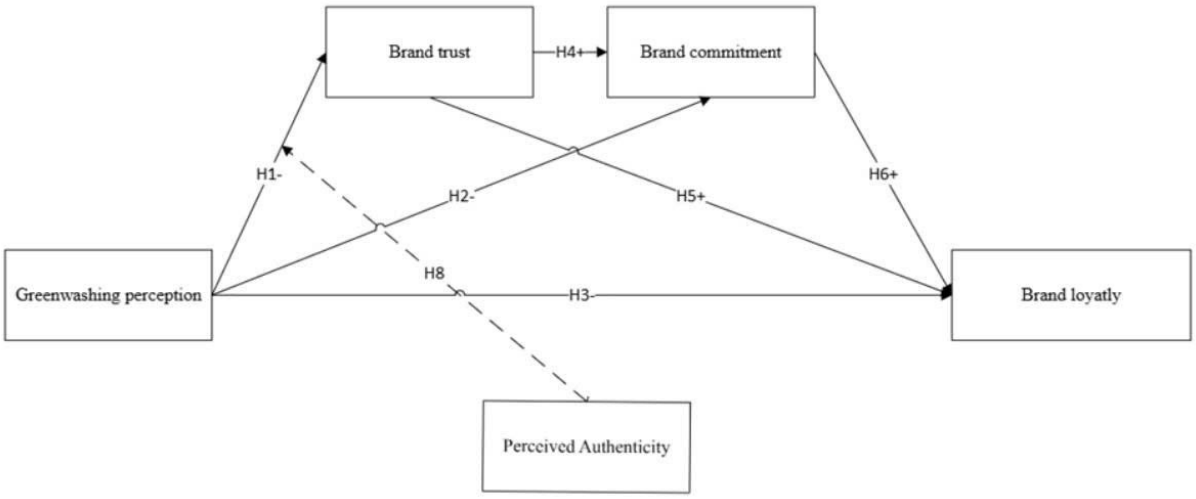
Summary of Hypothesis Testing Results

Hypothesis	Relationship	Result
H1	GWP → BT	Supported
H2	GWP → BC	Supported

H3	GWP → BL	Supported
H4	BT → BC	Supported
H5	BT → BL	Supported
H6	BC → BL	Supported
H7	GWP → BT → BC → BL	Supported
H8	AUT × GWP → BT	Supported
H9	AUT × GWP → BL	Not supported

Figure 3

Final Model



5 DISCUSSION AND IMPLICATIONS

5.1 Discussion of findings

The empirical results confirm that greenwashing perception has a direct negative impact on brand trust, brand commitment, and brand loyalty. This finding is consistent with recent studies on greenwashing in sustainable consumption contexts (Torelli, Balluchi, & Lazzini, 2023; Zhang *et al*., 2024), while extending the theoretical boundary by demonstrating that, in an emerging market such as Vietnam, the consequences of greenwashing go beyond cognitive skepticism and disrupt the entire chain of brand

relationships in the fashion industry. This reflects a shift in young consumers' perceptions of environmental communication.

At the same time, the study reaffirms the foundational role of brand trust in fostering commitment and loyalty, in line with Commitment–Trust Theory (Morgan & Hunt, 1994). A key contribution lies in confirming the serial mediation mechanism: the decline in loyalty caused by greenwashing is the result of a gradual erosion of trust, which subsequently weakens relational commitment (Chaudhuri & Holbrook, 2001).

Regarding moderation effects, the results show that perceived authenticity significantly reduces the negative impact of greenwashing on brand trust (Morhart *et al*., 2015). However, an important finding is that authenticity does not directly moderate the relationship between greenwashing and brand loyalty (rejecting H9). This may be explained by the fact that loyalty is a long-term and complex behavioral outcome; authenticity primarily operates as a buffering mechanism at the cognitive level (trust). To sustain loyalty, authenticity alone is insufficient-firms must also rebuild commitment through tangible actions.

5.2 Theoretical implications

This study offers several important contributions to the relationship marketing literature in the context of the green economy.

First, it extends Signaling Theory by demonstrating that greenwashing functions as a form of negative signal noise, thereby reducing the informational value and credibility of environmental claims. More importantly, the findings identify brand authenticity as a "corrective signal" that partially restores consumer trust under conditions of information asymmetry.

In addition, the study advances Commitment–Trust Theory by providing a more nuanced understanding of the role of commitment in the formation of brand loyalty. Unlike prior research that primarily considers commitment as a relational safeguard, this study shows that commitment acts as a transmitting mechanism through which trust is converted into loyalty. This finding addresses an important research gap by highlighting that commitment not only emerges as a consequence of trust but also mediates the transmission of negative effects in ethically sensitive contexts such as greenwashing.

Furthermore, the study provides empirical support for a moderated mediation framework, in which perceived authenticity moderates the cognitive stage represented by trust, but does not directly influence behavioral outcomes such as loyalty. This finding helps clarify the boundary conditions of key psychological constructs and refines the understanding of how consumers process information and make decisions in complex ethical contexts.

Finally, the study contributes empirical evidence from an emerging market context, specifically Vietnam, where consumption norms and regulatory frameworks for green marketing are still evolving. However, the results suggest that these relationships may vary depending on consumers' level of environmental concern, indicating a potential boundary condition that should be further examined in future research.

5.3 Managerial implications

Based on the regression results, the study proposes several evidence-based managerial recommendations.

Caution in Sustainability Communication: Given that greenwashing perception has the strongest negative impact on brand trust ($\beta = -0.384$, $p < 0.001$), fashion brands should avoid vague environmental claims. Communication strategies should shift from quantity (more messages) to quality (verifiable messages), meaning that firms need to prioritize clear, specific, and evidence-based content to enhance credibility and minimize consumer skepticism.

Transparency through Third-Party Certifications: Since trust is the strongest driver of commitment ($\beta = 0.734$, $p < 0.001$), firms should enhance transparency in their supply chains through third-party certifications such as OEKO-TEX or GOTS. These certifications provide credible evidence of genuine sustainability efforts and help reduce skepticism regarding greenwashing, while also reinforcing consumer confidence and strengthening long-term commitment to the brand.

Integrating Authenticity as a Buffering Mechanism: Managers should ensure consistency between core brand values and actual practices. High perceived authenticity creates a tolerance space among consumers, reducing negative attributions when

unexpected communication risks arise, thereby helping brands maintain trust and sustain loyalty even in the presence of potential reputational challenges.

5.4 Limitations and future research directions

First, the use of convenience sampling focused on young consumers in Hanoi may limit the generalizability of the findings. Future studies should expand the sampling frame to other cities or conduct cross-cultural comparisons across countries.

Second, the cross-sectional research design does not capture the dynamic nature of consumer behavior over time. Longitudinal studies are recommended to strengthen causal inferences.

Finally, the research model can be extended by incorporating additional control or moderating variables such as environmental knowledge or price sensitivity, providing a more comprehensive perspective on green consumption behavior in the fashion industry.

6 CONCLUSION

This study sheds light on the consequences of greenwashing perception on the core components of brand relationships in Vietnam's fashion industry. The empirical findings confirm that greenwashing perception negatively affects brand trust, triggering a cascading effect that weakens both commitment and brand loyalty. This demonstrates that when consumers detect inconsistencies between environmental claims and actual practices, the psychological bond between them and the brand is significantly damaged.

Importantly, the study identifies the moderating role of perceived authenticity, showing that an authentic brand image can function as a risk-buffering mechanism, alleviating the erosion of trust when greenwashing concerns arise.

From a theoretical perspective, this research contributes to sustainable marketing literature by integrating perceived authenticity as a moderating variable within behavioral models in emerging markets. It extends the understanding of brand relationships by explaining how consumer skepticism translates into loyalty breakdown through the mediating roles of trust and commitment.

From a practical standpoint, the findings serve as a warning for fashion companies pursuing sustainability strategies. To maintain and develop long-term loyalty, firms must go beyond superficial promotional messages. Instead, transparency in supply chains, credible environmental certifications, and consistency between core values and actual practices are critical. Building an authentic brand not only protects firms against accusations of greenwashing but also serves as a strategic asset for long-term competitive advantage.

In conclusion, as consumers become increasingly sensitive to environmental issues, transparency and authenticity are no longer optional ethical considerations but essential elements of effective brand management. Only genuine sustainability efforts, reinforced by honest communication, can enable fashion brands to survive and thrive in the minds of consumers in the Vietnamese market.

REFERENCES

Aaker, D. A. (1991) Managing brand equity. New York: Free Press.

Atkinson, L. and Kim, Y. (2015) I drank it anyway: The effect of anomalous brand behavior on consumer responses, *Journal of Consumer Psychology*, 25(1), pp. 46–57.

Beverland, M. B. (2005) Crafting brand authenticity: The case of luxury wines, *Journal of Management Studies*, 42(5), pp. 1003–1029.

Bick, R., Halsey, E. and Ekenga, C. C. (2022) The global environmental injustice of fast fashion, *Environmental Health*, 21(1), pp. 1–4.

Brown, T. J. and Dacin, P. A. (1997) The company and the product: Corporate associations and consumer product responses, *Journal of Marketing*, 61(1), pp. 68–84.

Bruhn, M., Schoenmueller, V., Schäfer, D. B. and Heinrich, D. (2012) Brand authenticity: Towards a deeper understanding of its conceptualization and measurement, *Advances in Consumer Research*, 40, pp. 567–576.

Carroll, A. B. (1991) The pyramid of corporate social responsibility, *Business Horizons*, 34(4), pp. 39–48.

Chaudhuri, A. and Holbrook, M. B. (2001) The chain of effects from brand trust and brand affect to brand performance, *Journal of Marketing*, 65(2), pp. 81–93.

Chen, Y. S. (2010) The drivers of green brand equity: Green brand image, green satisfaction, and green trust, *Journal of Business Ethics*, 93(2), pp. 307–319.

Chen, Y. S. and Chang, C. H. (2013) Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk, *Journal of Business Ethics*, 114(3), pp. 489–500.

Connelly, B. L., Certo, S. T., Ireland, R. D. and Reutzel, C. R. (2011) Signaling theory: A review and assessment, *Academy of Management Review*, 36(1), pp. 39–67.

Creswell, J. W. (2014) Research design: Qualitative, quantitative, and mixed methods approaches. 4th ed. Thousand Oaks, CA: Sage.

de Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B. and Soares, G. R. L. (2020) Concepts and forms of greenwashing, *Environmental Sciences Europe*, 32(1), pp. 1–12.

Delgado-Ballester, E. (2004) Applicability of a brand trust scale across product categories, *Journal of Product & Brand Management*, 13(2), pp. 117–126.

Delmas, M. A. and Burbano, V. C. (2011) The drivers of greenwashing, *California Management Review*, 54(1), pp. 64–87.

Dick, A. S. and Basu, K. (1994) Customer loyalty: Toward an integrated conceptual framework, *Journal of the Academy of Marketing Science*, 22(2), pp. 99–113.

Fornell, C. and Larcker, D. F. (1981) Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, 18(1), pp. 39–50.

Fullerton, G. (2005) The impact of brand commitment on loyalty to retail service brands, *Canadian Journal of Administrative Sciences*, 22(2), pp. 97–110.

Garbarino, E. and Johnson, M. S. (1999) The different roles of satisfaction, trust, and commitment in customer relationships, *Journal of Marketing*, 63(2), pp. 70–87.

Grayson, K. and Martinec, R. (2004) Consumer perceptions of iconicity and indexicality and their influence on assessments of authentic market offerings, *Journal of Consumer Research*, 31(2), pp. 296–312.

Hair, J. F., Hult, G. T. M., Ringle, C. M. and Sarstedt, M. (2017) A primer on partial least squares structural equation modeling (PLS-SEM). 2nd ed. Los Angeles: Sage.

Hair, J. F., Risher, J. J., Sarstedt, M. and Ringle, C. M. (2019) When to use and how to report the results of PLS-SEM, *European Business Review*, 31(1), pp. 2–24.

Hayes, A. F. (2018) Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. 2nd ed. New York: Guilford Press.

Henninger, C. E., Alevizou, P. J. and Oates, C. J. (2016) What is sustainable fashion?, *Journal of Fashion Marketing and Management*, 20(4), pp. 400–416.

Henseler, J., Ringle, C. M. and Sarstedt, M. (2015) A new criterion for assessing discriminant validity in variance-based structural equation modeling, *Journal of the Academy of Marketing Science*, 43(1), pp. 115–135.

Jung, J., Kim, S. J. and Kim, K. H. (2020) Sustainable marketing activities and brand loyalty, *Journal of Business Research*, 120, pp. 294–301.

Khan, M., Hussain, M. and Naeem, M. A. (2023) Greenwashing and consumer trust, *Journal of Business Research*, 158, p. 113645.

Kock, N. (2015) Common method bias in PLS-SEM, *International Journal of e-Collaboration*, 11(4), pp. 1–10.

Lyon, T. P. and Montgomery, A. W. (2015) The means and end of greenwash, *Organization & Environment*, 28(2), pp. 223–249.

Morgan, R. M. and Hunt, S. D. (1994) The commitment-trust theory of relationship marketing, *Journal of Marketing*, 58(3), pp. 20–38.

Morhart, F. M., Malär, L., Guèvremont, A., Girardin, F. and Grohmann, B. (2015) Brand authenticity, *Journal of Consumer Psychology*, 25(2), pp. 200–218.

Napoli, J., Dickinson, S. J., Beverland, M. B. and Farrelly, F. (2014) Measuring brand authenticity, *Journal of Business Research*, 67(6), pp. 1090–1098.

Nguyen, T. T. and Yang, Z. (2023) Sustainable fashion consumption among Gen Z, *Journal of Cleaner Production*, 415, p. 137800.

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T. and Gwilt, A. (2020) The environmental price of fast fashion, *Nature Reviews Earth & Environment*, 1(4), pp. 189–200.

Nyilasy, G., Gangadharbatla, H. and Paladino, A. (2014) Perceived greenwashing, *Journal of Business Research*, 67(7), pp. 176–184.

Oliver, R. L. (1999) Whence consumer loyalty?, *Journal of Marketing*, 63(4), pp. 33–44.

Palmatier, R. W., Dant, R. P., Grewal, D. and Evans, K. R. (2006) Relationship marketing effectiveness, *Journal of Marketing*, 70(4), pp. 136–153.

Parguel, B., Benoît-Moreau, F. and Larceneux, F. (2015) Sustainability ratings and greenwashing, *Journal of Business Research*, 68(3), pp. 499–507.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. and Podsakoff, N. P. (2003) Common method biases, *Journal of Applied Psychology*, 88(5), pp. 879–903.

Spence, M. (1973) Job market signaling, *The Quarterly Journal of Economics*, 87(3), pp. 355–374.

Sun, Y., Liu, N. and Zhao, M. (2023) Greenwashing and consumer behavior, *Journal of Cleaner Production*, 385, p. 135716.

Tajfel, H. and Turner, J. C. (1979) An integrative theory of intergroup conflict. In: W. G. Austin and S. Worchel, eds. The social psychology of intergroup relations. Monterey, CA: Brooks/Cole, pp. 33–47.

Testa, F., Iraldo, F., Vaccari, A. and Ferrari, E. (2021) The effect of greenwashing, *Journal of Cleaner Production*, 290, p. 125740.

Torelli, R., Balluchi, F. and Lazzini, A. (2023) Greenwashing and sustainability communication, *Journal of Cleaner Production*, 405, p. 136933.

Wang, H., Li, J., Chen, Y. and Zhang, Z. (2024) Greenwashing and brand loyalty, *International Journal of Consumer Studies*, 48(2), e12999.

White, K., Habib, R. and Hardisty, D. (2019) Sustainable consumer behavior, *Journal of Marketing*, 83(3), pp. 22–49.

Zhang, L., Wang, Y., Wu, M. and Liu, S. (2024) Greenwashing and consumer responses, *Journal of Business Ethics*, 189(1), pp. 115–132.

Zhao, X., Lynch Jr., J. G. and Chen, Q. (2010) Mediation analysis, *Journal of Consumer Research*, 37(2), pp. 197–206.

Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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