

LITERATURE REVIEW ON PERCEIVED GREENWASHING AND GREEN PURCHASE INTENTION: A BIBLIOMETRIC AND SYSTEMATIC REVIEW

Nong Thi Nhu Mai^{*}, Nguyen Phuc Thinh, Pham Hoang Minh, Nguyen Vu Manh Hung, Luong Gia Lap, Nguyen Le Xuan Toan

University of Finance - Marketing

778 Nguyen Kiem, Duc Nhuan Ward, Ho Chi Minh City, Vietnam

**Email: ntnmai@ufm.edu.vn*

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ABSTRACT

In the context of growing attention to sustainable consumption, corporate greenwashing has become a significant concern as it may erode consumers' ecological trust. This study aims to provide a comprehensive mapping of the research landscape on corporate greenwashing and systematically synthesize existing literature regarding its impact on green purchase intention. Through this process, the study identifies existing research gaps and proposes an integrated conceptual model. Regarding the data, the study draws on a sample of 99 quality academic articles collected from the Scopus and Web of Science databases covering the period from 2016 to 2026. The primary analytical approach employed is bibliometric analysis using the Biblioshiny tool, combined with qualitative synthesis and content analysis of relevant studies. The findings indicate that psychological states such as green skepticism and green confusion play a crucial mediating role in reducing consumers' green purchase intention, while the moderating role of greenwashing literacy in this relationship remains underexplored. In addition, the study highlights a lack of cross-cultural empirical testing, particularly in developing markets. From the perspective of the S-O-R framework, the study suggests that greenwashing may weaken consumers' trust, thereby influencing their psychological responses and purchase intentions. Based on these findings, it recommends that marketing managers prioritize transparency and verifiability in green communications to strengthen and restore consumer trust. Furthermore, future research should examine the influence of cultural characteristics and e-commerce contexts on green consumer behavior.

Keywords: Green skepticism, greenwashing, green purchase intention.

1. INTRODUCTION

Previous studies have begun to explore the role of greenwashing in the fast fashion industry [1], [2]. However, these studies primarily focus on the Chinese market or Western countries. In addition, they tend to concentrate on specific mediating variables rather than examining an integrated model. Moreover, the moderating role of greenwashing literacy in this relationship has received limited attention in the fashion industry, despite its importance being demonstrated in other sectors such as electric vehicles [3] and cosmetics [4]. In Vietnam, a rapidly developing emerging market, no study has systematically examined all three factors: (1) perceived greenwashing, (2) mediating psychological states, and (3) the moderating role of greenwashing literacy.

To gain deeper insights into previous research, identify unexplored issues, avoid redundancy, and confirm the research gap regarding the relationship among perceived greenwashing, psychological states, greenwashing literacy, and green purchase intention, the authors conducted a review of relevant articles on perceived greenwashing, green purchase intention, and their interrelationships from the Scopus and Web of Science databases. Subsequently, a content analysis was performed to identify publication types, keywords, and major themes, which served as the basis for proposing a research model and directions for future studies.

Based on the identified research gaps and theoretical positioning, this study addresses the following research questions. (1) What are the main research trends, intellectual structures, and thematic developments in the literature on perceived greenwashing and green purchase intention? (2) What are the key psychological mechanisms (green skepticism, green confusion, and green perceived value) through which perceived greenwashing influences green purchase intention? (3) What gaps exist in the current literature, particularly regarding the moderating role of greenwashing literacy and the lack of cross-cultural evidence in emerging markets? (4) How can an integrated conceptual framework, grounded in the S-O-R Model, Signaling Theory, Cognitive Appraisal Theory and Elaboration Likelihood Model be developed to explain the relationship between perceived greenwashing and green purchase intention?

The article is structured into six sections. Section 1 introduces the research problem. Section 2 presents the key concepts, reviews relevant theories, and summarizes previous studies to provide directions for future research. Section 3 explains the methodology and bibliographic data used in the study. Section 4 presents the results of the citation-based bibliometric analysis, highlighting overall trends. Section 5 provides a thematic analysis of the greenwashing research field, examining the evolution of research themes. This section also discusses the findings and proposes the research model. Finally, Section 6 summarizes the main findings and outlines the limitations of the study.

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Research Concepts

Greenwashing was synthesized by Ziolo et al. [5] through various approaches and is defined as a deliberate corporate practice of misleading consumers about an organization's environmental practices or the environmental benefits of its products/services through communication, reporting, and advertising, while actual operations are not aligned with such claims. It is considered a form of marketing message aimed at building a green image and meeting stakeholders' expectations for sustainable development, yet lacking corresponding substantive actions.

Perceived greenwashing refers to consumers' evaluations and reactions to a company's green advertising and communication efforts when comparing them with the firm's actual environmental performance and behavior [6]. According to Nyilasy et al. [6], perceived greenwashing arises when a firm's green advertising is inconsistent with its actual environmental performance within the framework of corporate social responsibility (CSR), leading consumers to believe that the company "says one thing but does another."

Green skepticism refers to consumers' tendency to doubt the environmental benefits claimed by firms and to question the actual environmental effectiveness of green products [7]. Building on [8] and [9], Leonidou and Skarmas [7] define green skepticism as a predisposition to question and doubt corporate environmental claims, messages, and activities, particularly in a context marked by increasing greenwashing incidents and a lack of environmental transparency.

Green confusion reflects a situation in which environmentally conscious consumers feel confused, overwhelmed, and unable to effectively compare products when exposed to green information, labels, or claims, leaving them uncertain about which products are truly environmentally friendly. Yang et al. [10] argue that green confusion often arises when there are too many similar green claims and unclear information, leading consumers to misinterpret messages and feel disoriented.

Following the approach of Chen and Chang [11], green perceived value is formed when consumers believe that a product satisfies their environmental protection desires, sustainability expectations, and green consumption needs, thereby perceiving the green option as more worthwhile than conventional alternatives. Subsequent studies indicate that higher perceived green value enhances trust in green brands and strengthens consumers' willingness to maintain or increase their intention to purchase environmentally friendly products.

Greenwashing literacy is commonly understood as the extent to which consumers possess sufficient knowledge, skills, and critical thinking ability to identify, analyze, and evaluate potentially misleading green claims, labels, or messages. This enables them to protect themselves from greenwashing communication strategies and make consumption decisions that better align with environmental protection goals. Based on Eng et al. [12], greenwashing literacy also involves the ability to recognize tactics such as vague wording, lack of evidence, or misleading symbols, thereby enhancing consumers' proactive and responsible processing of environmental information.

Green purchase intention refers to the degree of consumers' willingness, desire, and commitment to choose environmentally friendly products or services that minimize negative environmental impacts throughout the product life cycle. This conceptualization is grounded in prior studies on green consumer behavior by Lu et al. [1], Chen and Chang [11]. These authors also emphasize that green purchase intention may significantly decline when consumers perceive greenwashing practices, as trust is undermined and perceived risk increases.

2.2. Research Theories

The objective of this study is to clarify the relationship between perceived greenwashing and purchase intention in the fast fashion sector in Vietnam, while examining the mediating role of psychological states (e.g., skepticism, anxiety, and perceived risk) and the moderating role of greenwashing literacy in this relationship. Accordingly, the authors review several relevant theoretical foundations as follows:

2.2.1. Signaling Theory

Signaling Theory is a foundational framework in economics and organizational theory, originally developed by Michael Spence [13] in the context of the labor market and later extended to finance, marketing, and corporate management. According to this theory, under conditions of information asymmetry, the party possessing private information (the signal sender) uses observable actions or attributes (signals) to convey information about its unobservable quality to another party (the signal receiver), who cannot directly observe such quality but attempts to infer it from the signals provided [13].

A signal is considered effective when it satisfies two key conditions: (i) it is observable and interpretable by the receiver, and (ii) it involves a cost that is sufficiently high and differentiated between high-quality and low-quality actors, making it difficult or unprofitable for low-quality actors to imitate. This cost creates signal credibility, as only genuinely high-quality entities can afford to sustain the signal over the long term.

In the context of greenwashing, Signaling Theory provides a useful lens to explain how firms use environmental messages, eco-certifications, and sustainability reports as signals to

persuade investors and consumers of their environmental commitment. At the same time, the theory highlights the risks that arise when such signals do not truthfully reflect actual environmental quality. When environmental signals are inexpensive to imitate or weakly verified, low-quality firms may mimic high-quality ones, leading to misleading communication and increasing the likelihood of perceived greenwashing [13].

2.2.2. Cognitive Appraisal Theory

Cognitive Appraisal Theory [14] posits that emotions do not arise automatically; rather, they are the result of an individual's evaluation of the personal significance of a situation. This evaluation process occurs in two stages: (i) primary appraisal, in which individuals assess whether the situation is relevant to their goals or interests, and (ii) secondary appraisal, in which they evaluate the resources available to cope with or regulate their emotional response.

In the context of greenwashing, when consumers detect that a company exaggerates its environmental benefits, they reappraise the relationship among themselves, the firm, and the environment. If they consider green consumption important and believe that the company is fully capable of being transparent but intentionally chooses to mislead, they are more likely to experience anger, feelings of betrayal, and a tendency to boycott the brand.

Conversely, if consumers perceive themselves as powerless - believing they have little control, that greenwashing is widespread, and that it is difficult to distinguish genuine claims from false ones-their emotions may shift toward disappointment, sadness, or skepticism, thereby reducing their motivation for green consumption.

If consumers attribute part of the blame to themselves, perceiving that they were naïve or overly trusting, they may feel guilty or shameful. As a result, they may become more cautious in future purchases or even avoid environmental messages altogether.

Thus, Cognitive Appraisal Theory helps explain why the same greenwashing behavior can lead to very different emotional responses and consumer reactions, depending on how individuals cognitively evaluate the situation.

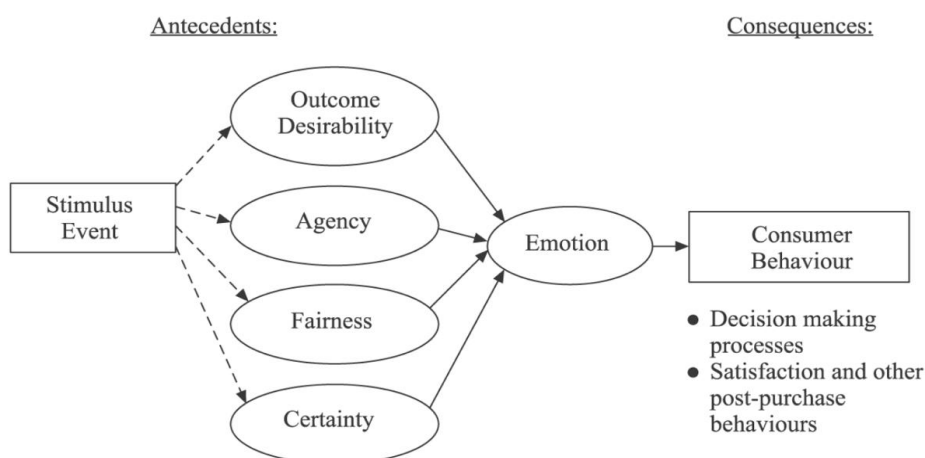


Figure 1. Model depicting cognitive appraisal theory [15]

2.2.3. Stimulus-Organism-Response (S-O-R) Model

Mehrabien and Russell [16] proposed the Stimulus-Organism-Response (S-O-R) Model to explain how environmental factors influence individual behavior. According to this model, environmental stimuli (S) such as physical characteristics, spatial design, or communication cues do not directly affect behavior. Instead, they first alter the consumer's internal state (O). This internal state is typically reflected in emotional responses (e.g., pleasure or displeasure)

and cognitive processes (e.g., evaluation, inference, skepticism). These affective and cognitive changes subsequently lead to behavioral responses (R), such as staying in or leaving an environment, forming or changing attitudes, and making specific decisions (e.g., purchasing, not purchasing, recommending, or boycotting a brand).

Thus, the S-O-R model emphasizes the mediating role of internal psychological states between external stimuli and consumers' behavioral responses.

In the context of greenwashing, the S-O-R framework provides a useful theoretical lens to explain how problematic green messages influence consumer behavior. Specifically, elements such as vague environmental slogans emphasizing environmental benefits, excessive use of nature imagery, or the display of eco-certifications with unclear origins function as stimuli (S). These stimuli affect the consumer's psychological organism (O), leading to internal reactions such as green skepticism, green confusion, or feelings of discomfort and deception. When these internal states become negative, consumers are more likely to respond (R) by reducing their green purchase intention, avoiding the brand, spreading negative word-of-mouth, or intensifying information-seeking behavior to protect themselves from greenwashing practices.

Therefore, in this study, the S-O-R model is employed to explain the mediating role of cognitive and emotional states related to greenwashing in the relationship between green communication stimuli and consumers' behavioral responses.

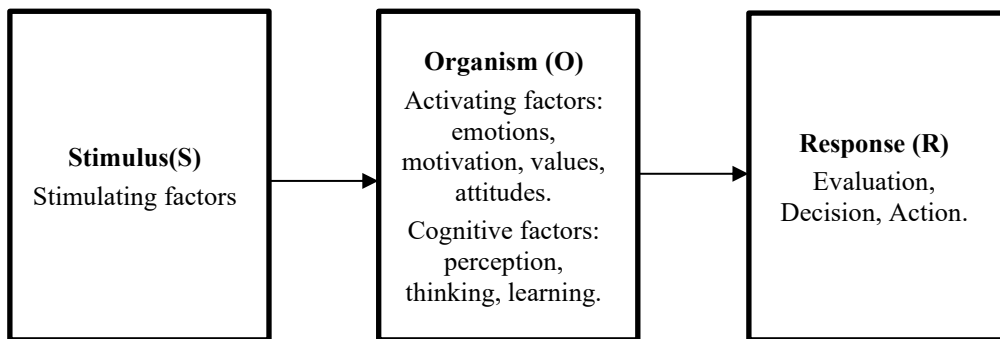


Figure 2. Stimulus - Organism - Response model [16]

Overall, this study integrates Signaling Theory to explain the role of green messages as a stimulus, Cognitive Appraisal Theory to explain consumers' internal psychological responses (Organism), and the S-O-R model to link these states to response behavior. This integrated approach provides a more comprehensive explanation of the mechanisms of greenwashing.

2.2.4. Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM), developed by Petty and Cacioppo [17], serves as a foundational theoretical framework elucidating the cognitive processes underlying persuasion and attitude change. The model posits that individuals process information through two distinct pathways—the central route and the peripheral route—contingent upon their motivation and cognitive ability to elaborate on the presented message. The central route necessitates rigorous scrutiny of the quality, logic, and evidence of arguments. In contrast, the peripheral route relies on simple heuristic cues, such as visual appeal or source credibility, when an individual's capacity or motivation for deeper cognitive analysis is constrained [17].

In the context of greenwashing, the ELM provides a robust theoretical mechanism for understanding consumer reactions to corporate environmental claims. Consumers exhibiting high elaboration likelihood typically engage in central processing; this enables them to critically evaluate the validity of ecological signals and discern potential inconsistencies

between a firm's environmental communication and its actual performance. Conversely, individuals with lower motivation or limited domain expertise tend to rely on peripheral cues, such as nature-themed packaging or vague eco-terminology. Consequently, they are more susceptible to the influence of superficial signals without engaging in profound verification.

Ultimately, the ELM clarifies why identical environmental marketing messages or greenwashing practices can elicit diverse psychological responses and decision-making behaviors among distinct consumer cohorts. By emphasizing the pivotal role of information-processing capacity, this theory elucidates the variance in consumer skepticism or confusion when individuals are confronted with complex and potentially deceptive sustainability claims.

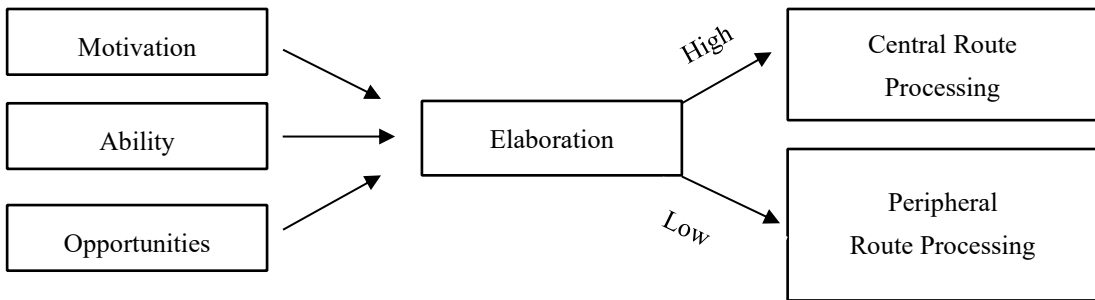


Figure 3. Elaboration Likelihood Model [17]

2.3. Previous Studies

In recent years, greenwashing has become a prominent topic in marketing and consumer behavior research. Numerous studies indicate that when consumers realize that a company's environmental claims do not accurately reflect its actual environmental performance, they tend to develop negative reactions toward the brand and its products. Nyilasy et al. [6] show that in the context of low environmental performance, green advertising can even significantly reduce brand attitudes and purchase intention.

Subsequently, Chen and Chang [18] emphasize that continuous exposure to vague or inconsistent environmental claims can lead to green confusion and heightened perceived risk in purchase decisions. This, in turn, weakens trust in green products and reduces purchase intention. Leonidou and Skarmeas [7] further clarify the role of consumers' attribution of corporate motives: when consumers believe that firms act based on intrinsic, altruistic motives, green skepticism decreases. Conversely, when firms are perceived as primarily pursuing economic gains or reputational benefits, green skepticism remains high.

From a psychological perspective, Goh and Balaji [19] find that green skepticism not only lowers intention to purchase environmentally friendly products but also reduces consumers' overall concern for environmental issues and their motivation to seek additional information, thereby further diminishing green purchase intention. Collectively, these findings suggest that green confusion, perceived risk, and green skepticism are key psychological mechanisms through which perceived greenwashing undermines the effectiveness of green communication and erodes the environmental value consumers expect from products.

Beyond traditional contexts, some studies have extended the analysis to online communication environments. Szabo and Webster [20] examine the role of website design and consumers' environmental trust in shaping perceived greenwashing. Their findings indicate that high website interactivity and clear online market signals can reduce perceived greenwashing, whereas unattractive interfaces and ambiguous information increase consumer suspicion. This suggests that not only the content of environmental claims but also the mode of presentation and interactive experience contributes to consumers' evaluation of a firm's environmental authenticity.

More recently, research has focused on consumers' knowledge of greenwashing and related risk perceptions. In the fast fashion context, Lu et al. [1] demonstrated that when consumers are more aware of risks associated with greenwashing such as financial risk, ethical risk, and reputational risk, their skepticism toward sustainable fashion claims intensifies, making them more cautious in purchasing products labeled as green. This indicates that greenwashing literacy can enhance consumers' ability to detect misleading communication strategies, but it may also make them more hesitant toward even genuine sustainability efforts.

In the context of younger generations and the fashion industry, Do et al. [21] study Gen Z consumers in Vietnam and find that green purchase intention remains well explained by the extended Theory of Planned Behavior framework. Specifically, attitudes toward sustainable fashion, subjective norms, perceived behavioral control, and perceived personal effectiveness positively influence green purchase intention. However, when perceived greenwashing is introduced as a moderating variable, these positive relationships weaken significantly. When Gen Z consumers perceive fashion brands' green messages as inauthentic, the positive effects of attitudes, social norms, and perceived control on green purchase intention decline markedly. This suggests that even environmentally conscious and socially aware consumers such as Gen Z may narrow the intention behavior gap when confronted with doubts about the authenticity of sustainability commitments.

Adopting a brand-oriented perspective, Thao et al. [22] analyze the relationships among receptivity to green advertising, green brand image, perceived authenticity, and perceived greenwashing on green purchase intention, with green brand trust serving as a mediator. Their results indicate that green advertising receptivity, green brand image, and brand authenticity positively affect green brand trust, while perceived greenwashing directly reduces green purchase intention and indirectly undermines it by weakening trust. Thus, communication and branding efforts translate into green purchase intention only when they successfully build trust, whereas greenwashing disrupts this trust mechanism.

Overall, prior research demonstrates that greenwashing affects consumer behavior in multiple ways: by increasing skepticism, confusion, and perceived risk; by weakening the influence of positive psychological determinants in behavioral models; and by eroding trust in brands and even in entire industries. These findings underscore that green image-building efforts lacking authenticity and transparency not only fail to generate sustainable benefits for firms but may also backfire, reducing purchase intention and hindering the long-term development of green consumption.

However, previous studies have examined these effects separately in relation to green purchase intention. Therefore, this study aims to systematically review and synthesize existing research regarding the impact of perceived greenwashing on green purchase intention through the mediating roles of green skepticism, green confusion, and perceived value, as well as the moderating role of greenwashing literacy, within the rapidly growing fast fashion context in Vietnam.

3. METHODOLOGY

This study conducted a bibliometric analysis of 2,980 scientific publications retrieved and screened from the Scopus and Web of Science databases in accordance with the PRISMA guidelines [23], as illustrated in Figure 4. Based on this dataset, the study performed a bibliometric analysis to identify key research trends, while subsequently selecting 99 representative works for a systematic review and in-depth analysis.

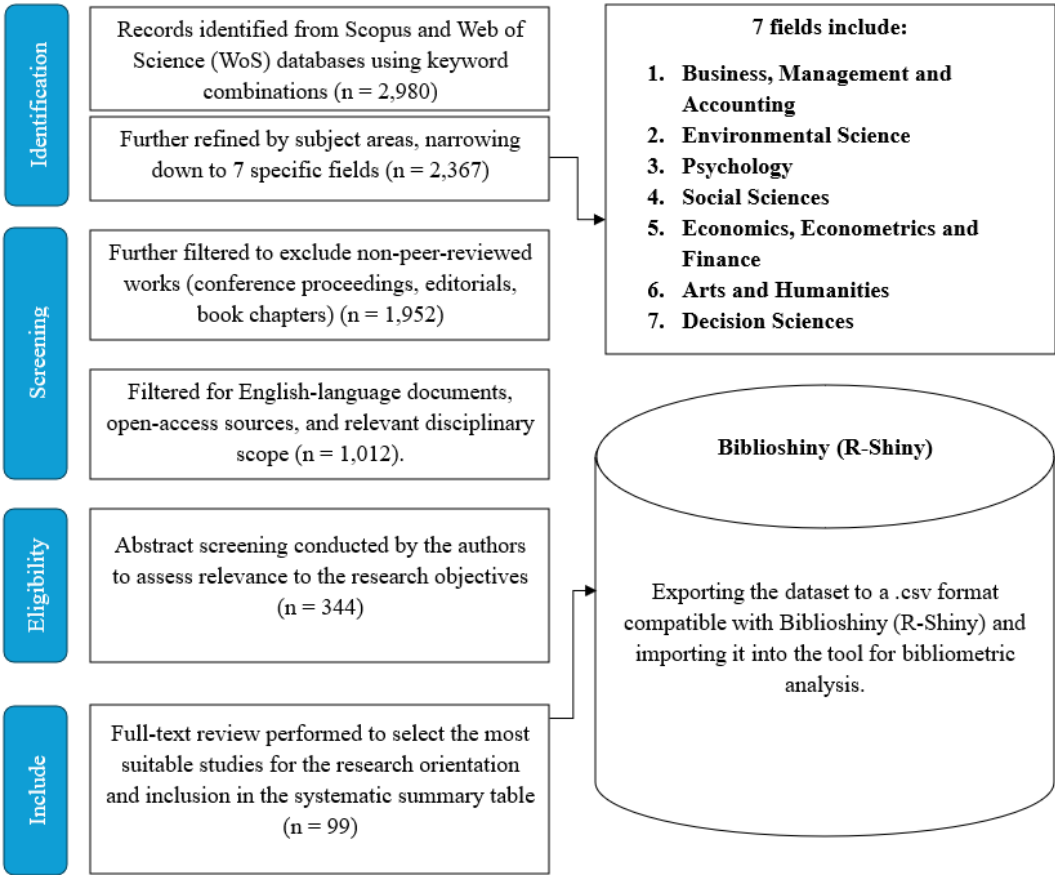


Figure 4. PRISMA guidelines.

Source: Compiled by the authors (2026)

To retrieve relevant studies, this study employs a literature search strategy across academic databases using primary keyword combinations. The search was conducted within the article titles, abstracts, and keywords, as follows:

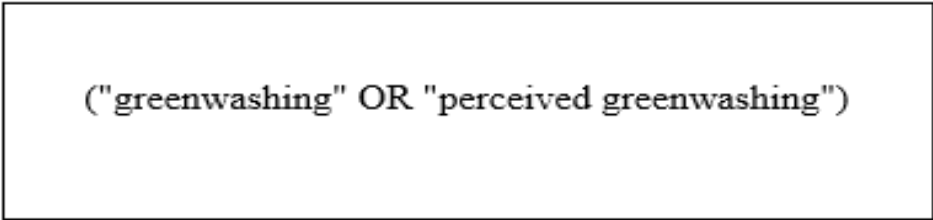


Figure 5. Key Information of the Dataset.

Source: Compiled by the authors (2026)

Initially, the literature search employed the specific query string: (“greenwashing” OR “perceived greenwashing”) AND (“green purchase intention” OR “purchase intention”). However, this strict criterion yielded a limited number of studies (n < 100), which restricted the potential for comprehensive analysis. To ensure a robust synthesis of the literature and fully align with the exhaustive search principles of the PRISMA framework, we broadened the search parameters to solely (“greenwashing” OR “perceived greenwashing”) to capture a more representative and sufficient sample of relevant studies.

4. RESULTS AND DISCUSSION

4.1. Research results

4.1.1. Descriptive statistics

Table 1. Key Information of the Dataset

Period	2016 – 2026
Sources (Journals, Books, etc.)	60
Number of documents	99
Average age of documents	2.01
Average citations per document	14.68
Author keywords	231

Source: Authors' calculations using RStudio (version 4.5.2)

Table 1 presents the main characteristics of the dataset. The analysis includes a total of 99 documents published between 2016 and 2026, originating from 60 different sources such as journals, books, and other academic publications. Overall, the documents have an average age of 2.01 years and receive an average of 14.68 citations per document.

4.1.2. Annual scientific production

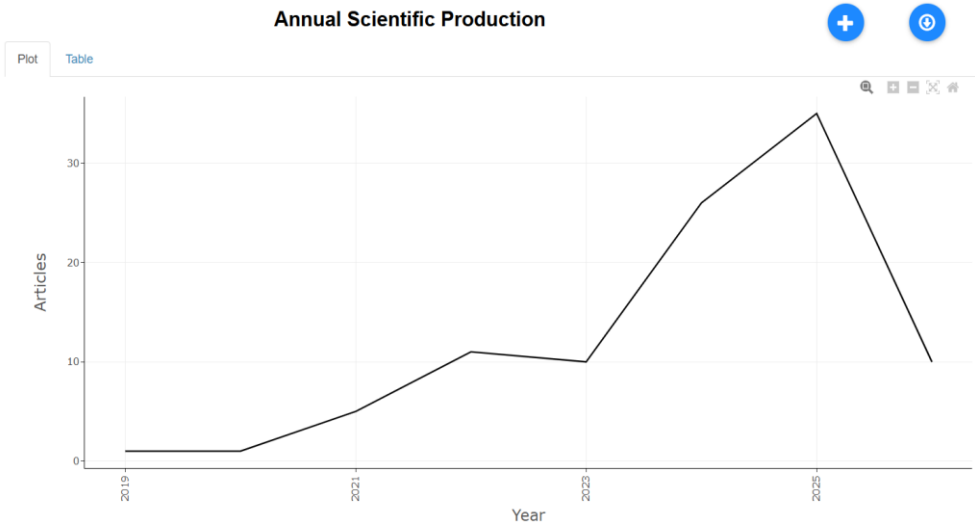


Figure 6. Number of articles over the years.

Source: Authors' calculations using RStudio (version 4.5.2)

Figure 6 presents the annual scientific production on greenwashing from 2019 to 2025 and reveals a pronounced upward trend in the number of publications. In the first part of this period, from 2019 to 2020, the curve remains close to the baseline with only about 1-2 articles per year, which indicates that research on greenwashing was still emerging and attracted very limited scholarly attention. In 2021, the number of publications increased to around 5 articles, and in 2022 it rose further to approximately 11, signaling a first phase of consolidation of the field. The curve then shows a slight decline in 2023 to about ten articles before climbing sharply in 2024 and reaching a peak of more than 30 publications in 2025, which suggests a recent surge of academic interest and a strong perception among

researchers that greenwashing has become a critical topic within the literature on sustainable consumption and marketing communication.

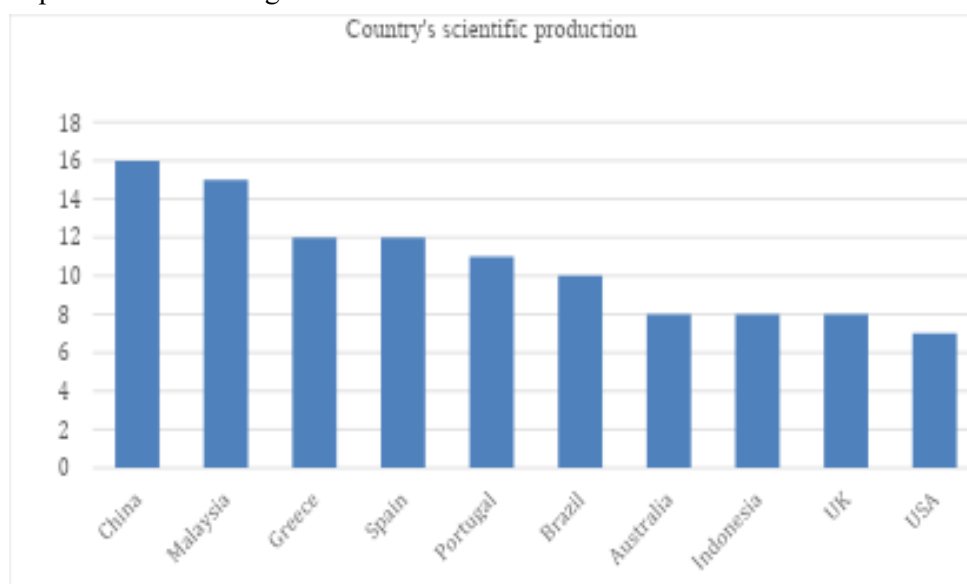


Figure 7. Global scientific research output.

Source: Authors' calculations using RStudio (version 4.5.2)

Figure 7 presents the global scientific production on this topic. China records the highest frequency with 16 articles, followed closely by Malaysia with 15 contributions, which indicates that these two countries have become particularly active centers of research on greenwashing. Greece and Spain each contribute 12 publications, while Portugal and Brazil follow with 11 and 10 articles respectively, forming a second tier of countries with substantial but slightly lower research intensity. Australia, Indonesia and the United Kingdom each account for 8 studies, and the United States contributes 7, which places these countries in a group with moderate yet meaningful levels of scholarly engagement with the topic. This pattern suggests that much of the existing empirical evidence on greenwashing has been generated in a small number of Asian and European countries and in a few English-speaking economies, whereas many other nations either contribute only marginally or do not appear among the main producers of research.

4.1.3. Word cloud

In bibliometric analysis, a keyword cloud serves as a visual representation of textual data, where the size of each word reflects its frequency or relative importance within the dataset [24]. Keyword cloud is an effective tool for quickly identifying the core themes and concepts in a body of research.

In the context of studies on consumer behavior and greenwashing, this visualization highlights the most frequently occurring keywords, thereby revealing the dominant themes within the research domain. The most prominent terms include *greenwashing*, *sustainability*, *consumer behavior*, and *green marketing*. These results indicate that *greenwashing* represents the central focus of this research stream, reflecting growing scholarly concern regarding the transparency and credibility of environmental claims in green communication.

In addition, terms such as *marketing*, *purchase intention*, and *green purchase intention* also appear with varying sizes. These differences reflect their frequency of occurrence and conceptual relevance to the research topic, thereby providing an overview of the conceptual structure and intellectual focus of the field. Overall, the word cloud suggests that research on

greenwashing is primarily centered on the relationship between green communication, sustainability, and consumer behavioral responses.



Figure 8. Word cloud.

Source: Authors' calculations using RStudio (version 4.5.2)

4.2. Discussion

4.2.1. Thematic map

The thematic map generated by Biblioshiny is a useful bibliometric visualization tool for identifying the structural organization and developmental maturity of research themes within a specific field [25]. Figure 9 illustrates the thematic structure of greenwashing literature and shows how major research themes are positioned according to their degree of centrality and density. Specifically, the horizontal axis represents the relevance or importance of each theme within the broader research domain, while the vertical axis reflects its level of development and conceptual maturity.

Within the Motor Themes quadrant, two prominent thematic clusters emerge. The first cluster, comprising sustainability, marketing, and consumption behavior, indicates that these themes are both highly developed and highly central to the field, suggesting that they play a leading role in shaping the current research agenda. This positioning indicates that greenwashing research is increasingly embedded within broader discussions of sustainable marketing and consumer behavior, rather than being limited to the identification of misleading environmental claims. The second cluster, consisting of consumer behavior, purchase intention, and purchasing, suggests that consumer behavioral responses have become one of the most developed and central streams in the literature. Compared with earlier studies that primarily focused on attitudinal or cognitive responses, this finding indicates a clear shift toward explaining the behavioral consequences of greenwashing, particularly its effects on purchasing decisions and consumption behavior.

Within the Basic Themes quadrant, themes such as greenwashing, green marketing, and green skepticism appear with high centrality but relatively low density. This suggests that these themes constitute the conceptual foundation of the field and remain central to its intellectual structure, although they are still underdeveloped in terms of theoretical depth. This distribution indicates that much of the current literature continues to focus on identifying the direct effects of greenwashing, rather than developing deeper theoretical explanations of how consumers interpret and respond to misleading environmental signals. This pattern is consistent with prior studies in which green skepticism is frequently identified as a central psychological response to greenwashing, but it also suggests that the field still lacks integrated models capable of fully explaining the transition from consumer perception to behavioral response.

A notable thematic cluster appears near the center of the map, consisting of brand loyalty, sustainable consumption, communications, fast fashion, transparency, and the fashion

industry. Its central position suggests that this is a bridging cluster linking broader sustainability discourse with industry-specific applications. This cluster indicates that recent research is no longer concerned with greenwashing solely as a general communication issue, but is increasingly focused on how it operates in communication-intensive industries such as fashion. The co-occurrence of transparency, communications, and the fashion industry suggests an emerging research trend in which communication transparency is viewed as a critical mechanism connecting sustainability, brand loyalty, and consumer responses in highly visible consumer markets.

Within the Emerging or Declining Themes quadrant, themes such as green brand image, green advertising, and perceived greenwashing appear in peripheral positions with relatively low centrality. This suggests that these themes remain relevant but are not yet strongly integrated into the core intellectual structure of the field. Compared with earlier studies that placed greater emphasis on brand image and green advertising, this finding indicates that these topics now occupy a more peripheral role, as scholarly attention increasingly shifts toward how consumers receive, interpret, and evaluate the credibility of environmental messages rather than focusing solely on firm-generated communication content.

Within the Niche Themes quadrant, themes such as skepticism, authenticity, and intentions, together with corporate social responsibility, ethics, and governance approach, appear with relatively high density but low centrality. This indicates that these themes have been developed in greater depth but remain specialized and only weakly connected to the mainstream research stream. This pattern suggests that greenwashing research is beginning to expand into more specialized directions, particularly those related to brand authenticity, business ethics, and corporate governance. Compared with the more behavior-oriented core themes, these topics currently play a complementary role; however, their presence also reflects an emerging trend in which research is moving beyond market responses to examine the ethical and institutional foundations that shape the credibility of green communication.

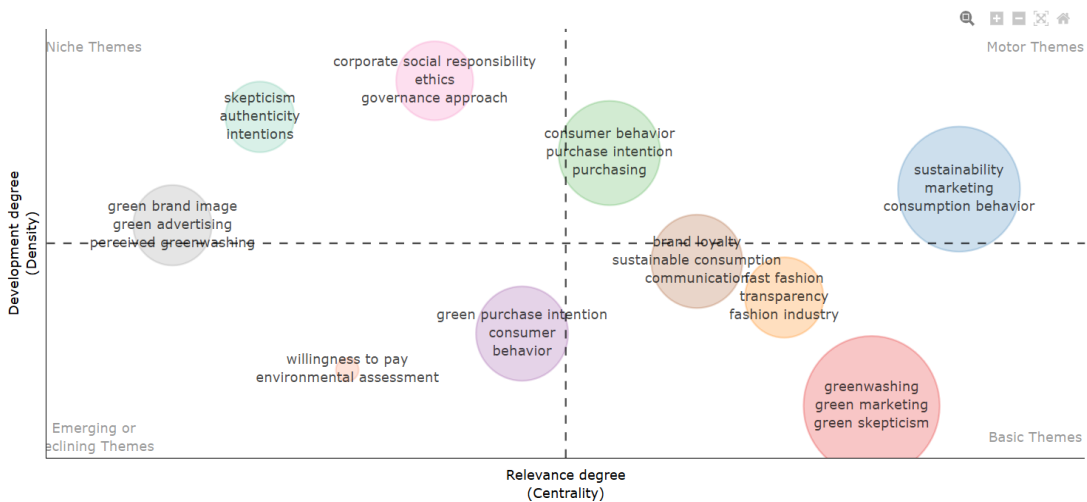


Figure 9. Thematic map.

Source: Authors' calculations using RStudio (version 4.5.2)

Overall, the thematic map suggests that greenwashing research is evolving from a communication-oriented topic into a more integrated field associated with sustainability, consumer behavior, and market legitimacy. While foundational themes such as greenwashing and green skepticism remain central to the field, themes such as sustainability, consumption behavior, and purchase intention are increasingly emerging as key developmental drivers. This indicates that the field is becoming more structurally mature, while also highlighting the need

for deeper research into the psychological mechanisms, industry contexts, and ethical dimensions that shape consumer responses to greenwashing.

4.2.2. Co-occurrence network

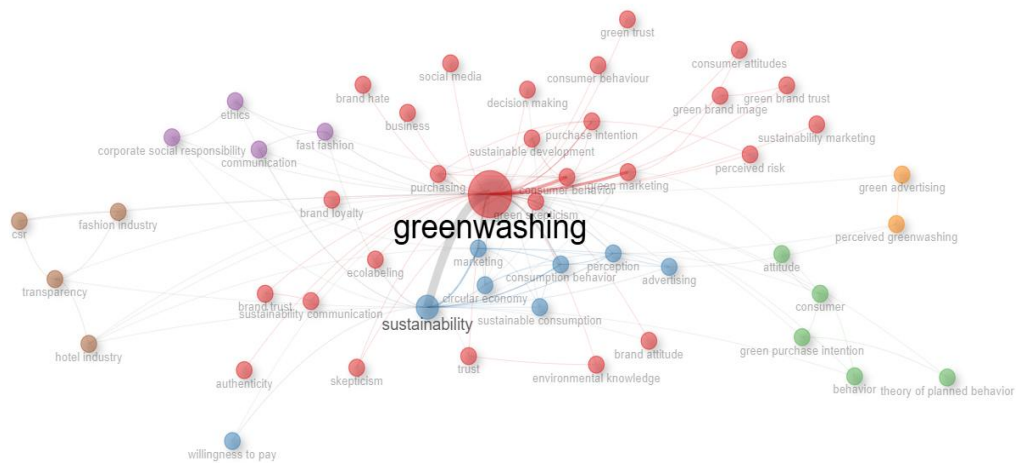


Figure 10. Co-occurrence network.

Source: Authors' calculations using RStudio (version 4.5.2)

- **Perceived greenwashing**

Most studies focus on perceived greenwashing and examine its direct impact on purchase intention, perceived quality, and consumer attitudes. The network visualization illustrates that “perceived greenwashing” forms a distinct cluster closely linked to “green advertising”, suggesting that consumer perception is heavily filtered through the lens of marketing credibility. Consistent findings indicate that when consumers recognize greenwashing practices, negative reactions increase and their intention to purchase environmentally friendly products tends to decline [2].

While this aligns with previous findings, our co-occurrence network analysis suggests that perceived greenwashing may have a particularly strong impact in the fast-fashion sector, where consumers are highly sensitive to sustainability claims. This finding is consistent with studies showing that perceived greenwashing increases skepticism and reduces purchase intention among fashion consumers [1], [2].

- **Green skepticism**

In the network visualization, environmental skepticism is closely linked to green marketing, green trust, perceived risk, and perception, indicating that skepticism emerges as a critical consumer response to environmental claims and is strongly associated with evaluations of credibility and effectiveness. Interpreting these linkages reveals that skepticism is not merely a passive doubt but a critical mediating barrier that proactively filters all brand communication.

This finding is consistent with the thematic map, where environmental skepticism appears within the Basic Themes cluster alongside greenwashing and consumer behavior. This position highlights its high importance to the field while suggesting a relatively modest level of conceptual development.

Both visualizations demonstrate that environmental skepticism plays a crucial mediating role through which greenwashing influences consumer attitudes and decision-making processes.

Specifically, the network reveals that as skepticism becomes more central, it begins to overlap with “authenticity”, suggesting that future research should focus on how authentic communication can dismantle these established skeptical barriers.

- **Greenwashing literacy and perceived value**

Greenwashing literacy and perceived value are implicit yet structurally important constructs. In the network visualization, greenwashing literacy and perceived value are embedded within the cluster of antecedents, attitudes, and determinants of consumer behavior, indicating that they function as foundational cognitive and evaluative factors shaping consumer responses.

Although these concepts do not appear as highly prominent independent themes in the thematic map, their proximity to attitudes, perceptions, and intentions suggest that greenwashing literacy enhances consumers’ ability to critically evaluate environmental claims, while perceived value facilitates the transformation of environmental information into meaningful benefits or costs. In other words, consumers who are highly aware of greenwashing are better able to identify misinformation, thereby increasing the negative impact of perceived greenwashing on skepticism.

This underscores an emerging trend: as the digital-native Gen Z gains more information-processing power (literacy), the threshold for “green trust” becomes significantly higher, making brand transparency a mandatory requirement rather than an optional marketing strategy.

- **Green purchase intention**

Green purchase intention is prominently represented in both visualizations. Specifically, green purchase intention is associated with perceived greenwashing, green skepticism, and perceived value.

The combined analysis suggests a coherent mechanism in which perceived greenwashing plays a central role in shaping consumers’ cognitive and attitudinal responses to green marketing claims, ultimately influencing their green purchase intention.

Furthermore, the emergence of peripheral nodes such as “brand hate” and “social media” in our network analysis signals an emerging trajectory in consumer behavior. This suggests that the consequences of perceived greenwashing are shifting from passive purchase avoidance to active brand retaliation - a critical trend that future research must address to protect brand equity in the era of social commerce. This interpretation implies that for Gen Z, the intention to purchase is no longer just about the product's attributes but is a vote of confidence in the brand's ethical integrity.

Based on the above analyses, the authors propose the following research model:

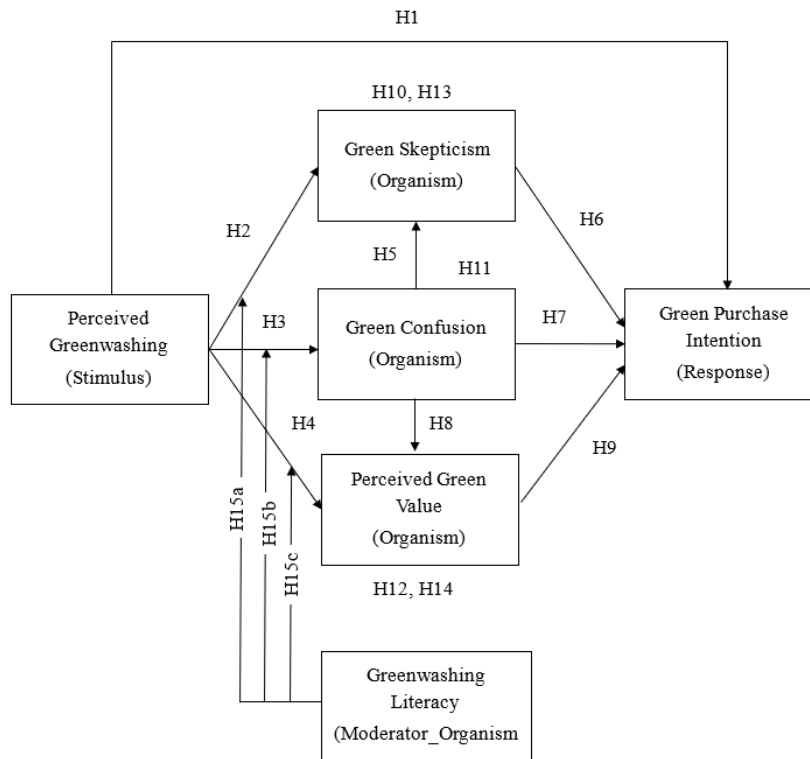


Figure 11. Proposed research model (Source: Developed by the authors)

H1: Perceived greenwashing negatively affects green purchase intention.

H2: Perceived greenwashing positively affects green skepticism.

H3: Perceived greenwashing positively affects green confusion.

H4: Perceived greenwashing negatively affects perceived green value.

H5: Green confusion positively affects green skepticism.

H6: Green skepticism negatively affects green purchase intention.

H7: Green confusion negatively affects green purchase intention.

H8: Green confusion negatively affects green perceived value.

H9: Green perceived value positively affects green purchase intention.

H10: Green skepticism mediates the relationship between perceived greenwashing and green purchase intention.

H11: Green confusion mediates the relationship between perceived greenwashing and green purchase intention.

H12: Green perceived value mediates the relationship between perceived greenwashing and green purchase intention.

H13: Green skepticism mediates the relationship between green confusion and green purchase intention.

H14: Green perceived value mediates the relationship between green confusion and green purchase intention.

H15a: Greenwashing literacy strengthens the relationship between perceived greenwashing and green skepticism.

H15b: Greenwashing literacy weakens the relationship between perceived greenwashing and green confusion.

H15c: Greenwashing literacy strengthens the relationship between perceived greenwashing and green perceived value.

- **Argumentation for hypotheses based on Signaling theory:**

The theoretical framework below focuses on information asymmetry, signal quality, and signal reliability between businesses (signal senders) and consumers (signal receivers).

H1: Perceived greenwashing (PG) negatively affects green purchase intention (GPI): From a signaling-theory perspective, consumers rely on environmental claims as signals of a brand's underlying environmental quality when deciding whether to buy. When Gen Z consumers perceive that a fast-fashion brand is engaging in greenwashing, they infer that the signal is dishonest and that the true environmental quality of the product is lower than advertised, increasing perceived risk and moral discomfort. To protect themselves from financial loss and reputational or ethical disutility, they are more likely to avoid the transaction, which implies a negative effect of perceived greenwashing on green purchase intention.

H2: Perceived greenwashing (PG) positively affects green skepticism (GS): According to Signaling Theory, the credibility of a signal depends on its consistency and verifiability over time. Greenwashing violates these conditions because firms exaggerate or misrepresent their environmental performance, creating a gap between promotional signals and observable practices. Once Gen Z consumers detect this inconsistency, they downgrade the trustworthiness of current and future environmental claims and become more likely to question the motives behind green communication, which translates into higher levels of green skepticism.

H3: Perceived greenwashing (PG) positively affects green confusion (GC): In markets where both genuinely green and superficially green products coexist, extensive use of vague, overlapping, or self-declared eco-labels increases the informational noise surrounding sustainability claims. When fast-fashion brands engage in greenwashing, they add more ambiguous or contradictory signals into this already crowded communicative environment, making it harder for Gen Z consumers to distinguish authentic green products from deceptive ones. As signaling theory suggests, this "pooling" of honest and dishonest signals drives confusion on the receiver side, so higher perceived greenwashing is expected to be associated with higher green confusion.

H4: Perceived greenwashing (PG) negatively affects ~~green~~ perceived green value (GPV PGV): Cognitive Appraisal Theory explains that individuals first appraise whether a situation threatens their goals (primary appraisal) and then evaluate their ability to cope with it (secondary appraisal). When Gen Z consumers perceive that firms' environmental claims are exaggerated or misleading, they appraise this inconsistency as a threat to making a correct and value-consistent purchase decision. This negative appraisal reduces the perceived credibility and expected environmental benefits of the product, thereby lowering its green perceived value.

- **Argumentation hypotheses based on Cognitive Appraisal Theory [14]:**

This theoretical framework explains consumer behavior through a continuous three-step process: Stimulus (Environmental Event) leads to Assessment (Primary Assessment of Threat/Benefit and Secondary Assessment of Control), ultimately leading to Response (Emotion and Specific Behavior).

H5: Green confusion (GC) positively affects green skepticism (GS): Cognitive Appraisal Theory explains that individuals first appraise whether a situation threatens their goals

(primary appraisal) and then evaluate their ability to cope with it (secondary appraisal). When Gen Z consumers encounter ambiguous or inconsistent green information, they appraise this as a threat to making a correct, value-consistent decision and experience green confusion as a state of cognitive strain. To regain a sense of control, they re-appraise the situation by questioning the motives and honesty of the firms involved, which leads to a more stable skeptical attitude toward environmental claims; thus, higher green confusion is expected to induce higher green skepticism.

H6: Green skepticism (GS) negatively affects green purchase intention (GPI): Once an event has been appraised as potentially deceptive or harmful, Cognitive Appraisal Theory suggests that individuals adopt avoidance-oriented coping strategies. In this study, green skepticism represents Gen Z's appraisal that environmental claims are unreliable and that purchasing on the basis of such claims entails reputational and financial risk. To cope with this perceived threat, skeptical consumers reduce or withdraw their intention to buy green-labeled fast-fashion products, implying a negative relationship between green skepticism and green purchase intention.

H7: Green confusion (GC) negatively affects green purchase intention (GPI): Ambiguity and perceived lack of control are key stressors in Cognitive Appraisal Theory and often result in decision paralysis or withdrawal. When Gen Z consumers feel confused by overlapping eco-labels and contradictory messages, they cannot confidently evaluate which products truly support their environmental goals. To avoid the discomfort and potential regret associated with making a wrong choice, they are likely to delay or abandon purchases of green-labeled items, leading to a negative effect of green confusion on green purchase intention.

H8: Green confusion (GC) negatively affects green perceived value (GPV): Perceived green value presupposes that consumers can clearly link product attributes to environmental benefits. High levels of green confusion break this link: consumers cannot verify whether the product genuinely contributes to environmental protection or merely appears green at the surface level. Because uncertain or unverifiable benefits are often appraised as less valuable or unreliable, confused consumers tend to downgrade their evaluation of the product's environmental value, supporting a negative association between green confusion and perceived green value.

H9: Green perceived value (GPV) positively affects green purchase intention (GPI): When consumers appraise a product as delivering credible and substantial environmental benefits that align with their personal values, the situation is evaluated as benign-positive in Cognitive Appraisal Theory. For Gen Z, high perceived green value means that choosing a specific fashion item helps them achieve goals related to sustainability and self-image, which activates approach-oriented coping in the form of a stronger willingness to buy. Therefore, higher perceived green value is expected to increase green purchase intention.

H10: Green skepticism (GS) mediates the relationship between perceived greenwashing (PG) and green purchase intention (GPI): Within the S-O-R logic derived from Cognitive Appraisal Theory, external stimuli do not directly determine behavior but operate through internal organismic states. Perceived greenwashing is a stimulus that signals potential dishonesty, but it is the resulting skepticism, a cognitive appraisal that green claims are untrustworthy that more proximally drives Gen Z to avoid purchasing green-labeled fast-fashion products. Thus, perceived greenwashing is theorized to reduce green purchase intention partly because it increases green skepticism, indicating a mediating role for GS in the PG-GPI relationship.

H11: Green confusion (GC) mediates the relationship between perceived greenwashing (PG) and green purchase intention (GPI): When greenwashing is present, the green communication environment becomes noisy and internally inconsistent, which consumers first

experience as confusion rather than an immediate behavioral decision. Green confusion reflects the appraisal that information is too ambiguous to support a confident choice, leading Gen Z to cope by postponing or withdrawing from purchase decisions. Consequently, the negative impact of perceived greenwashing on green purchase intention is expected to operate partly through the intermediate state of green confusion.

H12: Green perceived value (GPV) mediates the relationship between perceived greenwashing (PG) and green purchase intention (GPI): Perceived greenwashing prompts consumers to re-evaluate whether a product truly delivers the environmental benefits it claims. Through this appraisal process, Gen Z may conclude that the product's environmental value is much lower than suggested or even negligible, thereby diminishing the incremental benefits they expect from choosing it over conventional alternatives. Because lower perceived green value reduces the motivation to purchase, GPV is posited to mediate the effect of PG on GPI: greenwashing first erodes perceived value, which then suppresses green purchase intention.

H13: Green skepticism (GS) mediates the relationship between green confusion (GC) and green purchase intention (GPI): Cognitive Appraisal Theory highlights that initial appraisals of ambiguity are often followed by re-appraisals that attribute responsibility and infer motives. In this framework, green confusion represents the initial recognition that environmental information is unclear, whereas green skepticism reflects a more elaborated belief that firms may be intentionally misleading consumers. It is this skeptical belief, rather than confusion alone, that directly motivates avoidance of green-labeled products; therefore, GS is expected to mediate the pathway from GC to GPI.

H14: Green perceived value (GPV) mediates the relationship between green confusion (GC) and green purchase intention (GPI): When consumers are confused by conflicting or opaque green claims, they cannot confidently determine whether a product supports their sustainability goals. This unresolved uncertainty leads them to infer that the product's environmental benefits are limited or at least not clearly superior, which lowers perceived green value. Because reduced GPV diminishes the incentive to engage in green purchasing, GPV is expected to mediate the relationship between GC and GPI: confusion undermines value perceptions, which in turn decreases green purchase intention.

● **Argumentation hypotheses based on the Elaboration Likelihood Model (ELM)**

This theoretical basis relies on two information processing pathways: the central pathway (thorough processing) and the peripheral pathway (superficial processing), depending on the capacity and motivation of the recipient (here, Greenwashing Literacy - GL). According to Petty & Cacioppo [17], in this model, Greenwashing Literacy (GL) is considered a tendency of ability and motivation in ELM, specifically:

(1) Ability to understand environmental concepts, green certifications, and production impacts;

(2) Motivation to care about and apply that knowledge to purchasing decisions.

People with high GL have both the analytical capacity (central route) and the motivation to do so, so they process green advertising rationally and rigorously.

H15a: Greenwashing literacy (GL) strengthens the relationship between perceived greenwashing (PG) and green skepticism (GS): The Elaboration Likelihood Model states that individuals with higher knowledge and involvement are more likely to process persuasive messages via the central route, carefully evaluating argument quality and evidence. Gen Z consumers with high greenwashing literacy possess greater ability and motivation to analyze environmental claims, making them more sensitive to inconsistencies, omissions and manipulative tactics embedded in greenwashing. As a result, when these consumers perceive

greenwashing, they are more likely to form strong skeptical attitudes, implying that GL amplifies the positive effect of PG on GS.

H15b: Greenwashing literacy (GL) weakens the relationship between perceived greenwashing (PG) and green confusion (GC): ELM also suggests that knowledgeable consumers are less vulnerable to peripheral cues and less prone to cognitive overload when processing complex information. Gen Z individuals with higher greenwashing literacy have mental schemas and diagnostic rules that help them categorize and interpret diverse sustainability claims, even in a noisy communication environment. Consequently, although they may detect greenwashing, they are less likely to feel disoriented or unable to evaluate options, so GL is expected to attenuate the positive relationship between PG and GC.

H15c: Greenwashing literacy (GL) strengthens the relationship between perceived greenwashing (PG) and green perceived value (GPV): From an ELM perspective, high-literacy consumers integrate detailed scrutiny of messages with their own standards when forming value judgments. When they perceive greenwashing, they do not simply dismiss all green value claims uniformly. Instead, they adjust their evaluations more sharply, penalizing products whose environmental signals fail to meet their expectations and rewarding those that still provide credible evidence. This more discriminating process implies that perceived greenwashing exerts a stronger impact on perceived green value among consumers with higher GL, consistent with a strengthening moderate effect of GL on the PG-GPV relationship.

5. CONCLUSION

This study confirms that perceived greenwashing represents an important continuation and advancement in the academic stream of sustainable consumption research. Through bibliometric analysis supported by the Biblioshiny tool, the results demonstrate the urgency and strong appeal of the greenwashing topic, as evidenced by the remarkable growth in scientific publications in recent years. The systematic data analysis not only verifies that this is a globally trending research field, but also clearly identifies research gaps related to the internal psychological mechanisms of consumers. These gaps serve as a key foundation for the authors to develop the proposed research model, aiming to address theoretical shortcomings in the current market context.

From a theoretical perspective, the study clarifies the complex impact mechanism of greenwashing behavior through the S-O-R framework. While previous studies have often focused on direct relationships or isolated variables, the proposed model introduces a novel approach by simultaneously integrating green skepticism, green confusion, and perceived green value as mediating variables that reflect internal psychological states. Notably, incorporating greenwashing literacy as a moderating variable represents an innovative contribution, helping to explain how consumers' knowledge can alter the strength of negative effects. In addition, integrating S-O-R Model with Signaling Theory, Cognitive Appraisal Theory and Elaboration Likelihood Model into explaining the impact of perceived greenwashing on consumer's green purchase intention is the other theoretical contribution of this article, which is considered as a novel combination. Moreover, this integrated model could be extended to other contexts where consumers have to evaluate the authenticity of sustainability messages.

From a practical standpoint, the findings provide brand managers in Vietnam's fast fashion industry with deeper insights into the psychological "black box" of consumers. This understanding enables the development of transparent communication strategies to protect brand reputation and maintain long-term customer loyalty. Additionally, although the study references the fast fashion industry, the proposed model could be applicable to many other

industries such as cosmetics, food, or electric vehicles – where green marketing is prevalent and carries the potential for greenwashing.

Despite its contributions, the study has certain limitations. The primary data sources were international peer-reviewed journals and did not include conference papers, theses, or other forms of gray literature. This may limit the diversity of local perspectives, particularly in the context of emerging economies. Therefore, future research should broaden the scope of data sources and adopt quantitative approaches to further test and deepen the examination of the relationships among perceived greenwashing, psychological states, and green purchase intention.

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