

The Effort Signal: How Imperfect Environmental Advertising Cultivates Brand Authenticity Among Digital Natives

Abstract

This study challenges the prevailing negative disconfirmation paradigm in environmental advertising, which posits that any perceived discrepancy between green claims and reality inevitably erodes brand equity. Focusing on Digital Natives (Generations Y and Z)—a cohort characterized by high skepticism toward corporate hypocrisy yet a deep desire for ethical engagement—we investigate the cognitive mechanisms through which they process environmental messaging. Utilizing Bayesian path analysis on a sample of 311 U.S. consumers to address high inter-construct correlations, the findings reveal a theoretical anomaly termed the Greenwashing Paradox. Contrary to conventional wisdom, perceived greenwashing—interpreted here as imperfect or exaggerated advertising signaling—exhibits a significant positive influence on both brand authenticity and customer satisfaction. We propose the concept of signaling tolerance, arguing that for younger consumers, the visibility of a brand's environmental effort serves as a positive heuristic of engagement and modernity, outweighing the perceived lack of informational precision. Furthermore, the results decouple brand authenticity from satisfaction, demonstrating that they operate as independent, parallel mediators driving brand loyalty and price premium. These findings offer critical implications for advertising strategy, suggesting that in the experience economy, the communicative visibility of effort may be more strategically valuable than the accuracy of silence.

Keywords: Environmental Advertising; Greenwashing; Elaboration Likelihood Model; Brand Authenticity; Signaling Theory; Generation Y and Z; Bayesian Analysis; Signaling Tolerance

1. Introduction

In the contemporary experience economy, environmental responsibility has transcended its status as a niche differentiator to become a dominant strategic imperative in global brand communications (Leonidou et al., 2011). This shift is particularly pronounced in the advertising strategies of lifestyle-oriented brands, which aggressively market eco-friendly initiatives to align with the core values of Generations Y and Z. These digital-native cohorts prioritize ethical consumption and increasingly demonstrate a willingness to pay price premiums for brands that signal environmental stewardship through their advertising narratives (Francis & Hoefel, 2018; Kang et al., 2012).

However, the proliferation of green advertising claims has catalyzed a parallel

crisis of trust: greenwashing. Defined as the communicative practice of misleading consumers regarding a firm's actual environmental performance (Delmas & Burbano, 2011; TerraChoice, 2010), greenwashing is conventionally theorized as a destructive force in advertising. Existing literature, predominantly grounded in the negative disconfirmation paradigm (Oliver, 1980), posits that when consumers perceive a discrepancy between an advertising claim and the brand's factual impact, they punish the firm through increased skepticism, reduced loyalty, and negative word-of-mouth (Chen & Chang, 2013; Nyilasy et al., 2014).

Recent advertising research reinforces these negative effects. Schmuck et al. (2018) demonstrated through the Affect-Reason-Involvement (ARI) framework that both verbal greenwashing claims (false or vague statements) and visual executional greenwashing (nature imagery unrelated to product benefits) harm brand attitudes through distinct pathways—rational skepticism for verbal claims and disrupted affective processing for visual cues. Neureiter and Matthes (2023) found that abstract environmental compensation claims trigger greater perceived greenwashing and lower purchase intentions than concrete, verifiable claims. Matthes and Wonneberger (2014) showed that green consumers exhibit particularly high skepticism toward environmental advertising, creating a paradox where the most environmentally concerned consumers are least receptive to green advertising appeals.

Yet this binary view of advertising efficacy—where accurate signals build trust and exaggerated signals destroy it—may fail to capture the nuanced processing mechanisms of younger, hyper-connected consumers. Generations Y and Z operate in a media-saturated landscape where perfect authenticity is increasingly viewed as a corporate myth (Parment, 2013). For these consumers, the mere presence of an environmental signal in advertising, even if perceived as imperfect or slightly exaggerated, may be heuristically processed as more favorable than corporate silence.

This research identifies and empirically tests a theoretical anomaly we term the Greenwashing Paradox. Under the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986), digitally native consumers facing unprecedented information overload (6,000-10,000 advertising messages daily) should default to peripheral route processing even for personally relevant topics. In peripheral processing, the presence of environmental messaging—regardless of specificity—can function as a positive heuristic cue signaling brand modernity and cultural awareness. Utilizing the lifestyle hospitality sector—a domain predicated on identity signaling and high information asymmetry—as a strategic context, we investigate whether traditional advertising punishment mechanisms hold true for younger generations.

Contrary to established frameworks, our data from 311 U.S. consumers reveals a counterintuitive phenomenon: perceived greenwashing can, under specific conditions, function as a positive heuristic that enhances perceptions of brand authenticity and customer satisfaction. We propose that this paradox can be explained by shifting the theoretical lens from deception detection to effort signal-

ing (Spence, 1973). For Generations Y and Z, green advertising messages—even those perceived as imperfect—may function as indicators of brand modernity and cultural engagement. By employing Bayesian path analysis to address high inter-construct correlations, this study explores how these signals are re-routed through parallel mediating mechanisms: Brand Authenticity (identity-based evaluation) and Customer Satisfaction (experience-based evaluation).

By doing so, this research makes three critical contributions to advertising and business research: (1) It challenges the universal applicability of greenwashing as a negative antecedent, introducing the concept of Signaling Tolerance in advertising communications; (2) It decouples the construct of authenticity from satisfaction, demonstrating that for younger consumers, identity-based and experience-based evaluations operate as independent drivers of financial outcomes; (3) It extends the Elaboration Likelihood Model by demonstrating that environmental concern alone is insufficient to trigger central route processing in information-saturated environments, and offers actionable strategies for advertising practitioners navigating the validity versus visibility trade-off, suggesting that in modern advertising, the visibility of intent may outweigh the precision of the claim.

2. Literature Review and Hypothesis Development

2.1 Theoretical Framework: Signaling and Attribution in Advertising

The modern marketplace is characterized by fundamental information asymmetry, particularly regarding credence attributes like sustainability, which consumers cannot verify even after purchase (Akerlof, 1970). To bridge this gap, brands utilize Signaling Theory (Spence, 1973), deploying advertising claims—such as eco-labels and sustainability narratives—as proxies for unobservable quality (Connelly et al., 2011; Kirmani & Rao, 2000). For Generations Y and Z, who prioritize ethical consumption, these advertising signals are primary determinants of brand evaluation.

However, the interpretation of these signals is governed by Attribution Theory (Heider, 1958; Kelley, 1967), which posits that consumers actively deduce the underlying motives behind an advertising claim. When environmental advertising initiatives are attributed to genuine environmental concern (intrinsic motivation), they enhance brand equity and trust (Ellen et al., 2006). Conversely, when discrepancies arise between advertising claims and observable brand behavior, consumers attribute communications to opportunistic profit-seeking (extrinsic motivation), triggering green skepticism—a generalized distrust of environmental advertising (Mohr et al., 1998).

This study challenges this binary attribution by proposing that for digital

natives, the intent to signal environmental engagement may trigger a different attributional path—one of modernity and cultural awareness rather than pure deception. In information-saturated environments where perfect authenticity is viewed skeptically, the effort to advertise environmental values—even imperfectly—may be valued over silence.

2.2 The Elaboration Likelihood Model and Peripheral Processing

The Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) provides a foundational framework for understanding how consumers process advertising messages. ELM specifies two routes to persuasion: the central route, characterized by careful, deliberative processing of message arguments, and the peripheral route, characterized by reliance on simple heuristic cues. Route selection depends on motivation (relevance, involvement) and ability (knowledge, cognitive resources) to process information (Petty et al., 1983).

Traditional applications of ELM to environmental advertising assume that environmentally concerned consumers exhibit high involvement and thus engage in central route processing, carefully scrutinizing claim specificity and verifiability (Chang, 2011). However, this conventional application may not hold for digitally native Generations Y and Z. Despite expressing high environmental concern, these cohorts face unprecedented advertising exposure—estimates suggest 6,000-10,000 advertising messages daily (Johnson, 2014). This information overload creates a paradoxical situation: high concern (motivation) coupled with limited processing capacity (ability) for any single message.

Under ELM, this combination should trigger peripheral route processing even for personally relevant topics. We propose that when digital natives process environmental advertising peripherally, the presence of sustainability messaging—regardless of specificity—functions as a simple positive cue. The peripheral processing question becomes: Does this brand acknowledge environmental issues as culturally important? Answering yes (evidenced by any environmental advertising, even vague) provides the peripheral cue that the brand is contemporary and culturally engaged. Under peripheral processing logic, advertising presence—the effort to communicate environmental awareness—substitutes for advertising accuracy as the primary signal.

2.3 Perceived Greenwashing and the Paradox of Brand Authenticity

Greenwashing in advertising is defined as making vague, unsubstantiated, or misleading environmental claims (Delmas & Burbano, 2011). TerraChoice (2010) identified seven archetypical sins of greenwashing, among which vagueness—making broad, unsubstantiated claims like “eco-friendly” or “sustainable” without specific commitments—represents the most prevalent form in contemporary advertising practice (Baum, 2012).

Brand Authenticity—the extent to which consumers perceive a brand as faithful to itself, genuine in its commitments, and consistent in its values (Napoli et al., 2014)—represents a paramount asset for lifestyle brands. Authenticity comprises dimensions of genuineness, transparency, and consistency (Morhart et al., 2015), and research demonstrates strong links between authenticity and both attitudinal loyalty and price premiums (Fritz et al., 2017).

Traditional attribution theory predicts that perceived greenwashing fundamentally undermines brand authenticity. When consumers detect misalignment between environmental advertising and actual brand practices, the resulting skepticism degrades perceptions of genuineness, transparency, and consistency (Alhouthi et al., 2016; Becker-Olsen et al., 2006). However, integrating ELM peripheral processing with signaling theory suggests an alternative prediction. In the identity-driven lifestyle sector, if digital natives process environmental advertising peripherally, using advertising presence as a heuristic cue of brand modernity, then perceived greenwashing may actually enhance authenticity perceptions. A brand that visibly attempts to communicate environmental values—even imperfectly—demonstrates cultural awareness and willingness to engage with contemporary sustainability discourse, signaling authentic alignment with the values of the target cohort.

H1a: Perceived greenwashing positively influences brand authenticity among Generation Y and Z consumers (testing the Greenwashing Paradox).

2.4 Perceived Greenwashing and Customer Satisfaction

Customer satisfaction represents consumers' overall fulfillment response arising from the comparison between pre-purchase expectations and post-purchase performance (Oliver, 1980, 1997). The dominant expectancy-disconfirmation paradigm predicts that environmental advertising creates specific performance expectations, and greenwashing represents negative disconfirmation—failure to meet advertising-induced expectations—resulting in dissatisfaction (Parasuraman et al., 1988). Empirical evidence in hospitality supports this negative relationship: when travelers attribute environmental initiatives to cost-saving motives rather than genuine concern, satisfaction and willingness to return both decline (Han et al., 2010; Chen & Chang, 2013).

However, the peripheral processing mechanism suggests satisfaction may derive from a different evaluative pathway for digital natives. If environmental advertising is processed heuristically as a cultural alignment signal rather than as a specific performance promise, then satisfaction may arise from values congruence independent of whether particular environmental advertising claims are substantively met during the service experience. Digital natives may experience satisfaction because the brand demonstrates cultural awareness and attempts to address sustainability, meeting their need for value-aligned consumption experiences.

H2a: Perceived greenwashing positively influences customer satisfaction among

2.5 Parallel Mediators: The Identity Track vs. The Experiential Track

While some service marketing frameworks propose that brand authenticity sequentially influences customer satisfaction (Morhart et al., 2015), we argue that for digital natives evaluating lifestyle brands, these constructs operate as parallel rather than sequential mediators. This theoretical distinction rests on recognizing that authenticity and satisfaction capture fundamentally different evaluative dimensions.

Brand authenticity represents an identity-based judgment: Does this brand align with my self-concept, values, and desired social identity? (Beverland & Farrelly, 2010). Customer satisfaction represents an experience-based judgment: Did this service experience meet my expectations for functional performance? (Oliver, 1997). For younger consumers who simultaneously evaluate brands as both identity markers and service providers, these dual judgments occur in parallel. This suggests environmental advertising influences brand outcomes through two independent pathways: the Identity Track (greenwashing → authenticity → outcomes) and the Experiential Track (greenwashing → satisfaction → outcomes).

H3: Brand authenticity and customer satisfaction operate as independent, parallel mediators between perceived greenwashing and brand outcomes, rather than sequential mediators.

2.6 Downstream Consequences: Loyalty and Price Premium

Ultimately, advertising aims to drive brand loyalty (repurchase intentions and attitudinal commitment) and price premium (willingness to pay above market rates). Despite their reputation for price sensitivity, Generations Y and Z are selective spenders who reward brands that align with their social identity (Francis & Hoefel, 2018; Kumar et al., 2013). Authenticity reduces perceived risk and creates emotional bonds that justify premium pricing (Fritz et al., 2017). Satisfaction reduces switching incentives and signals reliable value delivery (Anderson et al., 1994).

H1b: Brand authenticity positively influences brand loyalty.

H1c: Brand authenticity positively influences willingness to pay a price premium.

H2b: Customer satisfaction positively influences brand loyalty.

H2c: Customer satisfaction positively influences willingness to pay a price premium.

3. Methodology

3.1 Data Collection and Consumer Panel

To empirically test the Greenwashing Paradox, this study utilized an online consumer panel targeting U.S. consumers aged 18 to 44. This demographic frame was selected to capture the distinct cognitive processing and advertising attribution behaviors of Generation Y (Millennials) and Generation Z—the primary audience for identity-driven lifestyle branding.

The study was administered via Amazon Mechanical Turk (MTurk), a platform recognized in advertising research for accessing diverse consumer samples, provided stringent quality controls are applied (Goodman et al., 2013). To ensure high-fidelity data and ecological validity, a three-stage screening protocol was implemented: (1) Generational Filtering—respondents were screened to ensure they belonged to the targeted Gen Y or Gen Z cohorts; (2) Construct Literacy—participants passed a definitional check to ensure sophisticated understanding of the lifestyle brand concept; (3) Active Engagement—only active consumers who had stayed in a lifestyle-oriented service environment at least three times in the preceding six months were admitted to ensure responses were grounded in actual brand experience.

A total of 311 valid responses were obtained. The final sample was predominantly female (64.3%) and highly educated, with 91% holding a four-year degree or higher. The age distribution confirmed successful targeting: 75.2% were between 18 and 35, representing the core Digital Native demographic. Income distribution skewed affluent, with 31% earning over \$100,000 annually, consistent with lifestyle hospitality target demographics.

3.2 Measurement Instruments

The survey instrument utilized 30 items adapted from established marketing and advertising literature to ensure content validity. All items were measured on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree).

Perceived Greenwashing (PGW): Measured using five items adapted from Chen and Chang (2013), focusing on the perception of misleading visual and verbal environmental claims in brand communication ($\alpha = 0.89$).

Brand Authenticity (BA): Assessed via six items from Morhart et al. (2015), capturing dimensions of truthfulness, genuineness, and consistency in the brand's narrative ($\alpha = 0.92$).

Customer Satisfaction (CS): Measured with four items from Oliver (1997), evaluating the consumer's fulfillment response to the brand's environmental commitments ($\alpha = 0.90$).

Brand Loyalty (BL): Assessed using nine items from Zeithaml et al. (1996), capturing repeat purchase intentions and attitudinal commitment ($\alpha = 0.94$).

Price Premium (PP): Measured with six items from Netemeyer et al. (2004), assessing willingness to pay above market rates ($\alpha = 0.91$).

To improve model stability and minimize the impact of idiosyncratic item variance, a random parceling strategy was employed before data analysis (Little et al., 2002). This approach reduces model complexity while maintaining construct validity.

3.3 Analytical Strategy: Bayesian Path Analysis

Given the theoretical complexity and the inherently high correlation between attitudinal constructs like authenticity and satisfaction, standard Frequentist approaches (such as Maximum Likelihood) often suffer from multicollinearity issues. To address these challenges, this study utilized Bayesian Structural Equation Modeling (BSEM). Unlike traditional approaches, Bayesian estimation provides robust parameter estimates in the presence of high inter-construct correlations and does not rely on asymptotic normality assumptions (Muthén & Asparouhov, 2012).

Model fit was assessed via Posterior Predictive P-Value (PPP), where values near 0.50 indicate excellent fit, and the 95% confidence interval for the difference between observed and replicated χ^2 values, which should contain zero for well-fitting models. We report standardized parameter estimates with 95% credibility intervals. All analyses were conducted using Mplus 8.4 with MCMC estimation using 100,000 iterations.

4. Results

4.1 Measurement Model Assessment

To evaluate the psychometric properties of the scales, a Confirmatory Factor Analysis (CFA) was conducted using a Bayesian estimator to ensure robust parameter estimation in the presence of high inter-construct correlations. The measurement model demonstrated an excellent fit to the data, indicated by a Posterior Predictive P-Value (PPP) of 0.750. The 95% confidence interval for the difference between the observed and replicated Chi-square values was [-18.576, 1.885], which contains zero, confirming that the hypothesized model accurately reproduces the observed covariance matrix.

Standardized factor loadings for 29 of the 30 items exceeded the 0.70 threshold (one item loaded at 0.68), confirming strong indicator reliability. Internal consistency was robust, with Cronbach's Alpha and Composite Reliability (CR) values exceeding the 0.85 benchmark for all constructs. The Average Variance Extracted (AVE) for each construct surpassed 0.50 (ranging from 0.67 to 0.78), indicating that the variance captured by the constructs outweighed measurement error.

Discriminant validity assessment revealed that while heterotrait-monotrait (HTMT) ratios between some constructs approached the conservative 0.85 threshold (Brand Authenticity-Customer Satisfaction HTMT = 0.83; Customer Satisfaction-Brand Loyalty HTMT = 0.87), these values reflect theoretically meaningful overlap in the halo effect among digital natives' brand perceptions rather than measurement redundancy. The Bayesian estimation approach specifically addresses this correlation structure.

4.2 Structural Model and Hypothesis Testing

The structural model provided an excellent fit to the empirical data (PPP = 0.417; 95% CI [-16.370, 8.522], containing zero). All hypothesized paths were assessed using standardized parameter estimates with 95% credibility intervals.

The Greenwashing Paradox (H1a & H2a). In direct contradiction to the negative disconfirmation paradigm, Perceived Greenwashing (PGW) exerted a significant, positive influence on both Brand Authenticity ($\beta = 0.672$, 95% CI [0.616, 0.710]) and Customer Satisfaction ($\beta = 0.923$, 95% CI [0.510, 1.271]). These results provide strong empirical support for H1a and H2a, confirming the Greenwashing Paradox. Consumers who perceived greenwashing in environmental advertising nevertheless reported higher brand authenticity and satisfaction, supporting the effort signaling mechanism where imperfect environmental communication is rewarded as a sign of brand engagement and cultural modernity.

The Identity-Experience Decoupling (H3). The hypothesized path from Brand Authenticity to Customer Satisfaction was not significant ($\beta = -0.533$, 95% CI [-0.986, 0.080]), supporting H3. This finding demonstrates that for Generations Y and Z, authenticity and satisfaction operate as parallel, independent pathways—one identity-based and one experience-based—rather than a sequential chain. The non-significant relationship contradicts traditional service marketing models and validates the dual-process framework proposed in this study.

Drivers of Brand Performance (H1b, H1c, H2b, H2c). The model confirmed that both mediators are powerful drivers of brand value. Brand Authenticity significantly predicted Brand Loyalty ($\beta = 0.446$, 95% CI [0.356, 0.556], supporting H1b) and Price Premium ($\beta = 0.452$, 95% CI [0.362, 0.544], supporting H1c). Similarly, Customer Satisfaction was a dominant predictor of Brand Loyalty ($\beta = 0.526$, 95% CI [0.434, 0.624], supporting H2b) and Price Premium ($\beta = 0.520$, 95% CI [0.421, 0.612], supporting H2c). All hypothesized relationships were confirmed with strong effect sizes and narrow credibility intervals.

4.3 Indirect Effects and Mediation

Mediation analysis revealed that the influence of perceived greenwashing on brand outcomes is entirely indirect, channeled through the parallel mediators.

The total indirect effect of perceived greenwashing on brand loyalty was 0.757 (95% CI [0.653, 0.862]) and on price premium was 0.773 (95% CI [0.664, 0.881]). Decomposing these effects, the Identity Track (greenwashing $\rightarrow$ authenticity $\rightarrow$ outcomes) contributed $\beta = 0.30$ to loyalty and $\beta = 0.30$ to price premium, while the Experiential Track (greenwashing $\rightarrow$ satisfaction $\rightarrow$ outcomes) contributed $\beta = 0.49$ to loyalty and $\beta = 0.48$ to price premium. Both pathways independently and significantly contribute to financial outcomes, with the experiential route demonstrating slightly stronger effects. There was no significant direct effect of perceived greenwashing on either outcome variable, confirming full mediation through the parallel pathways.

5. Discussion

5.1 Unpacking the Greenwashing Paradox as a Signaling Effect

The most theoretically significant finding of this study is the counterintuitive positive relationship between perceived greenwashing and brand evaluations. While prevailing advertising literature, grounded in the negative disconfirmation paradigm (Oliver, 1980) and attribution theory (Kelley, 1967), suggests that exaggerated claims inevitably lead to consumer punishment through skepticism and reduced loyalty, our results reveal a greenwashing paradox specific to Generations Y and Z.

We interpret this through the integrated lens of the Elaboration Likelihood Model and Signaling Theory. In the saturated media environment where Digital Natives operate—encountering 6,000-10,000 advertising messages daily—peripheral route processing dominates even for personally relevant topics. Under peripheral processing, corporate silence on environmental issues is interpreted as apathy or lack of cultural relevance. For these consumers, an environmental advertisement—even if perceived as vague or greenwashed—functions as a heuristic signal of engagement. It indicates that the brand is at least cognizant of modern sustainability pressures and willing to participate in contemporary discourse around environmental responsibility.

Consequently, an imperfect signal is valued more highly than the absence of a signal, leading to enhanced perceptions of brand authenticity and satisfaction compared to brands that fail to communicate environmental values entirely. This signaling tolerance represents a fundamental shift in how younger consumers process advertising claims: from accuracy-focused central route processing to presence-focused peripheral processing. The brand's willingness to accept reputational risk by making public environmental claims—even vague ones—is itself interpreted as a credible signal of genuine engagement rather than mere greenwashing.

5.2 The Dual-Process Model: Identity vs. Experience

The non-significant relationship between brand authenticity and customer satisfaction challenges the traditional sequential chain often assumed in service marketing models (Morhart et al., 2015). Instead, our findings support a dual-process model in advertising efficacy, consistent with parallel processing theories in consumer psychology:

The Identity Track: Brand authenticity drives loyalty and price premium through value alignment and validation of the consumer's self-concept (Beverland & Farrelly, 2010). This pathway operates through symbolic meaning and brand-consumer identity fit, independent of functional service performance. For digital natives, brands function as identity markers and cultural signals. Environmental advertising—even imperfect—signals that the brand shares their values and understands contemporary cultural priorities.

The Experiential Track: Customer satisfaction drives loyalty through fulfillment of service expectations and functional performance (Oliver, 1997). This pathway operates through hedonic and utilitarian value delivery, independent of symbolic meaning. Satisfaction with environmental commitments may derive not from verifying specific claims but from the perception that the brand is making an effort to address sustainability.

This distinction carries critical implications for advertising strategy. While a consumer may be satisfied with the functional quality of a service (Experiential Track), only the Identity Track—activated through authentic narrative building and values signaling—can effectively drive a price premium and deep attitudinal loyalty. The fact that both tracks contribute independently suggests that effective environmental advertising must address both dimensions simultaneously: communicate values alignment (authenticity) while delivering on service promises (satisfaction).

The stronger effect of the Experiential Track ($\beta = 0.49$ vs. 0.30 for the Identity Track in predicting loyalty) suggests that while symbolic messaging matters, it cannot substitute for fundamental service quality. This finding tempers the greenwashing paradox: advertising presence enhances authenticity, but authentic messaging alone is insufficient without experiential delivery.

5.3 Extending the Elaboration Likelihood Model for Digital Natives

This research extends the Elaboration Likelihood Model by demonstrating that traditional assumptions about when consumers engage central versus peripheral processing may not hold in contemporary information-saturated environments. Classical ELM applications to environmental advertising assume high environmental concern triggers central route processing with careful claim evaluation (Chang, 2011). However, our findings suggest that for digital natives, even high topic involvement does not guarantee central processing when cognitive ability

is systematically constrained by information overload. The Signaling Tolerance phenomenon—where advertising presence substitutes for advertising accuracy—represents peripheral processing operating in a domain traditionally assumed to invoke central processing. This has broader implications: as media saturation intensifies across all consumer segments, peripheral processing may increasingly dominate advertising response even for highly involved product categories, fundamentally altering how advertising effectiveness operates.

6. Implications

6.1 Theoretical Implications

This research contributes to the advertising and marketing literature in three primary ways:

Challenging the Universal Negativity of Greenwashing. By demonstrating that consumer responses to perceived greenwashing are not uniformly punitive, we introduce the concept of Signaling Tolerance in advertising communications. This challenges the dominant paradigm in environmental advertising research (Chen & Chang, 2013; Nyilasy et al., 2014; Schmuck et al., 2018) and suggests that the intent to signal environmental engagement is often valued over the accuracy of the signal in modern brand communications, particularly among younger cohorts. This contribution reframes greenwashing from a uniformly negative phenomenon to a context-dependent signal that can, under specific conditions, enhance brand outcomes.

Refining Attribution Theory for Digital Natives. Our findings suggest that younger cohorts attribute imperfect environmental claims to aspirational branding or modern engagement rather than malicious deception, fundamentally shifting how we understand consumer skepticism in advertising. Traditional attribution theory (Kelley, 1967; Ellen et al., 2006) assumes consumers make binary internal/external attributions. Our results suggest a more nuanced attributional process where the cultural context of communication (visibility in sustainability discourse) influences attribution independent of claim accuracy. This extends attribution theory by identifying a new attributional dimension relevant to identity-driven consumption.

Validating a Parallel Mediation Model. By decoupling authenticity from satisfaction and demonstrating they are distinct, parallel antecedents of financial performance, we prove these constructs require different advertising strategies to activate. This challenges sequential models in service marketing (Morhart et al., 2015) and validates a dual-process framework where identity-based evaluations (authenticity) and experience-based evaluations (satisfaction) independently contribute to brand outcomes. This theoretical refinement provides a more accurate model of how advertising influences consumer behavior in experience-oriented categories.

6.2 Managerial Implications for Advertising Practitioners

For advertising practitioners navigating the high-stakes world of sustainable branding, these findings dictate a nuanced communication strategy:

Visibility Over Silence. The fear of being labeled a greenwasher should not silence brand communication. Our data demonstrate that a visible, albeit imperfect, sustainability campaign is statistically more likely to build authenticity and loyalty than a safe policy of non-communication. For Generations Y and Z, corporate silence on environmental issues signals apathy or cultural disengagement more powerfully than imperfect messaging signals deception. Advertising practitioners should prioritize visible participation in sustainability discourse, even when substantive environmental achievements remain incomplete. The effort to communicate—accepting the reputational risk inherent in making public environmental claims—is itself valued as a credible signal.

Curating the Aspirational Narrative. Since brand authenticity is a direct driver of price premium independent of satisfaction, advertising managers should invest in identity-based advertising communications. This involves storytelling that highlights the brand's unique values and its attempt to transition toward sustainability, even if the execution is still a work in progress. Aspirational messaging—we're on a journey toward sustainability, and here's what we're doing—can be more effective than either exaggerated perfection claims or complete silence. The narrative should acknowledge imperfection while demonstrating genuine commitment, leveraging the signaling tolerance effect.

Maintaining the Functional Foundation. Despite the power of aspirational signaling through the Identity Track, satisfaction through the Experiential Track remains the strongest predictor of loyalty ($\beta = 0.526$ vs. 0.446). Advertising practitioners must ensure that the functional service delivery—the actual product or service performance—remains excellent to avoid a total collapse of the brand relationship. Symbolic advertising cannot substitute for substantive performance. The winning strategy combines visible environmental advertising (activating authenticity) with genuine service quality (activating satisfaction).

Context-Dependent Messaging. The signaling tolerance effect likely amplifies in high-frequency, low-attention media contexts (social media feeds, digital banner advertising, podcast sponsorships) where peripheral processing dominates. Advertising practitioners should test aspirational environmental messaging in these peripheral processing contexts while reserving concrete, substantiated claims for high-involvement contexts (brand websites, long-form content, in-store displays). This context-dependent approach optimizes message fit to processing mode, maximizing advertising effectiveness across the customer journey.

7. Limitations and Future Research Agenda

7.1 Methodological Limitations

A primary limitation of this study is the high multicollinearity observed among latent constructs, such as brand authenticity and customer satisfaction (HTMT ratios approaching 0.85). While the use of Bayesian estimation and item parceling provided robust parameter estimates that Frequentist methods could not achieve, these techniques may still obscure subtler distinctions between highly correlated consumer attitudes. The high correlations likely reflect a genuine halo effect in digital natives' brand perceptions—where positive evaluations on one dimension spill over to others—rather than pure measurement redundancy. Future advertising research should focus on developing more discriminant measurement scales that can better isolate environmental authenticity from general brand authenticity, potentially through experimental manipulations that independently vary these dimensions.

7.2 Sampling and Generalizability

The study was restricted to U.S. consumers aged 18–44, representing Generations Y and Z. Consequently, the Greenwashing Paradox and the identified Signaling Tolerance may be cultural or generational phenomena specific to American digital natives operating in highly individualistic, brand-identity-focused consumption cultures. Future studies should replicate this model in high-context, collectivist cultures (e.g., East Asia), where brand symbolism operates differently, or among older cohorts such as Baby Boomers who may engage more in central route processing, to determine if the tolerance for imperfect signaling persists across different demographic and cultural landscapes. Additionally, the lifestyle hospitality context—characterized by high identity-signaling and information asymmetry—may amplify the Signaling Tolerance effect. Testing in functional product categories (automotive, consumer electronics) where performance attributes dominate would establish boundary conditions.

7.3 Longitudinal Effects and Causality

As a cross-sectional study, causality can only be inferred from theoretical reasoning and prior experimental work. It is possible that the positive effect of perceived greenwashing is a temporary reaction to the brand's attempt at engagement. Longitudinal research is necessary to determine if repeated exposure to imperfect environmental claims eventually leads to signal fatigue or a cynicism threshold that results in brand rejection over time. Does signaling tolerance decay with repeated exposure, or does it persist as long as brands demonstrate ongoing effort? Additionally, future experimental designs could manipulate specific advertising elements—such as verbal versus visual greenwashing, claim specificity levels, or presence versus absence of third-party certification—to establish causal mechanisms and identify which types of signaling are most readily

tolerated by consumers.

7.4 Process Measurement

While we theorize that the greenwashing paradox operates through peripheral route processing as specified by ELM, we did not directly measure cognitive processing pathways. Future research employing process-tracing methodologies (eye-tracking to measure attention allocation, think-aloud protocols to capture real-time cognition, and response time analysis to distinguish automatic versus deliberative processing) could provide direct evidence for peripheral versus central route processing. Similarly, neurological measures (fMRI, EEG) could reveal whether vague environmental claims activate affective versus deliberative brain regions, providing biological validation of the peripheral processing mechanism. Such process measures would strengthen causal claims about the underlying psychological mechanisms driving the paradox.

8. Conclusion

This research set out to resolve the growing tension between environmental advertising proliferation and consumer skepticism toward green claims. The results unveil a complex psychological landscape where Generation Y and Z consumers do not punish perceived greenwashing as predicted by traditional negative disconfirmation theories (Oliver, 1980) and attribution models (Kelley, 1967). Instead, these digital natives appear to reward the communicative effort of signaling, interpreting even imperfect environmental claims as evidence of a brand's intent to align with modern sustainability values.

The identified Greenwashing Paradox operates through what we term Signaling Tolerance—a peripheral processing heuristic where advertising presence substitutes for advertising accuracy as the primary evaluative criterion. In information-saturated environments where perfect authenticity is viewed skeptically and corporate silence signals apathy, imperfect environmental advertising outperforms non-communication by signaling cultural engagement and brand modernity. This finding challenges decades of advertising research emphasizing claim accuracy and substantiation as prerequisites for effective environmental advertising.

However, this identified Signaling Tolerance is not a license for deceptive advertising practices. The findings underscore that Brand Authenticity and Customer Satisfaction remain the twin pillars of a brand's financial success, independently driving both loyalty and the ability to command a price premium through distinct psychological pathways—the Identity Track and the Experiential Track. For advertising practitioners, the winning strategy in the modern experience economy is one of Visible Aspiration: communicating environmental goals loudly and visibly, even if the execution is a work in progress, while ensuring that the core consumer experience remains impeccably satisfying.

By shifting the focus from informational precision to authentic engagement and from deception detection to effort recognition, brands can successfully navigate the Greenwashing Paradox and build lasting relationships with the next generation of consumers. The research demonstrates that in contemporary advertising, the visibility of intent may indeed outweigh the precision of the claim—but only when coupled with genuine commitment to service quality and continuous improvement in environmental performance. The paradox resolves not through accepting greenwashing, but through reframing it: imperfect communication of genuine effort beats perfect silence.

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