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# Consumer Awareness of Fashion Greenwashing: Insights from Social Media Discussions

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**Abstract:** Greenwashing, the phenomenon of companies misleading consumers about their sustainability practices, is prevalent in the fashion industry. This study explores consumer opinions on greenwashing through analysis of social media discourse. Cognitive dissonance theory served as the theoretical framework, explaining how consumers reconcile conflicting information about brands' sustainability claims. In Study 1, 446 comments on 12 Reddit posts were collected using the search term "fashion greenwashing". Using the Latent Dirichlet Allocation (LDA) algorithm and manual review, we identified three major themes: the phenomenon of fashion greenwashing, consumer empowerment in sustainable fashion, and skepticism towards fast fashion brands' marketing strategies. In Study 2, using the search term, "#fashiongreenwashing", two researchers collected and analyzed 76 Instagram posts with 370 comments. A manual review was employed to extract major themes, and network graphs of caption tags within the same theme were constructed. Three major themes emerged: strategies to combat fashion greenwashing, examples of fashion greenwashing, and advocacy and regulation in sustainable fashion. Findings from Studies 1 and 2 revealed that consumers are increasingly aware of brands' deceptive practices and advocacy for sustainable practices to resolve this dissonance when they see greenwashing information. This study underscored the need for fashion brands to provide transparent and authentic information.

**Keywords:** fashion greenwashing; green marketing; fashion sustainability; social media; apparel and textile industry; cognitive dissonance

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## 1. Introduction

The global fashion industry, with its notoriously fragmented and complex value chain, has become one of the top industrial polluters, and has recently been identified as one of greenwashing's worst offenders [1]. Greenwashing is a term that describes the phenomenon of companies misleading consumers about the environmental benefits of their products or their commitment to sustainability to increase profits [2,3]. The explosive growth of the fast fashion sector and the emergence of ultra-fast fashion (e.g., Shein, Temu) has exacerbated the industry's environmental and social impacts and created seemingly insurmountable challenges in the form of overproduction at the company level and overconsumption at the consumer level.

Concerningly, in their annual *State of Fashion 2025* report, Business of Fashion (BOF) and McKinsey & Company highlighted several trends that are hindering transformation toward a more sustainable fashion industry [4]. First, brands and suppliers deprioritized sustainability commitments in 2024, report 18 percent of industry executives identifying

sustainability as a top-three risk, a decline of 11 percent from the 2023 reporting. The apparel industry also remains the world's least regulated industry. In the absence of government mandates, many companies have implemented their own decarbonization targets, yet 63 percent of businesses are not on track to meet their 2040 benchmarks [4]. The apparel industry's complex supply chain and lack of regulation are both primary factors that have led to widespread and unchecked greenwashing in the fashion industry [1]. As greenwashing practices by companies continue unabated, the apparel industry posted record economic profit in 2024. Furthermore, as retail growth in emerging markets with large populations (e.g., China, India) continues, global apparel consumption is projected to rise by 63 percent by 2030. Continuing this growth trajectory will result in the industry using ≈25 percent of the world's carbon budget annually by 2050 [4].

At the consumer level, the *State of Fashion 2025* report acknowledges that despite consumers' increasingly positive sentiment toward sustainability, the most significant barriers to advancing sustainable consumption are the persistence of the action–intention gap (also known as the attitude–behavior gap), reluctance to pay a premium for sustainable products, and misinformation in the market that has positioned sustainability as a company-facing responsibility, rather than a shared responsibility that will require collective action by all institutional actors (e.g., consumers, companies, governments, NGOs) to achieve meaningful change [4]. This assessment underscores the harmful consequences that greenwashing has for both consumers and the environment, and suggests that socially conscious consumers are being manipulated by fashion brands' greenwashing. These tactics undermine genuine sustainability efforts within the industry and slow the paradigm shift to a more sustainable apparel system.

Social media has established its value as a powerful marketing tool across sectors, including apparel, consumer product goods, and the consumer services sector [5,6]. Several research studies have examined apparel retailers' social media presence, and the widespread use of greenwashing related to ESG goals and product claims, as a means of facilitating a sustainable brand image [7,8]. Influencer content also informs consumers' purchase intentions and brand perceptions, with these trusted individuals being paid to promote brands' greenwashed messaging to their thousands, and in some cases millions, of followers [9,10]. On the consumer end, an increase in sustainability awareness, especially among millennials and Gen Z, has coincided with increased awareness of greenwashing and skepticism towards brands' sustainability claims on social media, and the topic is now being discussed more frequently among consumers on these platforms.

The growing body of literature on fashion greenwashing primarily consists of research in four areas: (1) studies aiming to conceptualize greenwashing and its forms [11,12], (2) studies investigating the extent to which apparel brands are utilizing greenwashed messages on social media and the potential risks and gains associated with employing them [13–16], (3) controlled studies surveying consumers about their perceptions of a particular brand or brands' greenwashed social media messages and whether the companies' use of greenwashing impacts brand perception, brand trust, and purchase intention [17–20], and (4) controlled studies gauging consumers' ability to spot this deception when presented with greenwashed marketing messages [21].

A substantial review of the extant literature suggests that, to date, there has been no research investigating the organic consumer discussions about greenwashing that are occurring across social media platforms. Therefore, the consumer perspective, including an analysis of organic social media discussions to gauge consumers' level of understanding, perceptions, and knowledge gaps with respect to fashion greenwashing, offers fertile ground for research exploration [14,18]. Meaningful implications for both consumer education and for sustainable brands aiming to avoid greenwashing and better inform their

target consumers could be gained by exploring the contexts and topics being organically discussed by consumers on social media.

This research seeks to fill a gap in the literature by analyzing current consumers' discussions regarding fashion greenwashing on social media platforms. Identifying knowledge gaps in consumers' understanding of this topic will be fundamental to the development of effective educational and marketing strategies to combat misinformation and fashion greenwashing. Three research questions guided the present study:

(1) What are the themes and concerns discussed in relation to fashion greenwashing on social media?
(2) How do social media users resolve cognitive dissonance when they learn about fashion greenwashing?
(3) Are there any observable knowledge gaps in social media discussions about fashion greenwashing?

## 2. Literature Review

### *2.1. Degrees and Classifications of Fashion Greenwashing*

Although consumer awareness of greenwashing has increased in recent years, the concept is not new. It was first introduced by environmentalist Jay Westervelt in 1986, when he highlighted the hospitality industry's method of promoting towel reuse by guests, purportedly as a means of practicing sustainable behavior, when the tactic was really a cost-saving measure [22]. In recent years, the growing number of businesses across industries that have introduced net zero emission targets has coincided with an increase in observable instances of greenwashing [14]. In an industry that already faces major hurdles in addressing its environmental and social impacts, perhaps the most egregious aspect of fashion greenwashing is that it delays and detracts from the development of real solutions [12].

De Freitas Netto et al. acknowledged that due to the multifaceted nature of the greenwashing phenomenon, it does not have a rigid definition, which poses challenges for counteracting its effects [11]. In a systematic review of the extant literature, the researchers established a major classification of greenwashing: firm-level executional, firm-level claim, product-level executional, and product-level claim. The authors found that the bulk of existing research largely focuses on product- and service-level claim greenwashing "which uses textual arguments that explicitly or implicitly refer to the ecological benefits of a product or service to create a misleading environmental claim" [11] (p. 7).

**Claim Greenwashing.** Claim greenwashing in the fashion industry can be applied in several ways. Companies may employ marketing messages that make false claims, claims that omit important information that would allow consumers to assess statements' accuracy, or make claims that use vague or ambiguous language meant to confuse [22]. The proliferation of terms used to describe sustainable practices (e.g., "eco-friendly", "circular", "vegan", "carbon neutral"), and the lack of industry-wide standards for measuring sustainable outcomes, makes the apparel industry particularly susceptible to greenwashing [1]. The lack of standards also allows companies to use misleading labels, with evidence suggesting that fashion brands have used both self-created eco-labels and certifications that lack third-party verification [23–25].

To increase consumer awareness, NGOs such as Fashion Revolution, Greenpeace's Detox Campaign, and Changing Markets Foundation are now screening brands' sustainability claims. For example, in a 2021 report, the Changing Markets Foundation found that ≈59 percent of all green claims by EU and UK fashion brands were misleading [26]. Among fast fashion brands, that figure was over 95 percent, with H&M being the worst offender [27,28]. Fast fashion brands also benefit from greenwashing by charging a pre-

mium for supposedly sustainable collections (e.g., Zara Join Life, H&M Conscious, Mango Committed, Primark Cares) [23]. Other types of claim greenwashing relevant to the fashion industry include selective discourse, or brands highlighting one or two sustainable practices while ignoring their overall environmental impact, such as Zara's promotion of their 100 percent energy-efficient stores [28,29]. Promoting progress toward sustainability objectives, while failing to disclose setbacks or missed targets, is another common application of selective discourse in fashion [30]. Decoupling behavior can include symbolic environmental protection behaviors or failure to fulfill environmental protection commitments [31,32]. Companies' decoupling practices are made easier because they are not legally mandated to achieve their targets and face no consequences when they fail to do so [26]. The *State of Fashion 2025* documented an industry-wide decoupling in 2024, as brands deprioritized sustainability commitments and walked back their targets for benchmark years 2030 and 2040 [4].

**Executional Greenwashing.** Parguel [22] identified executional greenwashing in companies' advertising execution. This form of greenwashing, also called nature-rinsing, does not utilize claims, but employs nature-evoking imagery that leads consumers to develop false perceptions of a brand's greenness [33]. The highly visual and editorial nature of fashion advertising lends itself to this type of greenwashing. Importantly, in their empirical survey research, Parguel [22] found that moderating factors (e.g., non-expert consumers, expert consumers) influence consumer perceptions. Greenwashed advertising executional elements only generated higher perceptions of a brand's greenness among non-expert consumers, or those with low knowledge of environmental issues. The perceptions of expert consumers were not significantly affected by the presence of these elements in advertisements. These findings underscore the importance of information transparency by companies to educate consumers.

Consumers have become savvy to executional greenwashing practices in the food and automotive sectors, and are increasingly discerning this widely used tactic by fashion brands [22,34–36]. Prevalent executional greenwashing among fashion brands, such as Shein, has revealed a stark contrast between companies that aim to evoke an environmentally friendly brand reputation through imagery and those brands (e.g., Everlane, Patagonia) whose websites feature transparent disclosures (e.g., product cost breakdowns, supplier and factory information, efforts to improve labor conditions, environmental impact of each product) that assist shoppers in evaluating products' sustainability. Third-party tools, such as Fashion Revolution's Fashion Transparency Index, Eco-Stylist, and GoodOnYou also exist to provide consumers with credible assessments of apparel brands' progress towards sustainability, helping to combat both executional and claim greenwashing [28].

**Degrees of Greenwashing.** de Jong et al. acknowledge different "shades", or degrees, of greenwashing and study consumer reactions to these [37]. In their study, behavioral greenwashing was defined as telling the truth, telling half-lies, and telling lies, while motive greenwashing was defined as an organization acting on its own initiative or taking credit for following legal obligations. Nemes et al. documented the severity of misleading and deceptive claims in both the regulated commercial sphere and the unregulated non-commercial sphere (e.g., governments, NGOs) and proposed a framework for analyzing these claims' quality and truthfulness [12]. The framework uses statements, indicators, and questions across three categories (i.e., impact, alignment, communication) to examine a marketing claim, determine whether it is greenwashed, and give a weight to the greenwashed claim in terms of seriousness (e.g., exaggerated, deceptive, outright lying) and potential impact (e.g., scope, severity). The authors suggest that the tool can be employed by organizations aiming to avoid greenwashing in their internal and external communications, but also as a heuristic tool for individuals who want to evaluate the veracity of the claims being disseminated

by the companies they are supporting with their dollars [12]. Supran, in partnership with the Algorithmic Transparency Institute, conducted a textual and visual content analysis of 2325 organic posts across several social media platforms (e.g., TikTok, Twitter, Facebook, Instagram, YouTube) generated by 22 major European Union-based fossil fuel producers, car manufacturers, and airlines [33]. The study exposed digital climate deception across industries at various levels of severity (ranked "green to dirty" in the study).

### *2.2. Social Media's Role in Fashion Greenwashing*

Social media platforms act as powerful marketing tools for fashion brands. However, when brands market their progress toward sustainability, any claims that are greenwashed are also amplified by users. The wide and rapid dissemination of viral content makes it difficult for consumers to verify claims' accuracy [38]. When brands' greenwashing claims gain traction, the misinformation may reach millions of people before any fact-checking occurs. The rise of influencer marketing has allowed brands to further their messaging's reach. Brands collaborate with influencers, who have large followings and high levels of trust with their audiences, to promote products as sustainable. These claims are rarely vetted thoroughly [7]. Influencers push their communities "to think more sustainably—just enough to suit their branding needs—but never hard enough to cause the disruptive change that would lead to a significant environmental impact" [39] (p. 10). Social media algorithms also expose users to information that reinforces their existing beliefs, creating echo chambers and making it easier for greenwashing claims to be accepted without critical scrutiny.

The substantial impact of social media in shaping millennials' and GenZ's attitudes and purchase intentions toward brands is well-documented in the literature, as is these generations' positive orientation toward sustainable consumption [40–44]. Research on greenwashing on social media confirms that businesses across product sectors are heavily engaged in this practice, and consumer awareness of this tactic, both by companies and the influencers they work with, is increasing [22,38,45,46]. For example, in a 747-person survey of consumers aged 18–35, Sinisalo [20] found that over 90 percent of respondents had observed greenwashing on social media, with Instagram and YouTube identified as the platforms with the most observable greenwashed messaging. Sixty percent of survey respondents stated that they conduct more research on a brand after seeing an online claim they believe is greenwashed, underscoring the need for brands to feature clear and transparent sustainability information on their websites and the importance of consumer education in deterring companies from adopting these practices. The Sinisalo [20] study also found that over 70 percent of respondents had an unfavorable or very unfavorable perception of a brand after identifying greenwashing in its advertising. The negative impact of social media greenwashing on brand perception and brand trust has been found in several other studies [47–49]. However, price often remains the most important indicator of purchase intention among younger cohorts [18,38]. For example, Sinisalo [20] noted that 35 percent of respondents suggested that they would still purchase from brands that employ greenwashing tactics. Among that group of respondents, over 90 percent explained their reasoning, stating that although they were aware of companies' greenwashing tactics, those companies' price points suited their budget. Product availability was another factor that swayed consumers to continue purchasing from companies that greenwash, suggesting that consumers may not feel confident in seeking out sustainable alternatives at comparable prices [20]. These findings indicate that consumers still demonstrate an attitude–behavior gap when faced with knowledge of a company's greenwashing when weighing it against other purchasing criteria (e.g., price, product availability).

Conversely, social media can also be a powerful tool for exposing greenwashing by leveraging awareness and education. As consumers become more aware of greenwashing,

they are increasingly skeptical of sustainability claims (i.e., green skepticism). Social media is often used to call out and criticize brands for misleading claims, which can impact purchase intentions and damage brand reputation [50–52]. Adi [53] explored consumers' understanding of sustainability using "#sustainability" on Twitter to monitor organic user-generated content, while Sailer et al. [54] explored consumer evaluations of Black Friday-related sustainable fashion marketing on Instagram. However, to date, no research has explored current online consumers' organic social media discussions on greenwashing (i.e., "#fashiongreenwashing") to better understand their awareness and opinions about this practice by fashion brands. The present study aims to fill that gap.

### *2.3. Cognitive Dissonance Theory in Fashion Greenwashing*

Cognitive dissonance theory is related to the discomfort people feel when they hold conflicting cognitions (i.e., thoughts, beliefs, attitudes), or when their behaviors are inconsistent with their beliefs [55]. This discomfort motivates individuals to reduce dissonance by altering their attitudes, beliefs, or behaviors or rationalizing their decisions [55,56]. Cognitive dissonance theory has been widely applied to understand consumer behavior, particularly in response to misleading corporate practices like greenwashing [57,58]. Greenwashing, particularly prevalent in the fashion industry, refers to companies that market themselves as environmentally friendly without implementing sustainable practices [59,60]. Greenwashing has emerged as a significant challenge within the broader discourse of corporate sustainability, leading to growing concerns about consumer deception.

In the context of fashion, consumers who prioritize sustainability often experience dissonance when they realize that the brands they support fail to meet environmental expectations [61]. For instance, many fashion companies promote the use of recycled materials or low-impact manufacturing techniques. However, these initiatives are often superficial or limited in scope, leading to a significant gap between claims and practices [62].

Fashion brands have increasingly adopted sustainability-focused marketing to appeal to environmentally conscious consumers [63–65]. However, many of these sustainability claims are often exaggerated or unsubstantiated, further contributing to the greenwashing problem [66]. The gap between the brands' stated commitments to sustainability and their actual environmental impact erodes consumer trust and undermines broader sustainability efforts within the industry [67,68].

The impact of greenwashing on consumer behavior has been the subject of increasing academic scrutiny. For example, research indicates that consumers experience psychological conflict when they encounter greenwashing, as it challenges their values and expectations regarding sustainability [69,70]. This cognitive dissonance can manifest in various ways, such as reduced brand loyalty or a reluctance to make future purchases from the offending company [66]. Consumer dissatisfaction has prompted scholars to call for greater transparency and accountability in fashion brands' sustainability practices [71].

### *2.4. Consumer Reaction to Reduce Cognitive Dissonance in Fashion Greenwashing*

Consumers who prioritize sustainability are often drawn to fashion brands that emphasize eco-friendly initiatives. However, upon discovering that these efforts are minimal or symbolic—such as the limited use of recycled materials or the failure to address significant environmental issues in the supply chain—consumers experience cognitive dissonance [69].

To alleviate this discomfort, consumers employ various coping mechanisms. One common strategy is rationalization, which entails focusing on the brand's minor positive environmental contributions while downplaying or ignoring the more harmful aspects of its operations [57]. For example, a consumer may emphasize a brand's use of organic cotton in a small portion of its product line, while disregarding the fact that the majority of

the brand's practices remain environmentally detrimental [58]. This form of rationalization helps reduce dissonance by aligning the consumer's actions with their beliefs, even if it involves accepting less-than-ideal practices [72].

Selective exposure is another coping mechanism, where consumers seek information that reinforces their original belief in the brand's sustainability while avoiding conflicting information [73]. By focusing on positive marketing messages or partnerships with environmental organizations, consumers can sustain their favorable perception of the brand despite external reports of greenwashing [74]. This behavior allows consumers to sidestep the discomfort of cognitive dissonance by filtering information in a way that supports their pre-existing attitudes toward the brand [69].

Furthermore, the concept of effort justification—when consumers rationalize the effort they have invested into identifying and supporting sustainable brands—can intensify dissonance when greenwashing is discovered [75]. Consumers may exaggerate the significance of the brand's minor environmental initiatives or downplay the severity of its misleading practices to justify their continued support [72]. This justification helps consumers to maintain a sense of consistency in their actions and beliefs, thus reducing the psychological discomfort associated with cognitive dissonance [56].

The prevalence of greenwashing in the fashion industry complicates consumers' ability to make informed decisions about sustainability, leading to these psychological strategies to reduce cognitive dissonance [69,70]. By understanding these coping mechanisms, researchers can better understand the complex relationship between consumer values, corporate behavior, and brand reputation. The persistence of cognitive dissonance in response to greenwashing underscores the need for greater transparency and accountability in corporate sustainability efforts, as well as the potential long-term effects on consumer trust and loyalty [66]. In this study, the cognitive dissonance theory serves as a framework to interpret how consumers psychologically manage the inconsistencies between their sustainability values and fashion greenwashing information on social media.

## 3. Methods

In this study, Instagram and Reddit were chosen as the data sources due to their extensive user bases, which engage in detailed discussions on fashion greenwashing. Reddit provided long-form, discussion-based content, allowing the researchers to observe in-depth consumer awareness, perceptions, and debates surrounding fashion greenwashing. Instagram offered shorter user-generated textual data but provided valuable insights into consumer engagement and responses to the posts tagged with fashion greenwashing. By combining data analysis from these two platforms, the researchers captured both the depth of consumer perceptions (from Reddit) and the breadth of real-time responses and engagement behaviors (from Instagram).

### *3.1. Data Collection*

To obtain the relevant data from Reddit, the search term "#fashion greenwashing" was used to identify pertinent posts and comments. Only posts that had a minimum of five comments were considered for analysis to ensure sufficient depth of discussion. To obtain the relevant data from Instagram, the researchers used the search term "#fashion-greenwashing". Only the posts with "#fashiongreenwashing" tags would be identified and collected with the customer responses. Some Instagram posts were hidden and could not be crawled. Posts and comments in other languages were excluded using Python-based language detection tools. Overall, 446 comments from 12 distinct posts were collected from Reddit and 76 posts with 370 customer reviews were collected from Instagram using Python 3.11.8 on 28 June 2024. To accurately classify the topics and explore the underlying

reasons for praise and complaints, each Reddit user comment was split into sentences. A total of 1927 sentences were obtained from the whole textual dataset. A text-mining research schema was built to extract and analyze the information from the text data source, as shown in Figure 1.

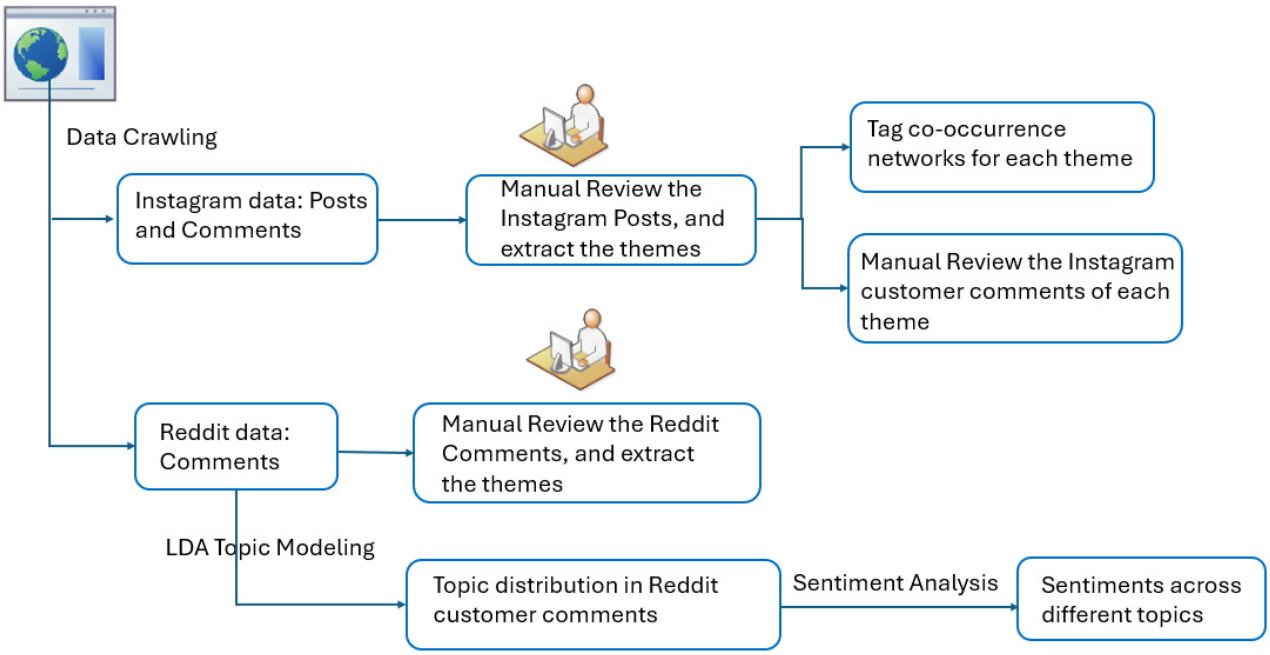



**Figure 1.** Research method flow.

### *3.2. Data Analysis*

Two researchers manually reviewed the Instagram captions, and iteratively discussed and determined the recurring themes. During the manual review phase, we identified comments containing sarcasm. Overall, 7 comments containing sarcasm were subsequently excluded from text mining and sentiment analysis processes to ensure the accuracy and reliability of the data analysis. Each caption was then manually assigned to the dominant theme. The network graphs of tags in the captions within the same theme were constructed to analyze the key tags and content that captions aimed to convey to consumers. In this study, tag co-occurrence frequencies in captions within the same theme were counted separately in R-4.3.2, using the widyr package [76]. Then, the customer responses toward captions within the same theme were grouped and manually reviewed to extract nuanced consumer opinions and identify specific concerns or endorsements related to each theme.

Given the relatively modest size of the dataset, it was feasible to manually review the content of the Reddit textual data. Two researchers manually reviewed the Reddit customer conversations to extract major themes. Meanwhile, topic modeling methods were also adopted in this study. Among various topic modeling methods, the Latent Dirichlet Allocation (LDA) algorithm [77] was also utilized by the Gensim toolkit in Python, to extract the detailed topics from Reddit customer conversations to better identify customers' knowledge level and knowledge gap. The LDA method was chosen in this study because it is a probabilistic model specifically designed for unsupervised topic modeling, making it ideal for identifying hidden topics without predefined labels or categories. Meanwhile, other topic modeling methods, such as BERT, excel at contextual understanding, which requires substantial labeled data for fine-tuning. And TF-IDF identifies terms' importance but does not capture semantic relationships or group words into coherent themes. The output of LDA includes topics represented by a list of keywords, where the keywords are ordered in decreasing probability. In this study, the eight keywords with the highest

probabilities were chosen to indicate each topic. For each Reddit comment sentence, the LDA model generates a distribution of topics it pertains to. The topic with the highest probability is identified as the dominant topic of that particular sentence. This dual-method approach allowed for a thorough examination of the data, where the themes identified through manual review were cross-verified and enriched by LDA text analysis.

To differentiate customers' sentiments toward different topics in Reddit comments, sentiment analysis was conducted using the Valence Aware Dictionary and sEntiment Reasoner (VADER) toolkit in Python [78]. VADER could calculate a polarity score and normalize the score to be between −1 (extremely negative) and +1 (extremely positive). In this study, sentences with polarity scores smaller than −0.1 were classified as "negative", while sentences with polarity scores larger than 0.1 were considered as "positive".

## 4. Results

### *4.1. Findings from Instagram Data*

In the Instagram captions with the tag "#fashiongreenwashing", three major themes were manually categorized by the researchers. The tag co-occurrence network of Instagram captions on three themes are also shown in Figures 2–4. In a tag co-occurrence network, nodes are tags occurring in the corpus, and an edge between two tags indicates that the connected two tags have co-occurred in the same post at least once. The frequencies that two tags co-occurred are accumulated and defined as the weight of the corresponding edge between them [79].

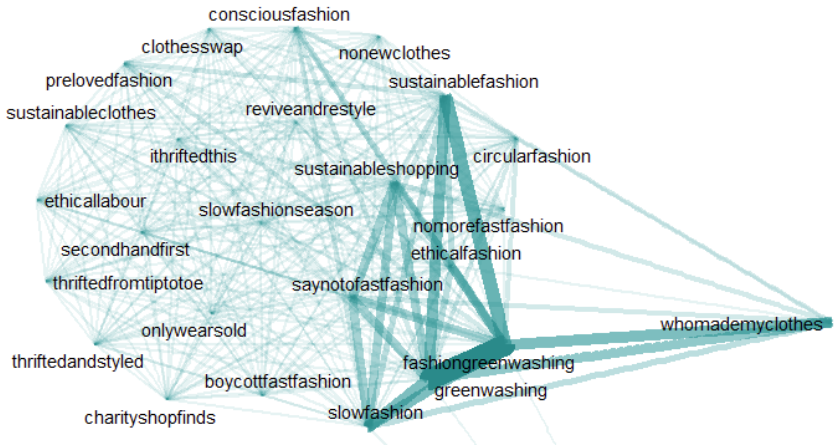



**Figure 2.** Tag co-occurrence of Instagram captions within the strategies to combat fashion greenwashing theme.

The first theme is **strategies to combat fashion greenwashing**, focusing on delivering actionable advice to help consumers discern fashion greenwashing and make informed decisions. This theme includes practical tips to identify the fashion greenwashing phenomenon and strategies to achieve more sustainable fashion consumption. For example, some captions suggest consumers "*check certifications*" and remind consumers that "*natural isn't always more eco-friendly*". In Figure 1, the tags "slowfashion", "ethical fashion", and "nomorefastfashion" are in the center of the network, representing major alternatives embraced by those seeking to reject fashion greenwashing. These tags have heavy edges with "whomademyclothes", which highlights the movement encouraging consumers to inquire about the origins and ethical standards of their apparel, helping them to determine whether a brand is engaged in fashion greenwashing. Furthermore, some captions provided guidance on how consumers can promote and participate in sustainable consumption. In the network of Figure 1, "thriftedandstyled", "secondhandfirst", "reviveandrestyle", and "prelovedfashion" all denoted the popular methods for achieving sustainable fashion

consumption, including thrifting, upcycling, and purchasing pre-loved fashion. Overall, this theme covers actionable strategies on how to scrutinize vague terms, verify product content through third parties like Good on You, and evaluate a brand's overall commitment to ethical practices, including labor rights.

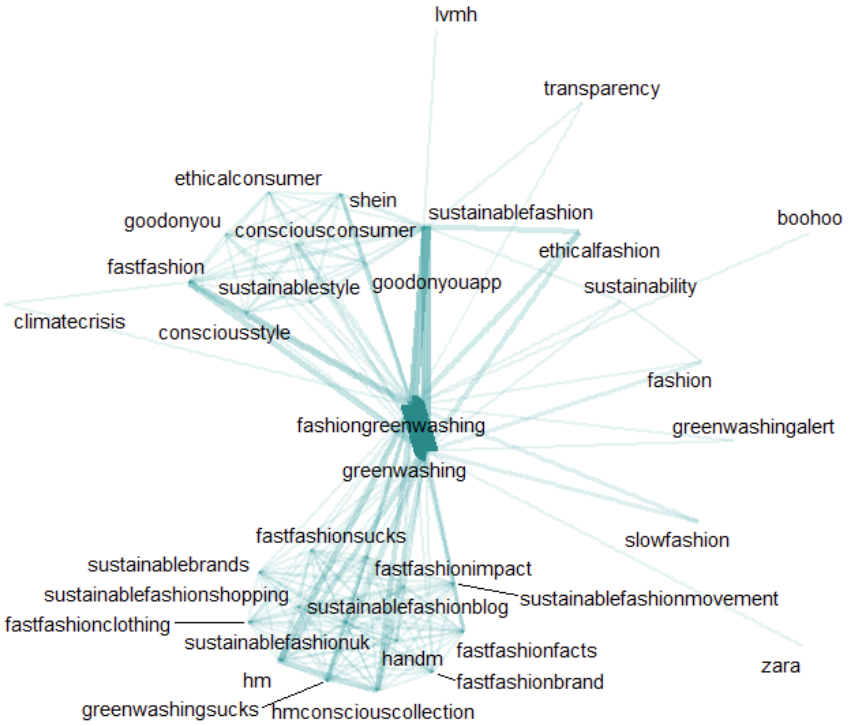



**Figure 3.** Tag co-occurrence of Instagram captions within the fashion greenwashing examples theme.

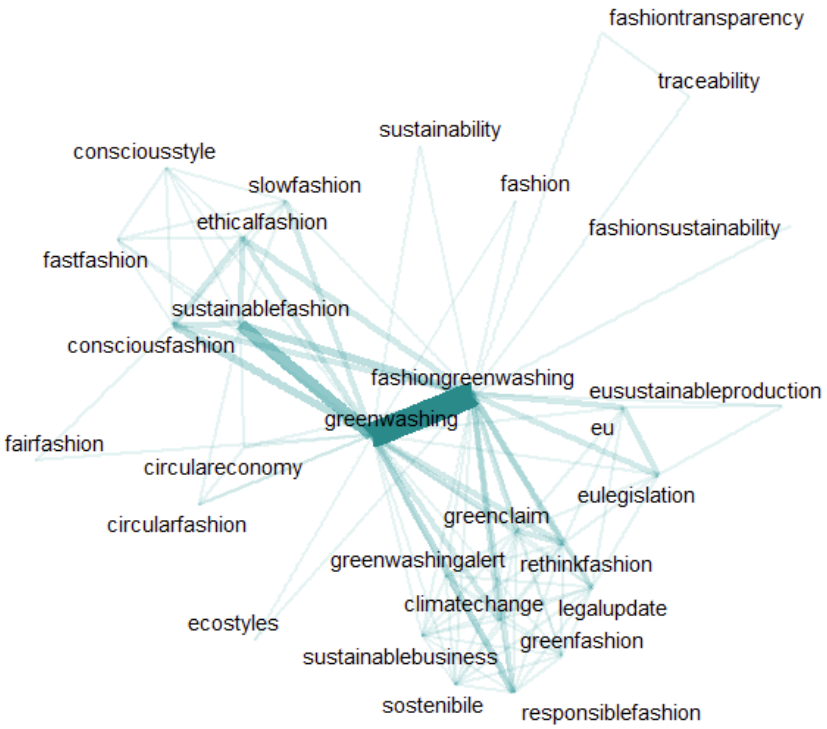



**Figure 4.** Tag co-occurrence of Instagram captions within the advocacy and regulation in sustainable fashion theme.

As shown in Table 1, consumers' responses exhibited a pronounced enthusiasm and commitment to sustainable living and conscious consumerism, when exposed to captions

addressing strategies to combat fashion greenwashing. They expressed a deep appreciation for clear, actionable tips and highlighted the importance of individual actions in driving broader change. These reactions underscore the significance of personal accountability and the thoughtful consideration of the longevity and utility of purchases. Responses also emphasized the role of word-of-mouth in reinforcing community awareness and education about sustainability. Reflecting on their past purchasing behaviors, some consumers acknowledged discrepancies between their actions and the sustainable practices discussed, prompting introspection and a willingness to adopt more conscious consumption habits. Overall, these responses affirm strong consumer support for strategies aimed at combating fashion greenwashing, illustrating a readiness to adjust behaviors and explore more sustainable options when faced with new information.

**Table 1.** Three caption themes with customer responses from Instagram data.

| Theme | Customer Responses (Sample Responses) |
| --- | --- |
| Combat fashion greenwashing, including practical tips to identify fashion greenwashing and tips to sustainable fashion consumption | Gratitude and WOM, "*So helpful!!! Thank you!*", "*I can't wait to educate my conscious living community on this*" |
| | Acknowledgment of the challenges, "*Not an easy learning journey indeed!*" |
| | Reflection, "*Lately I've also been thinking about how long items last in my wardrobe, which are things I consider when buying new items*." |
| | Emphasize the significance of individual actions and initiatives, "*Every initiative matters!*" |
| Fashion greenwashing examples, focusing on companies/brands involved in fashion greenwashing, and common fashion greenwashing practices. | Frustration and resignation, "*Not surprised!*", "*I'm so tired of all the greenwashing*." |
| | Annoyance, "*Shame about the dress*", "*I think H&M is one of the perfect greenwashing examples—so annoying!*", "*Makes me so annoyed. Many people now think of them as they are fine because "doing more"*" |
| | Questions and the critiques of fast fashion. "*How can this be allowed to continue over and over?*", "*I don't think any fast fashion brand could ever be sustainable*." |
| Advocacy and regulation in sustainable fashion: this theme centers on legislative updates that ensure sustainable practices in fashion, urging companies to uphold ethical standards and eliminate fashion greenwashing. | Awareness of the policy and regulations. "*The EU circular action plan is going to change lots of things in the fashion industry, it's time for accountability!*" |
| | Desire for clarity. "*Is this specific to EU HQ brands, or all apparel brands operating/sold in the EU?*" |

This second theme focuses on specific examples of fashion greenwashing. The tag co-occurrence network vividly illustrates several companies commonly associated with greenwashing practices, spanning both the fast fashion and luxury sectors. Prominent tags include "hm", "zara", "boohoo", "shein", as well as luxury conglomerate "lvmh". These tags suggest a public discourse that scrutinizes both mainstream and high-end brands for their sustainability claims. Additionally, some captions discussed the specific practices that may be perceived as greenwashing, such as "hmconsciouscollection", shown in the network. This tag often appears in discussions about how H&M markets its Conscious Collection as a more sustainable option. However, as a line from a fast fashion company, Conscious Collection cannot avoid using the same sourcing channel in the supply chain as the rest of HM's offering, which raises questions about the true sustainability of this collection. Some captions also criticize the luxury fashion sector for its involvement in fashion greenwashing, for example "*more expensive does not mean more ethical*". Additional commentary, such as "*with high fashion being traditionally exclusive and elitist, truly transparent supply chains are few and far between*", underscores the lack of openness about sourcing and

production processes among high-end brands. This critique highlights that despite their upscale image and market position, many luxury brands may still engage in misleading practices, portraying themselves as more sustainable than they truly are to appeal to environmentally conscious consumers.

Consumers who care about sustainability but continue to encounter fashion greenwashing information experience cognitive dissonance. This can lead to various emotional responses. Under the captions discussing fashion greenwashing examples, consumers expressed appreciation and gratitude toward social media accounts or platforms that raise awareness about greenwashing. However, for some, the continuous exposure to greenwashing practices created feelings of frustration and exhaustion. Some consumers felt disheartened by the lack of progress and the systemic nature of the problem, leading to emotional fatigue and resignation. Many consumers felt anger and disappointment when some brands appear "*fine*" simply because they are "*doing more*". This reaction highlights how some consumers recognize that brands often use incremental or highly visible sustainability efforts to distract from their broader unsustainable practices. Additionally, some consumers expressed confusion or disbelief at the persistence of greenwashing, questioning why these misleading practices continue unchecked. There were also consumers who agreed with critiques of fast fashion as inherently unsustainable, reaffirming their skepticism toward the industry's ability to achieve meaningful change.

The third theme focuses on advocacy and regulation in sustainable fashion, highlighting the role of policy and legislation. In Figure 3, tags like "eusustainableproduction", "eulegislation", "eu", and "greenclaim", are in the center of the network, emphasizing EU sustainable product regulations. In March 2023, the European Commission proposed the Green Claims Directive, which sets minimum requirements for substantiating, communicating, and verifying environmental claims. This aims to ensure reliable and comparable information, protecting consumers from misleading claims and promoting genuine sustainability. Many Instagram captions spread this information, with consumers responding enthusiastically.

Consumers' responses showed that they are recognizing the role of governmental and systemic interventions in holding brands accountable for their environmental practices. Some comments reflected optimism and a belief that regulatory measures and initiatives, such as the EU's Circular Economy Action Plan, can drive meaningful change. The other comments highlight a critical need for clarity regarding the scope and applicability of such policies. These comments reflect consumers' growing sophistication in understanding global supply chains and their recognition that sustainability regulations often transcend geographical boundaries. Consumers want assurances that sustainability measures will be fair, enforceable, and effective across all brands operating in regulated markets.

### *4.2. Findings from Reddit Data*

Three themes were categorized from the manual review analysis of the Reddit conversations. The first theme concerns the phenomenon of fashion greenwashing. Consumers are increasingly perceptive of greenwashing tactics employed by fashion brands. For instance, certain brands commit to reducing their carbon footprint, yet contribute to waste by destroying old stock [80]. Additionally, some companies claim to utilize natural materials like bamboo, yet they omit details about the chemicals used in softening the rayon fibers. A more discerning segment of consumers raised further concerns, such as the microfiber pollution from recycled polyester and the substantial water consumption required for organic cotton cultivation. This indicates that online consumers are becoming well-informed and can identify various greenwashing strategies deployed by businesses. The second theme is consumer empowerment in fashion sustainability. Consumers shared their thoughts

about what they could do to support fashion sustainability. A prevailing sentiment was the importance of consuming less. They also discussed alternative shopping practices, such as purchasing second-hand items, frequenting thrift stores, and selecting durable materials. Furthermore, consumers highlighted the role of reputable third-party organizations (e.g., GoodOnYou, Certified B Corporations) in guiding sustainable choices. There is a general agreement that being a perfect consumer is not possible, but consumers can still make a big difference by trying to be more sustainable. The conversations showed a growing awareness and proactive stance among consumers towards fashion sustainability. The third theme is criticism of greenwashing marketing practices. Many consumers expressed distrust in the marketing claims in sustainability by fast fashion companies. For example, a comment mentioned "*They are selling our concerns, not their outputs*". These comments reflect the deep skepticism consumers hold towards the marketing strategies of fast fashion companies, especially regarding their sustainability claims.

The optimal number of topics are determined by coherence scores. According to Figure 5, when the number of topics is 7, the coherence score is highest (0.653). Therefore, we chose to extract 7 topics from the Reddit discussion data.

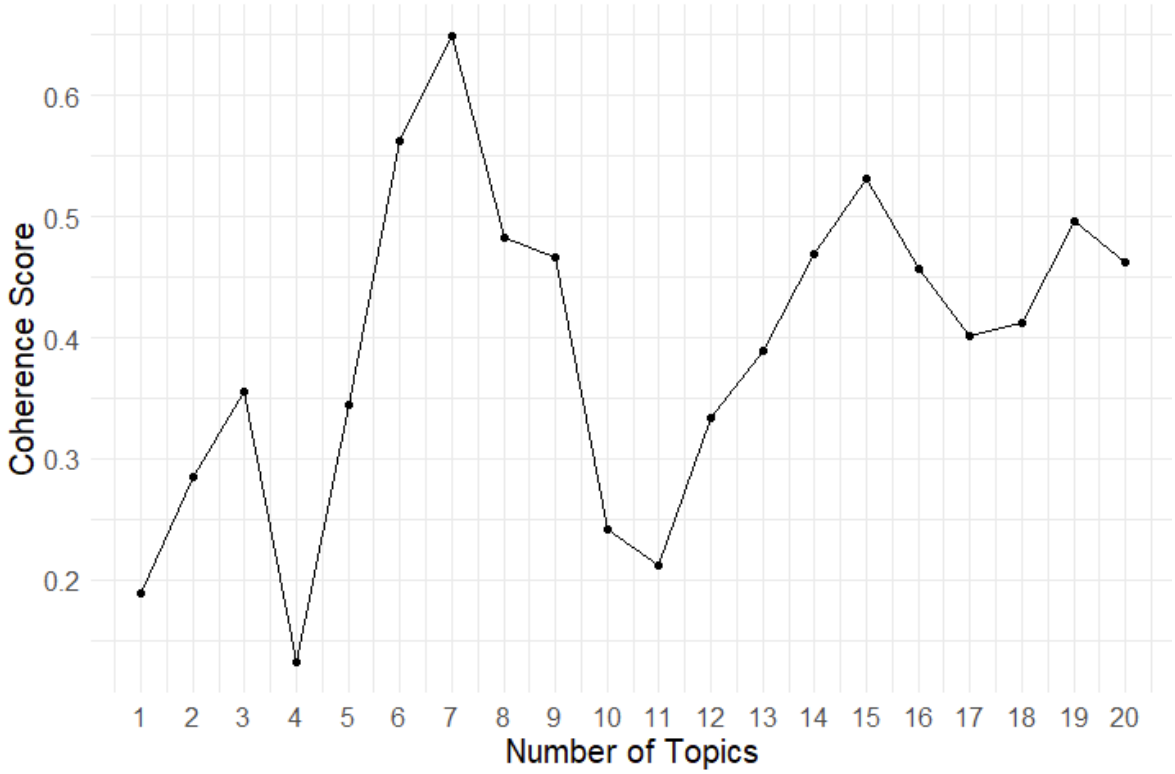



**Figure 5.** Coherence scores of different topic number.

The topics extracted by the LDA algorithms are displayed in Table 2, where each topic is represented by eight dominant keywords. Overall, there were seven topics extracted from the Reddit discussion data, which are fashion greenwashing marketing, carbon footprint, conscious consumption, plastic recycling, circular consumption, ethical luxury, and natural fabric. Figure 6 shows the sentiment across different topics in Reddit discussion.

**Table 2.** LDA topics and keywords.

| Topic (%) | Keywords of LDA Topics |
| --- | --- |
| Fashion Greenwashing Marketing (15.4%) | Fast, buy, fashion, get, claims, brands, greenwashing, company |
| Carbon Footprint (10.3%) | Carbon, ethical, need, offset, environment, emission, promise, supply |
| Conscious Consumption (17.8%) | Buy, used, new, quality, decision, purchase, value, durability |
| Plastic Recycling (13.6%) | Plastic, brand, years, recycled, eco-friendly, marketing, resale, use |
| Circular Consumption (20.2%) | Second, store, good, hand, thrift, circular, reuse, search |
| Ethic Luxury (12.2%) | Leather, vegan, alternative, reduce, claim, luxury, options, product |
| Natural Fabric (10.5%) | Cotton, like, thrift, fabric, natural, choice, wardrobe, wear |

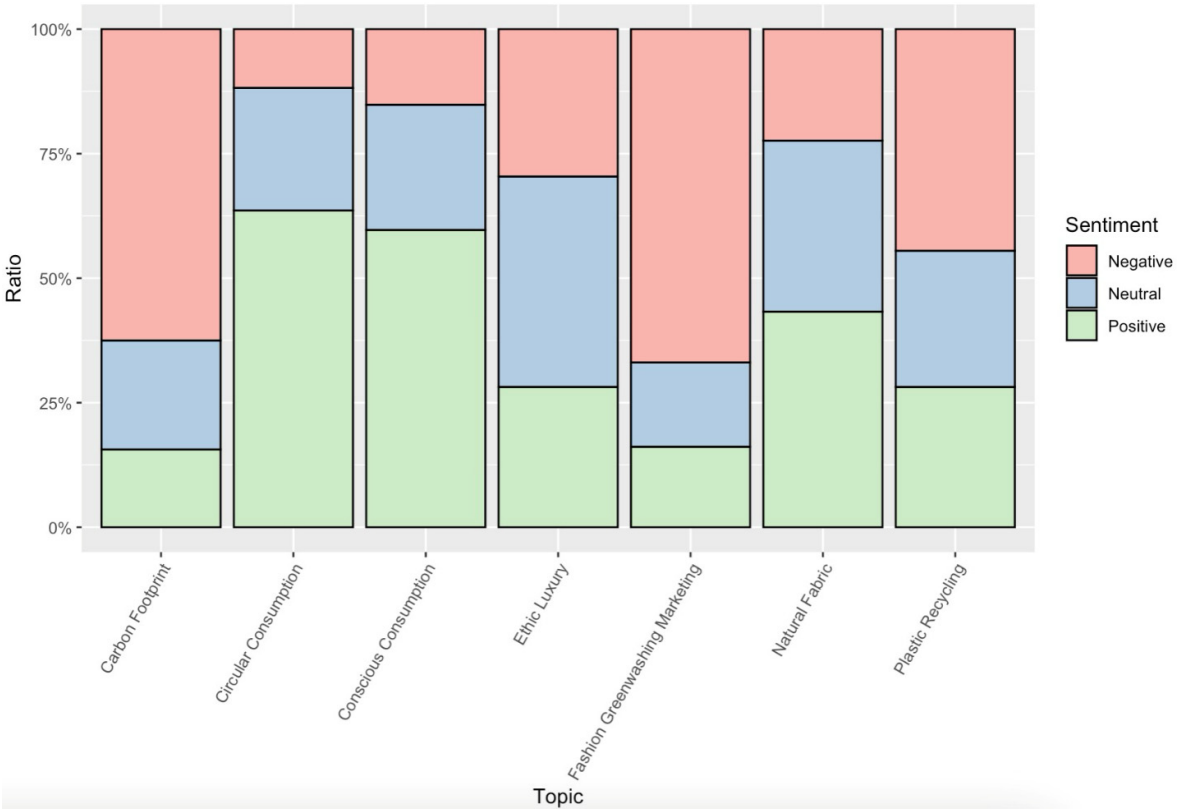



**Figure 6.** Sentiment across topics from Reddit discussion.

Among these topics, carbon footprint and plastic recycling are two prevalent examples of potential fashion greenwashing, corresponding with the first theme. Most comments on these two topics are negative, indicating that consumers have expressed awareness of fashion brands' claims regarding carbon offsetting and the use of recycled plastic. However, this awareness is accompanied by a notable degree of skepticism, as reflected in the comments. These observations highlighted consumer sensitivity to potential greenwashing practices in these areas. For example, "*Carbon neutral is also an incredibly vague term. . . .*Its essentially just a self-imposed lump sum tax that doesn't really eat into revenue by percent". This reflects a demand for more substantial and clear actions rather than vague or minimal efforts disguised as significant environmental commitments.

The topics, conscious consumption, circular consumption, ethic luxury, and natural fabric, deeply enriched the second theme, consumer empowerment in fashion sustainability, by illustrating the multifaceted efforts that consumers could make to align their sustainability values. Each topic reflects a proactive approach to minimizing environmental impacts and promoting ethical practices. The majority of consumer comments are positive and

neutral, indicating that consumers are actively sharing ideas and are eager to contribute to fashion sustainability. Conscious consumption emphasizes the importance of avoiding impulsive buying and prioritizing informed decision-making. Circular consumption highlights consumers' efforts to extend the life cycle of fashion products through reuse, resale, recycling, and shopping at second-hand or thrift stores. In the realm of ethical luxury, consumers are encouraged to seek vegan leather and other eco-friendly alternatives to support cruelty-free and sustainable practices. Additionally, consumers are advised to opt for biodegradable natural fibers and fabrics, such as organic cotton and hemp, to further align their choices with environmental sustainability.

The topic of fashion greenwashing marketing falls under the third theme, which focuses on the criticism of greenwashing marketing practices. Consumers often directly associate greenwashing with fast fashion, expressing deep skepticism towards the marketing strategies these brands employ, which they view as inherently unsustainable. For example, this is a comment toward a H&M advertisement, "*Somewhere down the path of greenwashing fast fashion, earth tones unfortunately came to symbolize a virtue of minimalist, nature-friendly, and low-effort aesthetic—doesn't matter if it's still an integral part of fast fashion*". This tactic is criticized because fast fashion brands usually employ earth tones, minimalist styles, and nature-friendly aesthetics in their advertisements to project an image of superficial sustainability. However, this does not mean a genuine commitment to achieving true sustainability.

## 5. Discussion

This study utilized manual review and LDA text-mining to extract topics and themes from the Instagram and Reddit data, providing a deep understanding of discussion about fashion greenwashing in social media.

The Instagram captions contained varying themes, from fashion greenwashing examples to strategies to combat fashion greenwashing. Some accounts focused on legislative updates related to sustainable products and marketing. All those themes highlight a broad awareness of fashion greenwashing in social media. Consumers' responses and attitudes also varied when they encountered captions related to fashion greenwashing examples and phenomena. They experienced conflicting emotions when their expectations of ethical fashion practices clashed with the information presented. Some consumers are becoming weary of repeated offenses which contradict their values. Other responses are expressions of annoyance for the greenwashing phenomena. Additionally, the frequent questioning of the sustainability of fast fashion brands signals a deep skepticism and a critique that arises from the dissonance between the perceived ethical standards and the practices being marketed. Reddit's text-based, community-driven format fosters more in-depth discussions and critical analysis of greenwashing. In the Reddit discussions, consumers also demonstrated an awareness of fashion brands' sustainability claims. However, this awareness was often accompanied by significant skepticism, indicative of cognitive dissonance. This psychological phenomenon occurs when consumers feel discomfort due to conflicting ideas or when they encounter vague or superficial sustainability claims.

Instagram users generally expressed positive emotions such as gratitude and agreement when they encountered suggestions for avoiding fashion greenwashing and updates on sustainable legislation. When consumers are educated about the genuine practices of sustainable consumerism, they may experience cognitive dissonance if their past purchasing behaviors contradict these new insights. For example, learning about the importance of the longevity of clothing and its overall impact on sustainability might make a consumer rethink their habit of frequent purchasing. This dissonance serves as a catalyst for change, pushing consumers to align their future actions with their newly adopted sustainability

values. Comments like "*Not an easy learning journey indeed!*" highlight the emotional journey involved in adjusting to more sustainable practices. The acknowledgment of the journey's difficulty reflects an understanding that resolving dissonance is a gradual process requiring continuous effort and adjustment. Instagram's visual and influencer-driven environment elicits immediate emotional reactions, while Reddit's text-based forums encourage more in-depth discussions. In the Reddit discussions, the examples of consumer empowerment illustrate how consumers are taking action to mitigate their cognitive dissonance. Faced with disappointment towards fashion greenwashing, they leverage their knowledge and resources to make informed purchasing decisions and pursue sustainability.

When consumers see information about sustainability regulations and policies, those policies are viewed as a solution that enforces accountability and ensures that brands make measurable progress, aligning consumers' desire for systemic change with concrete action. By expressing optimism for the policy, consumers reduce the emotional tension caused by the contradiction between the fashion industry's promises and its often-superficial execution.

According to the Reddit users, there is a prevailing belief that fast fashion is inherently unsustainable, as exemplified by comments like, "*No fast fashion brand can make a line that is ethical*". When these brands attempt to market themselves as sustainable, this leads to cognitive dissonance because the sustainable actions of the brands conflict with the established consumer belief that true ethical practices are incompatible with fast fashion's business model.

The Instagram captions primarily emphasized transparency and supply chain issues when talking about fashion greenwashing examples and phenomenon. Many fast fashion companies promote their new product lines as "eco-friendly" or made from recycled materials. And the Instagram captions often criticize that the so-called sustainable lines in fast fashion are still greenwashing, pointing out that they utilize the same supply chains as other products. Consequently, many captions encourage consumers to ask "whomademyclothes" to compel fashion companies to enhance supply chain transparency. However, there are very few captions addressing issues of fashion greenwashing in the production process.

Compared to the Instagram captions and consumer responses, Reddit users engaged in more in-depth discussions about fashion greenwashing, covering both product processes and supply chain transparency. While the Instagram captions mentioned that "*Natural isn't always more eco-friendly*"—a relatively vague caution for consumers—the Reddit users provided more specific examples. For instance, they discussed how bamboo fiber, though natural, may not be sustainably produced or environmentally safe due to its production processes.

The findings also highlight the dual approach to comparing the outcomes of manual reviews with those obtained through the LDA method. The manual review process effectively identifies the overarching themes present in the Reddit discussion. This method relies heavily on human interpretation, which is beneficial for summarizing and inducing the major points, but can be limited by the reviewers' inherent biases and is time-consuming. On the other hand, the LDA method provides a more detailed exploration of the data. This text-mining approach uncovered specific topics and enriched the initial themes identified manually by detailing subtopics and variations within each theme, thus offering a more granular perspective. This dual approach not only enhanced the depth of the analysis, but also helped validate the findings.

## 6. Conclusions, Implications, and Future Research

This study served as an initial exploration of social media discourse around fashion greenwashing to better understand (1) prominent themes and consumer concerns being discussed, (2) how consumers are resolving their cognitive dissonance when they learn about fashion greenwashing, and (3) the gaps that exist in consumers' current knowledge of fashion greenwashing. By focusing on organic social media content, this foundational analysis fills a notable gap in the literature and provides a basis for further research.

Social media content related to fashion greenwashing was collected and analyzed on Instagram and Reddit. Emergent themes on these two platforms were compared, revealing distinct foci. The Instagram captions primarily centered on three themes: (1) strategies to combat fashion greenwashing, (2) specific examples of fashion greenwashing, and (3) advocacy for regulation in sustainable fashion. The discussions among Reddit users also predominantly revolved around three themes: (1) the phenomenon of fashion greenwashing, (2) consumer empowerment in sustainable fashion, and (3) skepticism towards the marketing strategies of fast fashion brands. Specifically, when addressing examples and phenomena of fashion greenwashing, the Instagram captions tended to highlight issues related to supply chain transparency, whereas the Reddit discussions mentioned problems with the production processes.

This research utilized cognitive dissonance theory as a guide to interpret consumers' responses and reactions when they see fashion greenwashing-related information on social media. When faced with greenwashed marketing tactics, consumers often experience resignation, frustration, disappointment, and annoyance. In the present study, cognitive dissonance proved to be an important framework for investigating consumers' ability to reconcile greenwashed messaging, a notable theoretical implication. For example, through the Reddit discussions, it was evident that consumers have developed the prevailing belief that fast fashion is fundamentally unsustainable. In response, they acknowledged developing a sense of empowerment and responsibility to adopt more sustainable consumption behaviors and voice concern when they encounter greenwashing on social media. The respondents seemed to recognize that achieving perfection in their purchasing choices is impractical, yet they discussed actively seeking information from third-party sources (e.g., GoodOnYou) to make informed decisions. This journey of assuming more responsibility for sustainable consumption is lengthy and challenging, but it represents a crucial way for consumers to mitigate their cognitive dissonance.

Consumer education is the most powerful tool for combatting misinformation online, and in the absence of legislation barring misleading claims by apparel retailers, greenwashing is likely to persist on social media and beyond. However, the findings suggest that consumer awareness of greenwashing is increasing and offer several pedagogical implications for continuing to educate them on this phenomenon. In the academic context, instructors can utilize the six total themes to develop teaching materials that equip students with an understanding of the prevalence of fashion greenwashing on social media, the ability to assess brands' claims, and the tools to identify credible sources of information (e.g., Eco-Stylist, Fashion Transparency Index) when presented with inaccurate or misleading claims. In doing so, instructors can confer students the responsibility for seeking out and assessing credible information in their journey towards adopting more sustainable consumption behaviors and making more informed purchase decisions. This knowledge can also help students resolve the cognitive dissonance that often results from their perceived lack of agency to be more sustainable consumers in an inherently unsustainable apparel system. Students may also be asked to conduct their own content analysis of greenwashing on social media to observe the types of greenwashing (e.g., executional, claim), degrees of greenwashing (e.g., exaggeration, misleading, outright lie), sources of greenwashing (e.g.,

branded content, influencer content), and assess the potential impact of these messages (e.g., scope, severity).

The present study also offers practical implications for fashion practitioners and policymakers, which also underscore those that have been documented in the extant literature related to mitigating greenwashing. First, as many consumers are increasingly informed about the phenomenon of fashion greenwashing, it is no longer reasonable for fashion practitioners to market their products using inauthentic and vague terms. An awareness and associated frustration with these techniques was evident in both the Instagram and Reddit discourses. Companies should disclose transparent and detailed information that highlights both the merits and demerits of their practices. By presenting a balanced view, consumers will be able to make well-informed purchase decisions. This research highlighted how consumers, especially those from younger generations, are seeking out credible information on social media, suggesting that brands which position themselves as transparent and trustworthy can differentiate themselves from brands leveraging dishonest marketing practices, a strategy which could garner more followers. Additionally, fashion practitioners could disclose more detailed information about their sustainability practices. For instance, while many brands have recycling programs that encourage consumers to recycle, there is often a lack of clarity about how different fabric blends are recycled and how fibers are processed and turned into new threads. Both the Reddit and Instagram data indicate that consumers are aware that greenwashed messages by brands often aim to downplay the complexity of the apparel supply chain and its processes. Brands that share information more transparently (e.g., supplier information, material sourcing, work conditions) could foster deeper consumer trust. The data also underscored a skepticism about companies' promotion of the third-party certifications or standards that they have received. Brands that highlight their certifications, standards, or results of third-party audits as part of their marketing must avoid overstating their significance or otherwise misleading consumers when promoting their attainment of these sustainability credentials. Finally, for policymakers, the data reiterates the need for more regulation around sustainability in the fashion industry. Respondents were cognizant of this need and that the U.S. is behind the EU in advancing this type of legislation. While the respondents did recognize their empowerment, they were also aware that true sustainability in fashion can only be achieved with the concerted efforts of the entire society (e.g., businesses, policymakers, consumers).

To focus on the social media discussion of fashion greenwashing, a limitation of the present study is that it only utilized the key term "fashiongreenwashing" across two social media platforms (i.e., Reddit, Instagram), which resulted in a limited sample size. Future studies will expand the dataset to include additional comments from more social media platforms (e.g., X, TikTok, etc.), aiming to deepen the understanding of consumer reactions to brands' greenwashing efforts. To understand publicly salient perspectives on fashion greenwashing, we only analyzed posts with more than five comments in Reddit, which may have led to an underrepresentation of niche or minority perspectives. In future studies, more stratified sampling or targeted surveys might be utilized to capture marginalized viewpoints. Meanwhile, the researchers identified several key terms related to fashion greenwashing in the social media discussions (e.g., "fashion mislabeling", "hmconsciouscollection") which will be utilized to expand the dataset. Additionally, future research will employ quantitative methods, such as surveys, to assess how consumer characteristics (e.g., sustainability knowledge, fashion involvement) influence their sensitivity to fashion greenwashing.

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