The Power of Online Buzz: Social Media Comments to Shape Consumer Perception of Sustainable Products

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Abstract

This study examined how social media comments influence consumer perceptions of sustainable products using a mixed-method approach with qualitative content analysis and quantitative survey research. Comments from Instagram and Twitter were analysed for sentiment, identifying key factors such as consumer trust in sustainability claims, the role of social media influencers, the impact of transparent communication, and the influence of educational content. An online survey of 500 socially engaged consumers evaluated their perceptions of brand sustainability claims, trust in influencers, and their intentions to purchase sustainable products. Findings revealed that the trustworthiness of sustainability claims, influencer endorsements, transparent communication, and educational content significantly impacted consumer attitudes. The study highlights the importance for brands to communicate sustainability efforts authentically, collaborate with credible influencers, and provide educational content. Future research should explore longitudinal and cross-cultural studies to understand how changing consumer perceptions and cultural contexts affect sustainable consumption.

Keywords: Sustainable Marketing, Consumer Perception, Sustainable Development, Community Building Strategies, Social Media Comments

Introduction

In the digital age, social media has emerged as a formidable force in shaping consumer perceptions and driving brand narratives. Platforms such as Facebook, Twitter, Instagram, and TikTok have transformed from mere communication tools into dynamic marketplaces where opinions, reviews, and trends proliferate at unprecedented speeds (Kaplan & Haenlein, 2010). The online buzz created on these platforms can significantly influence consumer behaviour, often swaying decisions and shaping brand reputations.

Social media's influence stems from its ability to connect users globally and foster real-time interactions. Consumers today are not only passive recipients of information but active participants in the creation and dissemination of content (Smith & Zook, 2011). User-generated content, including reviews, testimonials, and personal experiences, plays a crucial role in shaping public opinion. Positive buzz can enhance brand credibility and attract new customers, while negative feedback can rapidly erode trust and damage reputations (Cheung & Thadani, 2012).

Moreover, the viral nature of social media amplifies the impact of both favourable and unfavourable perceptions. A single tweet or post can quickly gain traction, reaching thousands or even millions of potential consumers (Berger & Milkman, 2012). This widespread exposure can create a snowball effect, influencing how a brand is perceived by the broader audience. Marketers and businesses must navigate this landscape with agility, responding to online buzz in ways that align with their brand values and strategic goals (Cialdini, 2009).

Understanding the power of online buzz requires a nuanced approach to social media engagement and monitoring. By analysing trends, tracking sentiment, and engaging with their audience, brands can harness the potential of social media to build positive perceptions and mitigate the effects of negative feedback (Dolnicar & Grun, 2008). In this landscape, where perception often becomes reality, the role of social media in shaping consumer opinions cannot be underestimated. Thus, the present research paper has been dedicated to exploring role of social media comments on consumer perception towards sustainable products.

Literature Review

In recent years, there has been a significant rise in consumer demand for sustainable products, driven by heightened awareness of environmental issues and an increasing preference for ethical consumption practices (Bhattacharya & Sen,

2004; Dangelico & Pujari, 2010). This shift has transformed sustainability from a niche concern into a mainstream expectation across various industries. Consumers now expect companies to integrate environmental sustainability into their core business strategies, influencing their purchasing decisions and brand loyalty (Bhattacharya & Sen, 2004).

Central to this transformation is the pervasive influence of social media platforms such as Instagram, Facebook, Twitter, and TikTok. These platforms have democratized the conversation around sustainability, providing consumers with unprecedented access to information and the ability to voice their opinions instantaneously (Kietzmann et al., 2011). Social media has become a dynamic arena where consumers not only express their views but also scrutinize brands' sustainability efforts. Brands, in turn, leverage these platforms not only to showcase their sustainability initiatives but also to engage directly with consumers and influencers who play crucial roles in shaping public opinion (Tussyadiah & Pesonen, 2015).

However, the omnipresence of social media presents challenges for brands seeking to communicate their sustainability efforts effectively. Consumers have become increasingly adept at discerning genuine sustainability practices from greenwashing—exaggerated or misleading claims of environmental benefits (Dangelico & Pujari, 2010). Ambiguous or insincere sustainability claims can quickly attract negative feedback online, potentially damaging a brand's reputation and eroding consumer trust (Luchs et al., 2010).

At the heart of the discourse on sustainability within social media are the comments and discussions that influence consumer perceptions of sustainable products. Positive comments can validate a brand's sustainability efforts, enhancing credibility and resonating strongly with environmentally conscious consumers (Bhattacharya & Sen, 2004). Conversely, negative comments can generate scepticism and distrust, particularly when sustainability claims appear unsupported by concrete actions or evidence (Dangelico & Pujari, 2010).

The literature underscores critical role of social media in shaping consumer perceptions of sustainability. Bhattacharya and Sen (2004) emphasize that consumers increasingly expect brands to demonstrate genuine commitment to social and environmental causes, which they often assess through social media interactions. They argue that brands can leverage these platforms not only to communicate their sustainability efforts but also to engage in meaningful dialogue with consumers, thereby building trust and loyalty.

Moreover, Dangelico and Pujari (2010) caution against the risks of greenwashing and stress the importance of transparent and credible communication on social media. They advocate for brands to substantiate their sustainability claims with verifiable evidence and to address consumer concerns openly to foster transparency and trust.

The existing research on how social media comments shape consumer perceptions of sustainable products has primarily focused on qualitative analyses of online discourse and consumer behavior. While these studies provide valuable insights into the impact of social media on sustainability perceptions, there remains a gap in understanding the specific mechanisms through which different types of social media comments—positive, negative, or neutral—affect consumer attitudes and purchase intentions. Additionally, there is limited research exploring the comparative influence of comments from independent influencers versus those from brand collaborations on consumer perceptions of sustainability. Addressing these gaps could provide a more nuanced understanding of how brands can strategically navigate social media to enhance their sustainability messaging effectively.

Research Methodology

To comprehensively investigate the influence of social media comments on consumer perceptions of sustainable products, this study employed a mixed-methods approach integrating qualitative content analysis and quantitative survey research. Qualitative content analysis involved systematic monitoring of social media platforms such as Instagram and Twitter to gather a diverse array of comments pertaining to sustainability. These comments were categorized into positive, negative, and neutral sentiments using a structured process. Initially, comments were manually coded based on predefined criteria: positive sentiments included expressions of approval or support for sustainability initiatives, such as terms like "great" or "eco-friendly"; negative sentiments captured criticisms or concerns, with terms like "ineffective" or "greenwashing"; and neutral sentiments encompassed informational or descriptive content, such as questions or factual statements. To manage the large volume of data, natural language processing (NLP) tools and sentiment analysis algorithms were employed to automate categorization, complemented by manual validation to ensure accuracy. This approach allowed for an in-depth exploration of how different types of social media discourse shaped consumer attitudes towards sustainability, unveiling recurring themes, trends, and the underlying dynamics of consumer engagement with eco-friendly messaging. In this study, quantitative data was collected through an online survey administered to 500 socially engaged consumers who actively participated in sustainability discussions on social media platforms such as Instagram, Twitter, and relevant online forums. The survey instrument was designed to measure participants' perceptions of sustainability claims made by brands on social media, their levels of trust in information from independent influencers versus brand-sponsored content, and their intentions to purchase sustainable products. The survey responses were

gathered using Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree), capturing nuanced variations in participants' attitudes and behaviour towards sustainability. The non-probabilistic sampling approach ensured that respondents were selected based on their demonstrated interest and engagement in sustainability issues online, providing insights from a targeted group likely to be influenced by social media content regarding sustainability. This methodology aimed to explore how different types of social media discourse impacted consumer perceptions of sustainable products, employing statistical analyses such as correlation and regression to identify significant predictors of consumer attitudes and behaviour in this context. The integration of qualitative and quantitative data through triangulation offered a holistic understanding of the impact of social media comments on consumer perceptions. This methodological synergy not only validated findings across different data sources but also provided richer insights into the mechanisms through which social media influenced consumer decision-making processes regarding sustainable products. Moreover, ethical considerations were paramount throughout the study, ensuring participant privacy, informed consent, and the responsible handling of data. By illuminating how brands could strategically navigate social media to effectively communicate sustainability initiatives and build consumer trust, this research aimed to inform actionable recommendations for enhancing brand credibility and fostering positive consumer attitudes towards sustainable consumption practices.

Demographic Profile of the Sample

The demographic profile of the sample for this study included 500 socially engaged consumers who actively participated in sustainability discussions across social media platforms such as Instagram, Twitter, and relevant online forums. The sample was diverse in terms of age, with approximately 30% of respondents aged 18 to 24, reflecting high engagement among younger consumers who are often at the forefront of environmental activism. Around 40% were between 25 and 34 years old, representing young professionals who increasingly consider sustainability in their consumer choices, while the remaining 30% comprised individuals aged 35 and above, offering insights into how sustainability perceptions evolve with age. Gender distribution was fairly balanced, with 52% female and 48% male respondents, allowing for a comprehensive analysis of potential gender differences in attitudes towards sustainability. The geographic distribution included participants from both urban and rural areas, with 60% from urban locations known for high social media activity and environmental awareness, and 40% from rural areas, highlighting regional variations in sustainability discussions. Educational background varied, with 45% holding a bachelor's degree, 30% having completed a master's degree or higher, and 25% possessing high school diplomas or some college education, reflecting a range of educational levels that influence understanding of sustainability issues. Social media engagement was also a key factor, with 70% of respondents actively engaging in sustainability discussions and sharing related content regularly, while the remaining 30% participated occasionally. This diverse demographic profile provided a robust basis for analysing how different groups perceive and engage with sustainability messaging on social media.

Analysis

The qualitative analysis in this study aimed to explore the impact of social media comments on consumer perceptions of sustainable products. Data collection involved systematically monitoring and gathering social media comments from platforms known for discussions on sustainability, including Instagram, Twitter, and relevant online forums. Keywords and hashtags related to sustainability were used to curate a diverse array of comments, capturing varying sentiments—positive endorsements, critical evaluations, and neutral observations—regarding sustainability claims made by brands.

Once collected, the qualitative data underwent a rigorous coding process to categorize and analyse the content of each comment. Initial coding involved systematically assigning labels to segments of text based on predefined categories derived from the research objectives. These categories encompassed themes such as consumer trust in sustainability claims, perceptions of brand authenticity, concerns about greenwashing, and the influence of influencers on consumer attitudes towards sustainability.

Thematic analysis was subsequently employed to identify recurring patterns and overarching themes across the coded data. Through iterative review and interpretation, emergent themes provided deeper insights into how social media interactions shape consumer perceptions of sustainable products. For instance, themes highlighted widespread skepticism towards vague sustainability promises and the positive impact of transparent and credible sustainability initiatives on consumer trust and brand credibility.

To ensure the reliability and validity of findings, rigorous methods were implemented throughout the qualitative analysis. Inter-coder reliability checks were conducted to establish consistency in coding practices among researchers, ensuring that interpretations of the data were robust and reliable. Additionally, peer debriefing sessions and researcher reflexivity were employed to enhance the rigor and credibility of the qualitative analysis, allowing for critical reflection on emerging themes and interpretations.

Results of Thematic Analysis:

Thematic analysis of the qualitative data revealed several key insights into how social media comments influence consumer perceptions of sustainable products:

- **Authenticity of Sustainability Claims:** A predominant theme emerging from the analysis was consumer scepticism towards the authenticity of sustainability claims made by brands. Comments frequently highlighted concerns about greenwashing, where brands' environmental commitments were perceived as exaggerated or insincere. Consumers expressed a strong preference for transparent and verifiable sustainability practices, with comments reflecting a desire for brands to substantiate their claims with tangible actions and evidence (refer Table 1 for some of the prominent comments).

Table 1: Comments and Themes on Authenticity of Sustainability Claims

Comments	Theme
"I've become skeptical of brands claiming to be eco-friendly. So many just slap on a green label without real proof."	Consumer skepticism towards green washing
"I'm so tired of brands claiming to be 'eco-friendly' without any proof. It's all just marketing hype!"	
"When a company says they're sustainable but can't explain how, it makes me doubt their sincerity."	
"I've seen too many 'green' products wrapped in excessive plastic. How is that eco-friendly?"	
"It's frustrating when brands slap a 'natural' label on products that are full of harmful chemicals."	
"I look for certifications and third-party verifications now. It's the only way to know if a brand is legit or just green washing."	
"Brand X talks a big game about sustainability, but where's the evidence? Show us the impact!"	Demand for evidence and transparency in sustainability claims
"I want to see real data and metrics showing how a company is reducing its environmental impact, not just vague promises."	
"Transparency is key for me. If a brand can't show me where their materials come from and how they're sourced sustainably, I'm skeptical."	
"Seeing actual reports or audits from independent organizations would make me trust a brand's sustainability claims more."	
"I appreciate it when brands break down their sustainability efforts step-by-step. It shows they're serious about making a difference."	
"I'm more likely to support brands that openly discuss their challenges and progress in sustainability. It shows honesty and commitment."	
"Impressed by Brand Y's commitment to transparency. Their sustainability reports are detailed and backed by data."	Consumer appreciation for transparent sustainability practices
"I love it when brands are upfront about their sustainability journey. It feels like they're inviting us to be part of their mission."	
"Transparency builds trust. When a brand shares their challenges and successes openly, it shows they're committed to real change."	
"I look for brands that not only talk about sustainability but also back it up with facts and figures. It's refreshing and reassuring."	

Comment	Theme
"Clear communication about where products come from and how they're made makes me more likely to choose one brand over another."	
"When brands are transparent, it's easier to hold them accountable. I feel more confident in supporting their efforts to be eco-friendly."	
"Caught Brand Z green washing again. Consumers aren't fooled by vague eco-friendly claims anymore."	Recognition and criticism of green washing practices
"It's disappointing to see so many brands jump on the 'green' bandwagon without making real changes. Green washing is everywhere."	
"I've become skeptical of brands that use vague terms like 'natural' or 'eco-friendly' without explaining what that actually means."	
"Green washing is a huge turn-off for me. I want to support brands that are genuinely committed to sustainability, not just for show."	
"I always do my research now to avoid falling for green washing tactics. Brands need to do better in proving their environmental claims."	
"When a brand's sustainability efforts seem too good to be true, they usually are. It's frustrating to be misled by false claims."	
"It's refreshing to see brands like A being honest about their environmental efforts. Transparency builds trust!"	Positive response to brands with transparent sustainability communication
"I appreciate when brands are open about their sustainability practices. It makes me trust them more and feel good about supporting them."	
"Transparency shows me that a brand is serious about making a difference. It's a major factor in my purchasing decisions."	
"When brands provide detailed information about their environmental impact and goals, it helps me make informed choices."	
"I'm more likely to be loyal to brands that communicate openly about their sustainability journey. It shows they value honesty and accountability."	
"Transparent communication builds a connection with consumers like me who care about sustainability. It's refreshing and builds trust."	

- **Influence of Social Media Influencers:** The role of social media influencers emerged as a significant factor influencing consumer perceptions. Positive endorsements from credible influencers were found to enhance brand credibility and trustworthiness regarding sustainability claims. Conversely, negative comments or critiques from influencers could diminish consumer trust in a brand's sustainability efforts, highlighting the influential power of these digital opinion leaders.

Table 2. Comments and Themes on Influence of Social Media Influencers

Comments	Theme
"I started using eco-friendly products after seeing my favorite influencer endorse them. Their recommendation made me trust the brand's sustainability claims."	Influencers as catalysts for consumer adoption of sustainable products
"Influencers have a huge impact on my buying decisions. If they promote a sustainable product, I'm more likely to give it a try."	

Quotes	Theme
"I follow influencers who are passionate about sustainability. Their recommendations feel more genuine and convincing."	
"I discovered so many sustainable brands through influencers. They make it easier to find products that align with my values."	
"Influencers who educate about environmental issues inspire me to choose sustainable options. They're like guides in this journey."	
"Seeing influencers switch to eco-friendly lifestyles motivates me to do the same. It shows that sustainable choices are trendy and impactful."	
"I trust influencers who are transparent about their partnerships and only endorse products they genuinely believe in."	Influence of influencer credibility on consumer trust
"When an influencer consistently promotes sustainable brands with authenticity, I'm more likely to trust their recommendations."	
"Influencer credibility is crucial. I rely on those who educate me about sustainability and back their endorsements with facts."	
"I appreciate influencers who disclose how they vet brands for sustainability. It shows they prioritize honesty and integrity."	
"If an influencer I follow promotes a sustainable product, I trust that they've done their research and believe in its environmental impact."	
"Influencer credibility is earned through actions. I respect those who advocate for sustainability both online and offline."	
"Influencers showcasing sustainable products make me reconsider my choices. Their recommendations carry weight in my decision-making process."	Influence of influencers on consumer shopping behaviour towards sustainability
"I follow influencers who educate about eco-friendly options. Their posts motivate me to shop more consciously."	
"Seeing influencers adopt sustainable lifestyles inspires me to make similar changes. They make it feel accessible and trendy."	
"Influencers who explain the benefits of sustainable products help me understand their value. It encourages me to prioritize them in my shopping."	
"I trust influencers who share their journey towards sustainability. It encourages me to support brands that align with these values."	
"Following influencers who promote sustainable fashion has shifted my shopping habits. I now seek out ethical and eco-friendly brands they recommend."	

Comments	Themes
"I trust influencers who genuinely care about sustainability and advocate for brands that align with their values."	Trust in influencers advocating for sustainable brands
"When influencers disclose their personal journey towards sustainability, it makes me trust their recommendations more."	
"Influencers who consistently promote sustainable brands earn my trust because they demonstrate commitment to positive change."	
"I follow influencers who provide evidence of a brand's sustainability efforts. It helps me make informed decisions."	
"Seeing influencers transparently discuss the environmental impact of products builds trust in their recommendations."	
"Influencers who collaborate with trusted organizations or experts in sustainability give me confidence in their endorsements."	
"I admire influencers who use their platform to promote ethical and sustainable practices. It shows they care about more than just trends."	Positive perception of influencers promoting ethical and sustainable practices
"Influencers who highlight sustainable fashion brands inspire me to make more conscious shopping choices."	
"Seeing influencers advocate for fair trade and ethical production makes me trust their recommendations for sustainable products."	
"I appreciate influencers who educate about the environmental impact of consumer choices. It encourages me to support eco-friendly brands."	
"When influencers show how they integrate sustainability into their daily lives, it motivates me to follow their example."	
"Following influencers who prioritize ethical sourcing and sustainable materials has influenced my purchasing decisions."	

- **Consumer Engagement and Empowerment:** Comments also reflected a growing trend of consumer empowerment through social media. Consumers actively engaged in discussions about sustainability, sharing personal experiences, advocating for environmental causes, and holding brands accountable for their sustainability practices. Social media platforms were viewed as catalysts for collective action and shared responsibility towards sustainable consumption practices.

Table 3. Comments and Themes on Consumer Engagement and Empowerment

Comments	Themes
"Social media has empowered me to learn more about sustainability and take small steps towards a greener lifestyle."	Empowerment of consumers through social media discussions on sustainability
"Joining sustainability discussions on social media has connected me with like-minded individuals and inspired me to make changes."	

"I feel empowered when I see others share their eco-friendly choices and tips for reducing waste on social media."	
"Social media platforms allow me to voice my concerns about environmental issues and hold brands accountable for their practices."	
"Engaging in sustainability conversations on social media has educated me about the impact of my consumer choices."	
"Following sustainability influencers and participating in online campaigns has empowered me to advocate for positive change."	
"I love how social media brings together people passionate about sustainability. It feels like we're part of a global movement for positive change."	Sense of community and collective action towards sustainability
"Joining online groups focused on sustainability has connected me with others who share my values and inspire me to make a difference."	
"Seeing so many people support eco-friendly initiatives on social media motivates me to do more for the environment."	
"Social media platforms create a sense of community around sustainability, where we can share ideas and support each other's efforts."	
"Engaging in online challenges and campaigns for sustainability makes me feel like I'm contributing to something meaningful."	
"When consumers advocate for sustainable practices, brands listen and often improve their environmental initiatives."	Impact of consumer advocacy on brands' sustainability efforts
"Social media allows consumers to demand transparency from brands, pushing them to be more accountable for their sustainability claims."	
"Consumer advocacy on social media can pressure brands to adopt greener practices and reduce their carbon footprint."	
"I believe that when consumers voice their support for sustainable brands, it encourages others to make eco-friendly choices too."	
"Brands that respond positively to consumer feedback on sustainability gain my respect and loyalty."	
"Seeing brands engage with consumers' environmental concerns on social media shows they care about more than just profits."	
"Social media has empowered me to connect with others who care about sustainability, and together, we can amplify our voices for change."	Community building and activism through social media

"Joining sustainability groups on social media has opened my eyes to different ways I can contribute to environmental causes."	
"I love how social media platforms create a sense of community among like-minded individuals striving for a greener future."	
"Engaging in online campaigns for environmental awareness makes me feel part of a global movement towards sustainability."	
"Social media is a powerful tool for organizing eco-friendly initiatives and mobilizing people to take action on climate issues."	
"Through social media, I've found support and encouragement from others who share my passion for sustainable living."	
"I admire brands that are open about their sustainability practices—it shows they're committed to making a real difference."	
"Transparency from brands about their environmental impact helps me trust their products and support their initiatives."	
"Seeing brands publish detailed sustainability reports makes me feel confident in choosing their products over others."	Consumer appreciation for brands engaging transparently with sustainability issues
"I appreciate when brands admit their challenges with sustainability and actively work to improve."	
"It's refreshing to see brands take responsibility for their carbon footprint and take steps towards reducing it."	
"When brands communicate openly about their sustainability goals and progress, it motivates me to align my purchasing decisions with their values."	

- **Impact of Transparent Communication:** Transparent communication emerged as a critical factor in shaping consumer perceptions. Brands that communicated their sustainability initiatives clearly, with evidence of measurable impact and ongoing commitment, garnered positive feedback and support from consumers. Conversely, opaque or vague communication strategies were met with skepticism and criticism, underscoring the importance of clarity and honesty in sustainability messaging.

Tables 4. Comments and Themes on Impact of Transparent Communication

Comments	Themes
"When brands clearly communicate their sustainability efforts, it makes me more likely to trust their commitment to environmental responsibility."	Trust building through clear and transparent sustainability communication
"I appreciate when brands provide evidence and data to support their sustainability claims—it shows they're serious about making a positive impact."	

"Transparent communication about sustainability initiatives builds credibility and makes me feel confident in supporting the brand."	
"Clear communication about sustainability helps me understand how my purchases contribute to positive environmental outcomes."	
"Brands that openly discuss their challenges and progress in sustainability earn my respect and loyalty."	
"I trust brands more when they are transparent about their supply chain practices and environmental impact."	
"Transparency in sustainability communications is crucial because it helps consumers make informed decisions about the products they buy."	Importance of transparency in sustainability communications
"I look for brands that are transparent about their environmental practices—it shows they have nothing to hide and are committed to honesty."	
"When brands are transparent about their sustainability efforts, it builds trust and credibility with consumers like me."	
"Clear and honest communication about sustainability shows that a brand is accountable for its actions and committed to making a positive impact."	
"Transparency allows consumers to see the real impact of a brand's sustainability initiatives and decide if they align with their values."	
"I appreciate when brands provide detailed information about their sustainability goals, progress, and challenges—it helps me understand their commitment to sustainability."	
"I get frustrated when brands make vague sustainability claims without providing concrete evidence or details."	Consumer frustration with vague sustainability claims
"Vague sustainability claims feel like greenwashing to me—just empty promises without real actions."	
"It's disappointing when brands use buzzwords like 'eco-friendly' or 'green' without explaining what they actually mean."	
"I want to see measurable results and clear commitments from brands, not just vague statements about sustainability."	
"When brands are unclear about their sustainability practices, it makes me question their commitment to the environment."	
"It's hard to trust brands that make vague sustainability claims—it feels like they're trying to deceive consumers."	
"I'm more likely to buy from brands that provide detailed information about their sustainability practices—it shows they're committed to transparency."	Influence of detailed sustainability information on consumer purchasing decisions
"Detailed sustainability information helps me understand the environmental impact of the products I buy, which influences my purchasing decisions."	

"When brands share specific details about their supply chain, recycling initiatives, and carbon footprint, it reassures me about their commitment to sustainability."	
"I appreciate when brands go beyond vague claims and provide evidence-backed information about their environmental efforts—it makes me feel confident in supporting them."	
"Detailed sustainability reports and certifications influence my choices because they show a brand's dedication to environmental responsibility."	
"Having access to detailed sustainability information helps me align my values with my purchasing decisions and support brands that prioritize sustainability."	
"I admire brands that openly acknowledge their sustainability challenges—it shows they're committed to continuous improvement."	Consumer respect for brands showing honesty and openness about sustainability challenges
"Honesty about sustainability challenges makes me trust a brand more because it shows they're not hiding anything."	
"When brands admit their sustainability shortcomings and share plans for improvement, it shows they're genuine about making a positive impact."	
"I appreciate when brands are transparent about the obstacles they face in becoming more sustainable—it demonstrates authenticity."	
"Being open about sustainability challenges helps build trust with consumers like me who value honesty and accountability."	
"I respect brands that discuss their sustainability journey openly, including setbacks and lessons learned—it shows they're committed to real change."	

Factors Influencing Consumer Perceptions:

Consumer Perceptions of Sustainable Products through Social Media

Social media has emerged as a pivotal platform shaping consumer perceptions of sustainable products through various influential factors. Trustworthiness of sustainability claims is crucial, as consumers increasingly demand transparency and authenticity from brands regarding their environmental practices (Dangelico & Pujari, 2010). Brands that provide verifiable evidence and detailed disclosures about their sustainability efforts are perceived more favorably, fostering trust and credibility among environmentally conscious consumers (Loureiro & Lotade, 2013). Furthermore, the role of social media influencers is significant in enhancing consumer trust and brand credibility. Credible influencers who authentically endorse sustainability initiatives can validate a brand's commitment to sustainability, leveraging their influence to resonate effectively with their followers (Jin & Phua, 2014).

Consumer Engagement and Advocacy on Social Media

Consumer engagement and advocacy on social media platforms play a pivotal role in shaping perceptions of sustainable products. Active participation in sustainability discussions empowers consumers to voice preferences for transparent and ethical practices from brands (Erickson & Johansson, 2018). Through social media, consumers not only express their values but also hold brands accountable for their environmental claims, fostering a sense of community and collective action (Parguel et al., 2011). Brands that engage proactively with consumers on these platforms can build stronger relationships and garner support for their sustainability initiatives.

Importance of Transparent Communication Strategies

Transparent communication strategies are essential for enhancing consumer perceptions of brands' sustainability efforts. Brands that communicate their sustainability initiatives clearly, including challenges and progress, are viewed more favorably by consumers (Loureiro & Lotade, 2013). Detailed information about environmental impacts and efforts to mitigate them demonstrates accountability and responsible stewardship, which are crucial for building credibility and trust among consumers (Pomering & Johnson, 2009). By fostering transparency through social media channels, brands can educate consumers about sustainability practices and differentiate themselves in the marketplace.

Educational Initiatives and Consumer Perception

Educational content and awareness initiatives significantly influence consumer perceptions of sustainable products. Brands that educate consumers about environmental issues, benefits of sustainability, and product lifecycle impacts are perceived as more responsible and trustworthy (Kim & Kim, 2018). Social media serves as an effective platform for disseminating educational content, raising awareness, and promoting understanding of sustainability practices among consumers. By empowering consumers with knowledge, brands can foster long-term engagement and loyalty among environmentally conscious consumers.

Results of Quantitative Analysis Based on Thematic Variables

Table 5. Results of Correlation Statistics

Variable	X1	X2	X3	X4	Y
Trustworthiness of Sustainability Claims (X1)	1	0.54	0.39	0.52	0.78
Influence of Social Media Influencers (X2)		1.00	0.42	0.45	0.58
Impact of Transparent Communication (X3)			1.00	0.25	0.47
Educational Content and Awareness (X4)				1.00	0.49
Consumer perceptions of sustainable products (Y)					1.00

Correlation analysis provides valuable insights into the relationships between variables in a study, as depicted in the correlation matrix provided. This matrix shows the pairwise correlations between five variables related to consumer perceptions of sustainable products: Trustworthiness of Sustainability Claims (X1), Influence of Social Media Influencers (X2), Impact of Transparent Communication (X3), Educational Content and Awareness (X4), and Consumer perceptions of sustainable products (Y).

Starting with Trustworthiness of Sustainability Claims (X1), we observe moderate to strong positive correlations with all other variables: X2 ($r = 0.54$), X3 ($r = 0.39$), X4 ($r = 0.52$), and Y ($r = 0.78$). This suggests that consumers who perceive sustainability claims made by brands as trustworthy are likely to also perceive influencer endorsements (X2), transparent communication practices (X3), and educational content (X4) positively. The strongest correlation is observed between X1 and Y, indicating that as trustworthiness of sustainability claims increases, so does consumer perception of sustainable products.

Moving to Influence of Social Media Influencers (X2), it shows moderate positive correlations with X3 ($r = 0.42$), X4 ($r = 0.45$), and Y ($r = 0.58$). This implies that consumers who perceive influencers as credible advocates for sustainability are more likely to appreciate transparent communication efforts by brands and engage with educational content on sustainability. Furthermore, the correlation with Y indicates that influencer endorsements positively influence consumer perceptions of sustainable products. The Impact of Transparent Communication (X3) exhibits positive correlations with X4 ($r = 0.47$) and Y ($r = 0.58$). This suggests that brands engaging in transparent communication about their sustainability practices are likely to foster consumer awareness through educational initiatives and positively influence consumer perceptions of sustainable products.

Educational Content and Awareness (X4) shows a positive correlation with Y ($r = 0.49$), indicating that consumers exposed to educational content on social media about sustainability issues tend to have more favourable perceptions of sustainable products.

Lastly, Consumer perceptions of sustainable products (Y) exhibit positive correlations with all predictor variables (X1, X2, X3, X4), confirming that higher levels of trust in sustainability claims, perceived influence of social media

influencers, impact of transparent communication, and exposure to educational content are associated with more positive consumer perceptions of sustainable products.

Further, regression analysis has been employed to explore impact of trustworthiness of sustainability claims, influence of social media influencers, impact of transparent communication, and educational content and awareness on consumer perceptions of sustainable products with equation as:

$$Y=\beta_0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4$$

where:

Y represents consumer perceptions of sustainable products,

X_1,X_2,X_3,X_4 are the independent variables (trustworthiness of sustainability claims, influence of social media influencers, impact of transparent communication, and educational content and awareness, respectively),

β represents beta values

Table 6. Results of Multiple Regression Analysis

Variables	Coefficient	Standard Error	t-value
Constant	0.12	0.08	1.5
Trustworthiness of Sustainability Claims (X1)	0.62	0.12	5.17
Influence of Social Media Influencers (X2)	0.48	0.1	4.8
Impact of Transparent Communication (X3)	0.34	0.09	3.78
Educational Content and Awareness (X4)	0.27	0.07	3.86
F-value	34.82		
R-squared	0.76		
Adjusted R-squared	0.74		

The regression analysis uncovered valuable information about how the variables trustworthiness of sustainability claims, influence of social media influencers, impact of transparent communication, and educational content and awareness collectively affect consumer perceptions of sustainable products (Y). The regression model's overall robustness was evidenced by a highly significant F-value of 34.82 (p < 0.001), indicating that at least one of the independent variables strongly predicts changes in the dependent variable, Y. The model includes the variation in the variables trustworthiness of sustainability claims, influence of social media influencers, impact of transparent communication, and educational content and awareness which explains around 76% of the variability in customer views of sustainable products, as shown by the R-squared value of 0.76. This indicates that the model possesses a strong ability to explain the combined influence of these factors on consumer attitudes towards sustainability. The Adjusted R-squared score, with a slightly lower value of 0.74, provides a more cautious assessment of the model's goodness of fit by taking into consideration the number of predictors in the model.

The analysis of coefficients indicated that the Trustworthiness of Sustainability Claims had the highest level of significance as a predictor, with a coefficient of 0.62 (p < 0.001). This indicates that consumer views of sustainable products are greatly influenced by a higher perceived level of credibility in sustainability promises. The study on the impact of social media influencers found a significant positive effect, with a coefficient of 0.48 (p < 0.001), highlighting the crucial role of trustworthy social media personalities in shaping consumer attitudes towards sustainability. Furthermore, the statistically significant positive coefficients of 0.34 (p < 0.01) and 0.27 (p < 0.01) for the Impact of Transparent Communication and Educational Content and Awareness respectively, highlight the importance of educational efforts and effective communication in enhancing consumer views on sustainability.

The findings highlight the significance of trustworthiness, influencer credibility, honest communication, and educational programs in shaping positive consumer perceptions and behaviour towards sustainable products. The findings align with previous research that has emphasized the significance of these aspects in consumer psychology and sustainability marketing (Jones & Green, 2019; Smith et al., 2020). Therefore, to effectively engage and influence environmentally sensitive consumers, firms and marketers should give priority to these factors in their plans.

Discussion

The study explored the intricate dynamics influencing consumer perceptions of sustainable products in the context of social media engagement and brand communication. Thematic analysis identified several critical factors: trustworthiness of sustainability claims, influencer credibility, consumer engagement, transparent communication, and the impact of educational content on awareness. Quantitative analysis further substantiated these insights, revealing significant relationships between these factors and consumer behaviour towards sustainable products.

Trustworthiness emerges as a pivotal factor influencing consumer perceptions and purchase intentions. Consistent with previous research, the study found that consumers place a high value on transparent and credible sustainability claims (Dangelico & Pujari, 2010; Bhattacharya & Sen, 2004). Brands that effectively communicate their sustainable practices transparently are more likely to build trust and credibility among consumers, thereby enhancing their appeal and competitiveness in the market.

The influence of social media influencers also plays a crucial role in shaping consumer perceptions. The findings underscored that influencer credibility significantly impacts consumer trust in brand sustainability efforts. This aligns with studies highlighting the persuasive power of influencers in shaping consumer attitudes and behaviour (De Veirman et al., 2017; Jin & Phua, 2014). Collaborating with credible influencers who authentically endorse sustainable products can amplify brand messages and resonate more effectively with environmentally conscious consumers.

Consumer engagement on social media emerged as another significant theme. The study revealed a positive correlation between active engagement in sustainability discussions and consumer intentions to prioritize sustainable products. This finding echoes previous research emphasizing the role of engagement in fostering consumer advocacy and loyalty towards sustainability initiatives (Erickson & Johansson, 2018; Parguel et al., 2011). Brands can leverage social media platforms not only to disseminate information but also to cultivate communities of engaged consumers who champion sustainable practices.

Transparent communication about sustainability initiatives was identified as essential for enhancing consumer trust and brand credibility. Clear, evidence-based communication helps mitigate skepticism and reinforces perceptions of brand authenticity (Loureiro & Lotade, 2013; Pomering & Johnson, 2009). The study underscores the importance of brands adopting transparent communication strategies to build enduring relationships with consumers and combat greenwashing practices.

Educational content on sustainability was found to positively influence consumer perceptions of brand authenticity. This suggests that brands can enhance consumer awareness and understanding of sustainability issues through educational initiatives. Such efforts not only educate consumers but also empower them to make informed choices aligned with their values (Kim & Kim, 2018; Parguel et al., 2011).

Implications

The findings of this study offer practical implications that can guide marketers and businesses in effectively promoting sustainable products and practices. Firstly, strategic communication emerges as pivotal. It is imperative for brands to communicate their sustainability efforts transparently and authentically. Consumers increasingly scrutinize green claims, expecting tangible evidence and actions behind them (Dangelico & Pujari, 2010; Loureiro & Lotade, 2013). Clear and credible communication not only builds trust but also helps mitigate consumer skepticism, thereby reinforcing brand credibility and enhancing competitive advantage in the marketplace.

Influencer partnerships represent another critical avenue for brands to consider. Collaborating with influencers who genuinely embrace sustainability can amplify brand messages effectively. This approach leverages influencers' credibility and their ability to resonate with target audiences, thereby enhancing the authenticity and reach of sustainability initiatives (De Veirman et al., 2017; Jin & Phua, 2014). Careful selection of influencers based on their alignment with sustainability values ensures that brand messages remain authentic and compelling.

Moreover, fostering consumer engagement strategies on social media platforms can cultivate a community of committed advocates for sustainability. Actively involving consumers in discussions about environmental issues and sustainable practices not only enhances brand visibility but also builds loyalty and advocacy among environmentally conscious consumers (Erickson & Johansson, 2018; Parguel et al., 2011). Brands can harness this engagement to drive positive behavioral change and reinforce their commitment to sustainability.

Educational initiatives play a crucial role in empowering consumers to make informed choices. Developing educational content that highlights the environmental benefits of sustainable products helps raise awareness and shape consumer perceptions positively (Kim & Kim, 2018; Parguel et al., 2011). By providing consumers with relevant information and insights, brands can influence purchasing decisions towards more sustainable options, thereby contributing to broader environmental goals.

From a policy perspective, the study underscores the importance of clear regulations around green marketing and sustainability claims. Policymakers can use insights from this research to advocate for stricter guidelines that prevent greenwashing and ensure that consumers have access to accurate and reliable information about the environmental impact of products and services (Pomering & Johnson, 2009). Clearer regulations promote fairness and transparency in the marketplace, benefiting both consumers and businesses committed to genuine sustainability practices.

Adopting these practical implications can help businesses not only enhance their brand reputation and consumer trust but also drive meaningful contributions to environmental sustainability. By prioritizing transparent communication, leveraging influencer partnerships, fostering consumer engagement, promoting educational initiatives, and advocating for clearer regulations, brands can navigate the complexities of sustainability marketing effectively while making a positive impact on society and the environment.

Suggestions for Future Research

Future research could focus on longitudinal studies to observe shifts in consumer attitudes towards sustainability over time, offering insights into how evolving environmental policies and market trends impact perceptions. Comparative studies across diverse cultural contexts could further illuminate how socio-cultural factors shape sustainability perceptions and behaviour. Additionally, research could explore the effectiveness of different educational strategies in enhancing consumer understanding and commitment to sustainable practices. Investigating these aspects could provide valuable guidance for brands and policymakers aiming to refine sustainability communications and foster global environmental stewardship.

Conclusion

In conclusion, this study highlights the significant impact of social media comments on consumer perceptions of sustainable products, revealing crucial insights into the dynamics of sustainability discourse. The mixed-methods approach, combining qualitative content analysis with quantitative survey research, effectively illuminated how varying types of social media interactions influence consumer attitudes. Key findings underscore the importance of trustworthiness in sustainability claims, the influential role of social media influencers, and the necessity for transparent communication from brands. The thematic analysis demonstrated that consumers are increasingly discerning and demand verifiable evidence of sustainability efforts, while influencer endorsements play a pivotal role in shaping brand credibility. Additionally, consumer engagement and educational content emerged as essential factors in fostering positive perceptions and behaviour towards sustainable products. These insights offer actionable recommendations for brands to enhance their sustainability messaging and build stronger consumer relationships. Future research avenues, such as longitudinal and cross-cultural studies, could further enrich understanding of these dynamics and guide more effective sustainability strategies. By prioritizing transparency, leveraging influencer partnerships, and focusing on educational outreach, brands can more effectively navigate the complexities of sustainability marketing and contribute to meaningful environmental change.

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