Revisiting the Relationship Between Greenwashing Perception and Consumer Purchase Intentions: Assessing the Mediating Role of Word of Mouth and the Moderating Role of Environmental Knowledge

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Abstract. This study seeks to address the impact of perceived greenwashing on the intention to purchase environmentally friendly products. We have explained how ecological information may moderate the link between perceived greenwashing and purchase intention and hence affect both the direction and magnitude of the former. Quantitative approach was implied through partial least square structural equation modeling in analyzing the data of 275 respondents. The findings spectacle perceived greenwashing decreases consumers' propensity to buy green products. However, word-of-mouth significantly influences perceptions and intentions to purchase a product. Results show that environmental literacy is not a good moderator amongst perceived greenwashing and word-of-mouth. In essence, the negative effect of perceived greenwashing on purchase intention is constant for individuals with low and high knowledge of environmental issues, while word-of-mouth is a relevant factor in this regard for any category. This study has great implications, both for business and policy makers. They also reinforce the idea of the connection of good corporate leadership with environmentally responsible purchase habits. Thus, businesses have to be alert to the destroying impact green washing can have on their reputation and financial results as well as proactive in preventing it. Besides, companies can improve word-of-mouth by better branding and labeling of products to influence buyers' perception about green washing and their buying intention. These represent pragmatic ways in which businesses and policymakers seek to drive sustainable consumption, plug loopholes for spurious environmental claims, and tease out some of the more compound dynamics around consumer behavior in the context of greenwashing.

Key words: Greenwashing perception, Word of Mouth, Environmental Knowledge, Green Purchase Intentions.

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1   Introduction

Most businesses believe in pushing themselves to show that they care about society and the environment through sustainable practices, this is a result of the increasing awareness by the public of major environmental issues such as global warming, pollution and climate change. Businesses have continued to expand their lines of products to respond to the demands that arise from customers for greener products (Awwad et al., 2025). They are also using eco-friendly practices within their companies and throughout their supply chains (Ahmad and Zhang, 2020; Ferrón-Vílchez et al., 2021; Pizzetti et al., 2021).

Secondly, the creation of green products that respond both to ethical norms Pizzetti et al. (2021), and to sustainability criteria. Firms have to respect the ecological legislation and take into consideration consumer preferences regarding ecological protection. Even though more firms are now trying to respect consumer choices and respond to their preferences by developing new green products and promoting environmental sustainability, new evidence reveals the misuse of misleading marketing practices by certain firms. The companies do not adhere to all environmental rules and regulations provide buyers with deceitful, incomplete, or incorrect information regarding their products and green activities (Wu et al., 2020). It may result in hurting the reputation of the companies and finally denting stakeholders' and society's confidence in them. Green washing or the practice of businesses making false environmental claims has been an issue of much concern for many in recent times (Roos, 2025).

Although some studies have investigated causes and effects of greenwashing, it is still unclear how consumers' perceptions about greenwashing would influence their purchase decisions. This study therefore, examines the influence of perceived green washing on their intention for green purchase and the underlying process. The study has been highlighted these mechanisms with a view to further improving the understanding of choice and aiding the formulation of actionable green marketing campaigns. As indicated by Szabo and Webster (2021) and Yang et al. (2022), the trust of consumers in an organization and its products is lower when they notice that the company or organization is involved in greenwashing.

This leads to a significant trust deficit between the company and its clientele. According to a recent study (Ali et al., 2021). Greenwashing is associated with adverse consumer perceptions and poor performance assessments, which can negatively impact a firm's success. Further examination is necessary to ascertain the link amongst consumers' perceptions of greenwashing and their inclination to acquisition environment oriented products (Bulut et al., 2021; Olk, 2021). This associated debate and discussion is the significance of our research; this is because our work will add to this increasing body of knowledge. Further, it explains the phenomenon behind the association that is amid greenwashing perceptions and consumer purchase intentions. In addition, greenwashing impressions are related to green purchasing intentions along several dimensions.

Therefore, it is of importance to underscore the crucial mechanisms which can enable to explain the link between the perceived greenwashing and the tendency to purchase environmentally friendly products. Guagnano et al. (1995), pointed out that the Attitude Behavioral Context (ABC) hypothesis attempts to account for attitude behavioral relationships with references to certain contextual or situational elements. For example, companies often use WOM to stimulate sales, retain existing customers, and attract new ones. Iyer and Griffin (2021), found that negative word-of-mouth had an opposing effect on customers' buying intentions. So, the role of word-of-mouth takes into consideration, as a moderator, the perception of greenwashing and buying propensity. The ABC theory states herein; "attitude" refers to evaluative ratings, or

"greenwashing perception," whereas the following behavioral inclination refers to "green purchase intentions." The relationship between these two variables could therefore, be explained by word-of-mouth. It refers to the activity of telling others about one's experiences with the company's goods and services and those things liked most by customers. Word-of-mouth, therefore, is the factor that connects the bridges of consumers' perception about green washing to their intention to make green purchases. Additionally, the paper aimed at finding the factors that might act as buffers for green washing perception and word-of-mouth. According to the ABC theory, factors relating to the perceiver, which in this case is the customer, may influence the connection between greenwashing perception and word-of-mouth. In fact, researches indicate the level at which green awareness, green mentality, and environmental orientation influence consumers in spreading positive or negative word-of-mouth about companies under consideration (Iyer and Griffin, 2021; Martínez García de Leaniz et al., 2018; Mehdikhani and Valmohammadi, 2022; Yoon and Chen, 2017). Therefore, in this framework we consider that a consumer-related aspect, though rare in studying, may be their environmental knowledge serving as an appropriate model moderator. Knowledge of ecology by Laroche et al. (2002), refers to "the awareness of behavior patterns, concepts, and symbols linked to environmental care". Thus, ecological awareness in consumers will influence the strength of the greenwashing perception (GWP)-Word of Mouth (WOM) relationship. We believe that consumers' environmental awareness mediates their perception about green washing and further leads to sharing information (Salem and Alanadoly, 2021). Previous literature was conceptualized in terms of its benefits by realizing environmentally responsive business policies and programs and also in its execution (Rehman et al., 2021).

Despite the new evidence of firm-level greenwashing, little attention has still focused on other issues related to greenwashing. Citet ruiz2022; wang2020; kaner2021 are just some of them. That is why we try to investigate in this paper the consequences of the bad sides of green claims. This paper, therefore, also looks into whether perceived greenwashing by consumers dictates the level of their Green Purchase Intention(GPI). This study also attempts to ascertain how WOM acts as an intermediary (mediator) between perceived greenwashing and purchase intention for environmentally friendly products. Additionally, it examines the interaction effect of Environmental Knowledge (EK) on the perceived greenwashing and talking about greenwashing association.

2 Literature Review and Hypotheses Development

2.1 Greenwashing perception and Green Purchase Intentions

Globalizing domestic markets has heightened consumer awareness of green brands or services (Tran and Paparoidamis, 2020). Buyers increasingly prefer products with reduced environmental and social impacts, prompting businesses to adopt greener practices (Kumar and Rodrigues, 2020). This growing demand for environmentally friendly goods Al-Abdallah and Al-Salim (2021), has led to a rise in "greenwashing", "the deceptive practice of falsely portraying a company or product as environmentally conscious" (Szabo and Webster, 2021). Greenwashing has become a pervasive issue in marketing (Lyon and Montgomery, 2015).

In marketing, intention for purchasing is an individual's willingness for a particular product or service (Kamalul Ariffin et al., 2018). Eagly and Chaiken (1993), further describe it as a mindful plan to employ energy towards carrying behaviour. Specifically, green purchase intention

refers to buying products that benefit the environment (Sheng et al., 2019). Understanding this concept is crucial for businesses aiming to market eco-friendly products effectively.

Claims made by businesses about their environmentally friendly policies, procedures, and practices must be credible in the eyes of consumers (Schmuck et al., 2018). According to Kahraman and Kazançoğlu (2019), customers typically grow suspicious and gradually separate themselves from a firm once they realize indications that the company's misrepresentation about its environmental practices. This therefore means that companies need to do more in terms of greener policy announcements but also in making greener policies and validating claims of greener actions. However, according to Dangi et al. (2020), customers' intended purchases are usually estimated to be their actual purchases. On the other hand, environmental attitude can influence a consumer's green purchase intent, defined as the probability of purchasing from firms viewed as responsible towards the environment (Newton and Newman, 2015). However, perceived greenwashing-where firms are perceived as exaggerating or even lying about their environmental efforts-diminishes trust among consumers (Pimonenko et al., 2020). Furthermore, greenwashing companies make misleading advertisements to deceive their customers (Hameed et al., 2021). The consequence is that consumers will become suspicious and thereby avoid the firm's offerings for fear of being misled in the future. Therefore, the appearance of greenwashing may hurt the purchase intentions of green consumers. We thus made the following hypothesis:

H1: Green washing perception has a negative impact on green purchase intention.

2.2   Greenwashing Perception and Word of Mouth

Lyon and Montgomery (2015), refer to the definition of green washing as the spurious statements or misleading actions of firms in their advertisements. Companies fool their clients in such a way because it helps them to enhance their reputation and earn a profit. Yu et al. (2021), it has been evidentially proved that customers are more loyal to those brands that have a transparent and moral business policies (Serrano Archimi et al., 2018). These ethical acts are interrelated to green products and services. The companies which do not practice green washing are the firms with which the customers wish to do business (Yang et al., 2022), If the companies are transparent regarding their claims of being environmental friendly in their advertisements, then the customers can also contribute positively by creating awareness among their friends and family (Guerreiro and Pacheco, 2021). When businesses make false promises about greening their products and services, this may lead to terrible word-of-mouth (Burhanudin et al., 2021).

Green brand image refers to the consumer perception of a company's products and services concerning their environmental impact and attributes (Chen et al., 2020). In addition, greenwashing involves deceptive advertisements which deceive customers regarding company's environmental performance (Zhang et al., 2018). Such practices lean towards consumer loyalty and trust in the brands of the organisations concerned, as noted by Chen et al. (2020). reducing ultimately the sales of green products which the company offers, as implied by (Hameed et al., 2021). In contrast, social media marketing employs WOM towards positive brand image highly effectively.

With the effect of global warming and other rapid changes, people are turning very eco-conscious, state Taufique and Vaithianathan (2018), "Greenwashing," a practice when companies make environmental claims that are not supported by substantial evidence, is a fast-growing phenomenon in the consumer market, according to Yang et al. (2022), firms that are

serious about their environmental activities and could communicate these in ways that could be understood easily by their consumers might. Therefore, see an increased credibility in their advertising (Chen et al., 2020). However, Kahraman and Kazançoğlu (2019), say when companies have too much to say about their green product, it may result in the loss of faith of consumers. Companies "greenwashing" could harm consumers' perception of any earth-friendly advertising. Allegations of greenwashing would result in negative WOM since the customer is the ultimate brand ambassador. That is why one is quick to relate too eco-friendly ad to green washing, which is of course detrimental in business. For this reason, we hypothesized:

H1a: Greenwashing perception has a negative effect on word of mouth.

2.3 Word of Mouth (WOM) and Green Purchase Intentions

Word-of-mouth (WOM) marketing has been established as a powerful and cost-effective form of advertising (Amatulli et al., 2020). Consumers tend to trust recommendations from friends and family, making WOM highly influential in purchase decisions. Recent research Cheung and Hong (2021); Mehdikhani and Valmohammadi (2022), has further emphasized the positive impact of environmentally conscious practices on customer loyalty, repeat purchases, and WOM generation.

In today's digitally connected world, products that garner positive WOM across online and offline channels experience tremendous market success (Childers and Boatwright, 2021). WOM marketing encompasses emotional appeal and a company's social network position, and research suggests that effective WOM strategies often align with consumers' personal values and influence purchase decisions by targeting both rational and emotional aspects (Hüttel et al., 2018). Due to its significant impact on consumer behavior, brand perception, and firm profitability (Mukherjee and Chandra, 2022; Oraedu et al., 2021). Scholars have advocated for strategies that enhance the WOM generation. These strategies include referral incentive programs, influencer marketing, and broadcasting initiatives (Hu et al., 2019; Moore and Lafreniere, 2020).

Existing research indicates that positive word-of-mouth (WOM) has a significant influence upon consumer purchase decisions (Cheung and Hong, 2021; Wang et al., 2018a,b). This impact can increase profits and market share for companies with environmentally conscious products and services. Stakeholder engagement studies (Allen and Spialek, 2018; Dost et al., 2019), suggest marketers should prioritize WOM over traditional marketing strategies to promote their environmentally friendly offerings. Therefore, encouraging consumers to share positive experiences with their networks can effectively stimulate green purchasing behavior (Ng et al., 2025).

H1b: Positive word-of-mouth about green products will influence customers' green purchase intention positively.

2.4 The Mediating Role of WOM in Greenwashing Perception and Green Purchase Intentions

There are several negative consequences identified with the perception of green washing (Szabo and Webster, 2021). But how such perception of green washing produced these consequences is what warrants an explanation. Marketers are more concerned with the consumer-

based consequences because they influence the green purchase intention most (Paro et al., 2021). The message for customers usually comes through advertising, posters, banners, packaging, and every other company-sponsored green activity (Mandal and Pal, 2021). However, customers equally contribute to spreading the word about companies as well. According to Chen et al. (2020). global marketing refer to information towards segmented consumers. "Word of mouth" is "the degree to which a customer would learn from friends, relatives, and colleagues about the positive environmental messages of a product or a brand" (Söderlund and Mattsson, 2015).

The studies reported that WOM is negatively related to greenwashing, where customers have complained about the firm's claims on the basis of being irritating, deceitful, and misleading. Therefore, researches shown that perceived greenwashing determines word-of-mouth negatively. As the Chinese say, "bad news has wings," where unhappy customers may share a company's poor service with others. Thus, clients more often hint that other consumers should change their preferences about making decisions (Siguaw et al., 2020). Customers show their purchasing intention, and WOM plays an important role in marketing or advertising strategy development (Rambocas and Ramsubhag, 2018).

In this technological era, peer reviews, blogs, and social media authentications have emerged as an important method of authentication. Therefore, the consumption of goods or services from firms with positive responses among peers is preferred. WOM is one of the primary ways for customers to build trust in a company when they do not know much about products or offerings (Zaman et al., 2021). Not only that, the word-of-mouth method helps to reduce advertisement expenses (Dost et al., 2019).

For instance, Schmuck et al. (2018). found that perceived greenwashing by customers is developed if they perceive incongruities in the definite environmental presentation and claims of a company. Subsequently, negative word-of-mouth may come into being because the fact that people show a higher motivation to report about their adverse experiences to social networks. Since WOM is one of the most influencing sources affecting purchase decisions, negative WOM due to perceived greenwashing will decrease consumers' purchase intention toward the firm which holds green purchase intention. From this, we realize that WOM will mediate the effect of perceptions of greenwashing on purchase intentions. Precisely, we hypothesize that:

H2: Greenwashing perception negatively influences green purchase intention, and negative word-of-mouth mediates this effect.

This hypothesis postulates a sequence where perceived green-washing comes first, followed by negative word-of-mouth against the company, which results in less purchase intention of greener products. The mediating role of WOM has been included for further explanation of the complex association that occurs amongst green-washing perception and consumer behavior.

2.5   Environmental Knowledge Moderates the Relation Amongst Greenwashing Perception and Word-Of-Mouth

EK concerns customers' degree of understanding and awareness of the environment and its problems (Zhao et al., 2020). More generally, it is the individual's familiarity regarding basic concepts, facts and interactions in ecosystems and its natural environment Fryxell and Lo (2003) and the degree for recognition concerning symbols, ideas, and behaviors linked to environmental protection (Laroche et al., 2002). Rapid technological advancements have increased consumer awareness and concern for the environment Khan et al. (2021), leading towards a growing in-

clination aimed at green products that benefit both personal well-being and the planet. As the perceived greenwashing effect already acts on negative WOM, additional factors have to be identified that could strengthen this effect. Recent research by Rausch and Kopplin (2021) and Schmuck et al. (2018),moh shows that EK can act as a moderator in a consumer's reaction to both corporate environmental claims and environmentally relevant behavior.

A highly informed consumer is also found to be more 'green' shopper Mohiuddin et al. (2018) and to go for eco-friendly buying choices (Pagiaslis and Krontalis, 2014). The above discussion, therefore, implies that EK may interactively enhance or reduce the impact of green washing perception on the WOM. To comprehend the complex interaction between greenwashing perception, consumer knowledge, and communicative behavior, the moderating role of EK, therefore, needs to be understood. We hypothesize that environmental knowledge can affect consumers' perception and behavior, therefore moderating the relation between greenwashing perception and negative WoM. That is, we predict that consumers who have a higher level of EK will be more critical if the companies engage in greenwashing practices and thus be more likely to spread negative WoM.

The above assumption is also congruent with the ABC theory of Guagnano et al. (1995), which maintains that contextual factors determine the potential attitude-to-behavior mechanisms. For this paper, therefore, the context of the connection amongst the perception of greenwashing and WOM is EK. Consequently, we recommend the following hypothesis:

H3: Environmental knowledge moderates the relation amongst perception of greenwashing and negative word-of-mouth, to ensure that the influence will be stronger for the consumers with high EK.

This hypothesis proposes that the adverse consequence of perceived greenwashing on WOM drive more salient instance of consumers having higher environmental knowledge. The research in this regard can thus rely more on an improved understanding of the various linkages among consumer awareness, corporate greenwashing, and communication behavior.

2.6 Environmental Knowledge and Word of Mouth

The heightened awareness and potential for adverse feelings may result in more negative WOM compared with consumers with a low level of EK. Thus, we predict (H4) that the negative influence of greenwashing perception on WOM is resilient for consumers through a great level of EK, supporting the attitude-behavior context theory in that the context influences behavior. This assumption aligns with the Attitude-Behavior-Context (ABC) theory, that speculates that contextual dynamics can influence the translation of attitudes into behaviors (Guagnano et al., 1995), In this case, EK serves as the context shaping the association amongst greenwashing perception and WOM. Hence, the following hypothesis might be advanced:

H4: Environmental knowledge has a positive impact on WOM.

That implies that, therefore, a higher WOM-detracting effect because of perceptions of greenwashing would occur for those with high environmental knowledge. Considering the moderating role of EK allows delving deeper into the complex interplay among consumer awareness, corporate greenwashing, and communication behavior.

Building on the well-settled impact of environmental knowledge on consumers' perception and behavior, we suggest that EK moderates the relationship between greenwashing percep-

tion and negative word-of-mouth. With greater knowledge about environmental problems, the consumer with a high degree of EK will be more able to detect greenwashing and may show stronger reactivity once this practice is perceived. This heightened awareness and potential for negative emotions could lead them to engage in more negative WOM than consumers with lower EK. Therefore, we hypothesize (H4) that the negative effect of greenwashing perception on WOM will be more substantial for consumers with higher EK, aligning with the Attitude-Behavior-Context theory's emphasis on contextual influences on behavior.
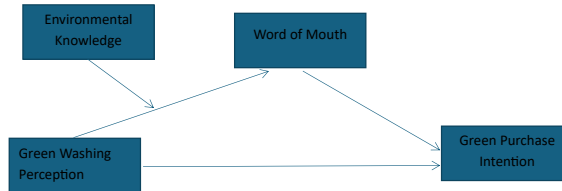
Figure 2.1: The Hypothesized Model

3   Methodology

The primary audience for this study was the people living in Islamabad and Rawalpindi-the two major cities of Pakistan-and falling in the category of the Pakistani consumer market. Being the capital and the most developed city, Islamabad is home to a diversified population because people from other cities live in this city as well. In the same manner, the markets in Islamabad and Rawalpindi, the twin cities are also places of cultural diversity. The persons informing are selected keeping in view all age groups and classes of incomes so that data may be collected concerning all study variables. It was the target group of the market goers of Islamabad and Rawalpindi. They were intercepted at Safa Gold Mall, Centaurus Mall, and Giga Mall. Because of diversity in the taste, opinion, lifestyle of the people twin cities were the best place for sample. Of 300, there were 275 questionnaires that came back from the targeted population. The perceived greenwashing and green purchasing intention were the two main concerns of the present study. The very concept of "greenwashing" is altogether new to the people of Pakistan. So, we conducted a study with a number of participants in order to get insight into consumer behavior. We provided them with some background information and asked to consider a specific brand or company about which they could remember. After explaining this fictional scenario, we then asked for your honest opinions regarding several aspects of: green washing, environmental awareness, word-of-mouth marketing, and the likelihood of purchase of green products. Moreover, we also asked for general personal specifics: age, gender, monthly income and level of education. It is a very culturally diversified sample, which would be highly useful for research in the capital territory. Questionnaires were circulated among respondents who were part of the study. Two hundred seventy-five respondents submitted their responses to the questionnaires. In this investigation, a convenience sampling procedure was used in recruiting the respondents. This is to say we approached prospective respondents who, within our radius of operation or on our online platform, are readily accessible. After that, the willing ones were allowed questionnaires to answer. It has to be underlined that participation was strictly on a volunteer basis, with only such who gave their informed consent being finally included in the pool.

3.1 Instrumentation

In this study, all the variables were measured using conventional instruments developed and previously validated. The scale developed by Laufer (2003) and Chen and Chang (2012) allowed this research to assess the public perception of green washing. A multi-scale measurement method has been adopted for assessment of consumer behavior within an environmental context. The perception of green washing has been measured by a five item likert scale adapted from previous studies. Statements like "the product misleads with environmental claims" are rated by respondents on this scale. Secondly, the three-item Likert scale by Goh and Balaji (2016), gauges ecologically aware purchase intention. Examples include "I will buy because of the company's concern about the environment". Finally, the four-item Likert scale by Molinari et al. (2008), measures word-of-mouth (WOM) propensity regarding the product's environmental image. A sample statement is, "I highly recommend this product because it is good for the environment." These existing scales allow the research to capture a comprehensive view of the consumers perception of greenwashing, ecologically determined purchase intentions, and word of mouth potential about the environmentally friendly products." Leonidou and Skarmeas (2017), developed and used a scale to measure environmental knowledge. This scale uses a likert scale to determine four different dimensions. A sample is, "I know a great deal about environmental issues." Audience demographics for the participants is shown in Table 3.1 and includes 275 participants. It is a pretty heterogeneous sample by age, gender, education level, and even income. For this research, the majority of the respondents being surveyed will be males, 63.3%, while 81.1% are between 18-25 years of age. Because the research will be focused on perceptions of green washing and also the extent of environmental knowledge, the persons had to have at least a medium-level education. Importantly, 38.5% had a Master's or higher degree. Their average state of income: the biggest portion of responses stated no income, or 70.2%; the rest fell into the following income brackets in PKR.

Table 3.1: Sample Characteristics

Description	Frequency	Percent	Cumulative Percent
Gender			
Male	174	63.3	63.3
Female	101	36.7	100
Age			
18-25 years	223	81.1	81.1
26-33 years	40	14.5	95.6
34-41 years	9	3.3	98.9
42 years or above	3	1.1	100
Qualification			
Intermediate	5	1.8	1.8
Bachelor's Degree	164	59.6	61.5
Master's Degree or Higher	106	38.5	100
Monthly Income (Rs.)			
20,000-30,000	36	13.1	13.1
31,000-40,000	10	3.6	16.7
41,000-50,000	3	1.1	17.8
51,000-60,000	8	2.9	20.7
60,000 or above	25	9.1	29.8
Other	193	70.2	100

4   Results

PLS-SEM is a variance-based, second-generation statistical approach that comes with the remedy for most of the limitations associated with earlier approaches. The method has become an increasingly important tool in studying complex data and predicting relationships between constructs. Smart PLS3 was used to measure both the measurement and structural models and thus provide a complete look at the proposed relationships and their associated constructs (Hair et al., 2014).

4.1   Measurement Model

Following Hair et al. (2014), convergent and discriminant validity of the measurement model were checked (Table 4.1). The conditions for convergent validity were factor loadings above 0.708, CR values above 0.7 and AVE values above 0.50. All latent variables satisfied these conditions since from Table 4.1, one can realize AVE values between 0.545 and 0.698. Discriminant validity was assured whenever the square root of AVE for each construct was greater than the correlations between constructs, meaning that constructs were distinct.
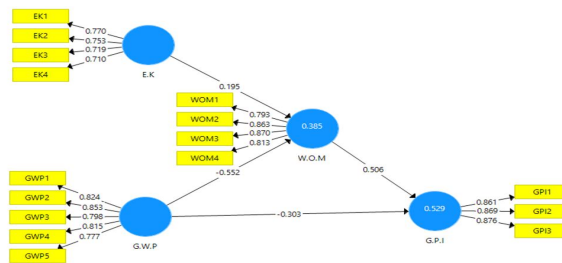

Figure 4.1: PLS-SEM Model

Table 4.1: Measurement Model

Measures	OL[a]	CR[b]	AVE[c]
Environmental Knowledge	0.722	0.827	0.545
Green Purchase intentions	0.838	0.902	0.755
Greenwashing Perception	0.872	0.907	0.662
Word of Mouth	0.855	0.902	0.698

Discriminant validity describes the magnitude with which a construct differs from other constructs within the model being investigated. Put simply, it's the determination of whether the construct truly is the expression of the conceptual idea being measured, not just something that another construct could say. The present work applies the Heterotrait-Monotrait ratio as a new method of assessment of the discriminant validity within the variance-based structural equation modeling. This HTMT is useful for the scholars as it juxtaposes shared variances between the constructs of monotraits directly with those of heterotraits. If HTMT values fall below

a threshold pre-specified by the researcher-for instance, 0.85-then he or she can be assured that the constructs in his or her model really represent distinct and different aspects of the investigated phenomenon. A rule of thumb, discriminant validity between two reflective constructs has been demonstrated when the value of HTMT is below 0.90. In support, all HTMT values for the constructs in Table 4.2 were below 0.90 thus meeting the a priori cutoff criteria threshold.

Table 4.2: Heterotrait-Monotrait Ratio (HTMT)

	EK	GPI	GWP	WOM
EK				
GPI	0.47			
GWP		0.701		
WOM	0.381	0.8	0.68	

Environmental knowledge (EK), green purchasing intentions (GPI), perception of greenwashing (GWP), and word of mouth (WOM) are the four parts of the acronym.

Therefore, convergent validity is adequately met by the measurement model. Thus, the following step in the assessment of hypothesis validation within the structural model is complete provided the measurement model has given appropriate results through validity as well as reliability.

4.2 Structural Model

The structural model can explain the relationships of latent variables according to the hypotheses in the research model. In this respect, Table 4.3 spectacles the results of the analysis of the structural model, showing the relation between latent variables.

4.3 Hypothesis Testing

Table 4.3 presents significant positive correlations among the study variables. The beta value of the relationship between greenwashing perception and green purchase intention with a negative sign (-0.307) indicates that there exists a statistically significant negative relationship between the variables. Thus, our hypothesis (H1) is supported: perceived greenwashing by consumers does indeed affect their intention to purchase green products negatively.

The statistical results supported the hypotheses in the study regarding the relationships that exist among green washing perception, word-of-mouth, environmentally friendly purchase intentions, and environmental knowledge.

A significant negative beta value of -0.553 with a p-value lends credence to hypothesis H1a respecting the relationship between green washing perception and WOM. That is, the higher the level of perceived green washing by consumers, the lesser the likelihood of positive word-of-mouth about the product.

Also, a statistically significant positive beta value of 0.505 for the relationship of WOM with environmentally friendly purchase intentions gives support for hypothesis H1b, showing that positive word-of-mouth from others influences the consumer's decision to purchase eco-friendly products.

Finally, from the analysis, it is deduced that EK is positively related to WOM, since the positive beta value of 0.203 and the associated p-value support this, hence confirming hypothesis H3: the greater the consumer's environmental knowledge, the more likely it will be that they share positive information and recommendations about green products. This therefore, shows how very important environmental information is in influencing consumer communication and, to some extent, the adoption of green products.

Table 4.3: Path Coefficients

Hypothesis	Relationship	B	S.E	T-statistic	R^2	Q^2	f^2	Decision
H1	GWP → GPI	-0.307	0.069	4.37	0.529	0.371	0.127	Supported
H1b	WOM → GPI	0.505	0.065	7.821			0.355	Supported
H1a	GWP → WOM	-0.553	0.048	11.509	0.385	0.248	0.477	Supported
H3	EK → WOM	0.203	0.06	3.25			0.06	Supported

4.4 Mediation Analysis

Moreover, Table 4.4 reconfirms that greenwashing perception is inversely related to green purchase intention since its beta value statistically significant at -0.279 and zero thus failing to fall between the bootstrapped confidence intervals. Besides, from Figure 4.1, one can explain that results strongly support the mediation hypothesis thereby presenting WOM as the significant factor which explains the negative impact of greenwashing perception on the intentions of customers to purchase environmentally friendly products. This would, therefore, support such a notion that negative WOM, resulting from perceived greenwashing, acts like a sort of mediator in further reducing the willingness of consumers to engage in green products offered by companies perceived as greenwashing.

Table 4.4: Mediation

Hypothesis	Relationship	B	T-statistic	S.E	Confidence interval 2.5%	Confidence interval 97.5%	Decision
H2	GWP → WOM → GPI	-0.279	7.296	0.038	-0.357	-0.207	Supported

GWP = greenwashing perception, WOM = word of mouth, and GPI = green purchase intentions.

4.5 Moderation Analysis

A moderation analysis was performed (Table 4.5) to check whether EK moderates the relationship between greenwashing perception and WOM. The result of the above analysis presented a beta of-0.125, which is insignificant because the p-value is greater than 0.05. Also, the interaction term is not statistically significant because the bootstrapped confidence intervals include a zero value. These findings thus suggest that the data do not support the assumed moderating effect of EK on the greenwashing perception-WOM relationship. In other words, we cannot confirm that the higher the degree of EK, the less positive will be the WOM emanating from consumers in response to perceived greenwashing.

Table 4.5: Moderation Analysis

Hypothesis	Relationship	Beta	T-statistic	p-value	Confidence Interval 95%	Decision	
					Confidence interval 2.5%	Confidence interval 97.5%	
H4	Moderation of EK between GWP and WOM	-0.126	1.143	0.253	-0.194	0.258	Not supported

EK = environmental knowledge; GWP = greenwashing perception; and WOM = word of mouth.

5   Discussion

The first hypothesis was intended to verify the perceived effect of consumer perceptions about greenwashing on their intentions to buy green products. Latest findings suggested increased awareness by consumers about the environmental performance of firms, especially among sophisticated consumers who carefully evaluate green claims. Greenwashing, or the fraudulent acts that arise from the fanciful environmental claims of firms, has become of interest to researchers, marketers, and consumers in recent years (Martínez García de Leaniz et al., 2018; Szabo and Webster, 2021). It occurs when brands or organizations portray a positive environmental or social image that contradicts their actual, less favorable performance (Delmas and Burbano, 2011; Lyon and Montgomery, 2015).

This fact confirms our hypothesis that consumers' judgments about greenwashing will significantly affect their purchase intentions, possibly leading to changes in purchase decisions. This implies that genuine environmental behavior is very important for companies in order to help them retain consumers' trust for effective sustainable consumption.

As indicated by literature on the subject, several elements are relevant for assessing buying intention. The perception of green washing will be one of the relevant factors that this study suggested and buy intentions determine whether to buy or not to buy a consumer. It is therefore an important result because it indicates that a consumer's decreased intention to buy any green products due to the perception of a firm greenwashing them predicts worse buying behavior in the future. That suggests that businesses should tread very carefully when positioning themselves as green. Their advertising, packaging, and other communications with consumers should certainly be an accurate reflection of their actual behavior if a desire is to affect people to buy products. Similar studies have also been reported by Akturan (2018); Hameed et al. (2021); Yang et al. (2022), among other authors, on many high and low involvement products like refrigerators, tissue papers, green vegetables, supermarkets, and retail items.

The second drive of our research is to find out the underlying mechanism of how the perception of greenwashing affects green buying intentions. We assumed that the perceived greenwashing and further in a sequence green buying intentions of consumers are mediated by WOM. The attitude-behavior-context (ABC) theory of Guagnano et al. (1995), serves as the basis for such a choice. The results prove the mediation hypothesis. Therefore, word-of-mouth is influenced by the concept of "greenwashing", and, inversely, word-of-mouth has an impact on

green purchasing intention. It lends some relevance to the position that attitude-people's attitude, or how they view greenwashing–influences their behavioral disposition, or intention to buy greener products as moderated or mediated through word-of-mouth, per the ABC theory. The latter relationship also confirms the view that when a firm tricks its customers, word-of-mouth about the firm becomes negative. For instance, based on their qualitative research, Lim et al. (2013), found that customers are still likely to spread negative word of mouth even after customers realize that the company deliberately advertised false messages with regard to its environmental friendliness. Further, results have also supported the existence of such relationship that perceived greenwashing reduces consumers' trust (Chen and Chang, 2013). The present research also adds to the ever-increasing literature based on the association between WOM and green purchase intent. Another contribution of the present study is that it explores the concept of word-of-mouth regarding the interaction of perceptions of green washing and the intents to buy environmentally friendly products. It also explains the involved process through which consumer perception of green washing affects their purchase intention for green.

This research required to examine whether a higher consumer EK would dampen WOM and also act as a moderator of the greenwashing perception-WOM relationship. However, our findings do not provide any support for these hypotheses. No evidence has surfaced that leads us to believe that a higher EK is less prone to engage in WOM, neither has the variation in the levels of EK moderated the relationship between greenwashing perception and WOM.

This unexpected result may indicate a more varied relationship than expected between EK and WOM, specifically within the context of greenwashing. For instance, it may be that those consumers who have the highest levels of EK are indeed more critical of any greenwashing initiatives but at the same time may also be more disposed to share their experiences, both positive and negative, because their awareness and concern for environmental issues are at a heightened state. Moreover, the novelty of this concept of greenwashing and associated technical understanding may provide a leeway for companies to mislead the consumers irrespective of their EK. Clearly, further research is needed in order to understand the interaction among these three concepts in much greater detail. For example, future research could investigate exactly how different dimensions of EK-factual knowledge, system knowledge, and action-related knowledge-may have differential effects on how consumers respond to the perception of greenwashing and on their word-of-mouth communication behaviors.

This research enriches the understanding of how the perception of greenwashing influences the behavior of consumers. Although our findings did not support the hypothesized moderating role of the factor of environmental knowledge, they underlined that businesses should make sure that authenticity in claims related to the environment is present. Today, knowledgeable consumers prepare themselves to detect and react against the signals of greenwashing, while underscoring real environmental commitment and open communication. The balance between words and deeds is the factor that will help businesses avoid negative word-of-mouth and sustain the trust of consumers. The subtle interaction between environmental knowledge, the perception of greenwashing, and communication behavior requires further research to have effective marketing strategy implications that promote sustainable consumption.

5.1   Theoretical Implications

This study enlightens the researchers with some remarkable insights, as elaborated above. The model followed the big framework based upon the attitude, behavior, and context-ABC paradigm; within this integrated architecture, there was a mediator and a moderator. ABC the-

ory supports that perceived greenwashing reduces green-buying intention and word-of-mouth since attitudes affect consequent actions. The current study can look at greenwashing from the point of view of a cognitive frame through which consumers make ecocentric purchase choices. In consequence, it turns out to be very relevant that we try to assess how the association between perceived greenwashing and green-buying intent is mediated by WOM. A mediator detects what the theoretical association exists between the two variables and explains it. In theory, WOM has explained the connection. Furthermore it gives an opportunity for future research to explore new mediators that have been proposed explaining the role of greenwashing perception with green purchasing intention. If environmental knowledge could not be found as a moderator in the relationship of greenwashing perception and word-of-mouth, other possible moderators must be found. It is further hypothesized that this will highlight them as relationship-enhancing or weakening factors where necessary moderators are taken into account.

5.2   Practical Implications

The conclusions have overwhelming practical consequences apart from their theoretical importance. Marketers should be very careful while designing environmentally friendly advertorials, packaging, and branding. Firms should only claim those features for their products or environmental-friendly initiatives, which are actually present. Today, the customers are fully informed and have all kinds of resources with them that they may employ to check the environmentalist claims of any firm. Additionally, consumers have also shifted the weight that consumers give to environmental concerns while making eco-friendly purchases. Due to the spread of pollution, climate change, and various environmental disasters, environmental literacy is becoming a vital concern now. No one can afford to remain blind to the environmental news while the entire globe is struggling to search for a solution. Companies are under environmentalist pressure through consumers to show that they are committed to the protection of the environment other than in words.

The study's outcome validate that the customers will perceive companies practicing greenwashing negatively, which would lead to diminished purchase intention along with negative word of mouth. Similarly, once customers start evaluating the green promises of any organization, the environmental knowledge of consumers would also impact this. Therefore, on the basis of the study results, there can be seen two perspectives from where marketers can use the inferences. One perspective is to develop environmental protection programs, plans, and strategies. Another perspective would be to informatively highlight their environmental protection programs and measures in a positive but not exaggerated and deceitful manner. This will give any business the confidence that they are gaining customer loyalty, hence improving their profitability and sales.

5.3   Limitations and Future Avenues for Research

Its disadvantages overweight the theoretical and practical merits of the study. First, the research had adapted a cross-sectional design in which data was taken from the respondents at one point in time. That only one response of the customers concerning the relevant factors was recorded is what this means, not considering how those responses might have come into being over time. It erases the very possibility of any concrete conclusion regarding the cause-and-effect relationship. In the research, the sample was drawn from two cities in Pakistan, namely Islamabad and Rawalpindi. For better representation of the population in Pakistan, the samples

should have been collected from various other cities in the country. Thirdly, the collection of data for this research is not experimental in nature; it is based on surveys. For any cause-and-effect relationship to be established, an experiment is the best option. Thus authors prescribes an experimental approach for a future study in this direction. It also measured the criterion variable as intentions and did not consider the fact that actual purchase behavior may follow the development of their purchase intentions. Fifth, this research relied on word of mouth as the only intermediary between greenwashing impressions and green purchasing intentions.

Lastly, a future study should, therefore, be done using this design, drawing on data collection at varying time lags using a multi-wave study design. The rich insights from the relations of greenwashing perception, WOM, and environmentally friendly purchase intention, which are again moderated by environmental knowledge, are brought forth by this study. However, future studies can improve these inclusions using better approaches.

The paper contributes to the literature with respect to how perceptions of green washing, WOM, and green purchase intention are related. Though our results failed to support the moderating role of environmental knowledge, all the same, the study focuses on how perceptions of green washing and the role of WOM shape the intentions of green purchase. Firms have to consider that increased awareness and scrutiny by consumers about environmental claims can easily unmask inconsistencies between what is said and what is done, therefore creating negative WOM. Environmental authenticity and transparency are the first bases on which to establish and develop trust of consumers who are becoming increasingly knowledgeable and selective.

Interestingly, the non-significant interaction of EK with the perception of greenwashing in influencing WOM presumes some interesting areas of future research. This shows that perhaps the interaction of EK with the customer's reaction for greenwashing is not as straightforward as hitherto believed. Indeed, further studies can be conducted to examine what aspects of EK may interact to influence WOM behavior or whether other moderators such as customer skepticism and trust exist. More importantly, adding real purchase behavior as the dependent variable allows for the development of a greater understanding of how the perception of green washing affects not only word-of-mouth but real consumer choice.

Identifying and filling such knowledge gaps will allow future research to develop a more comprehensive understanding of complex dynamics among greenwashing, consumer behavior, and the efficiency of environmental marketing strategies. It is with this knowledge that companies will be able to navigate the ever-changing landscape of sustainable consumption, while policymakers will be able to encourage genuine environmental responsibility.

6   Conclusion

This study significantly extends the literature on how greenwashing perception influences the behavior of consumers. Of particular importance, the results showed a negative relation between the perception of greenwashing and WOM, as well as green purchase intention. This would therefore imply that perceived greenwashing by a firm makes consumers less likely either to relay positive information about the products of such a firm or to purchase green products from them.

Moreover, the study identified WOM as an important mediator in the above relationship, which plays a very important role in disseminating consumer sentiment regarding green washing. Consumers who perceive green washing are less likely to engage in positive WOM; in turn, it further dampens their purchase intention of eco-friendly products.

Interestingly, environmental knowledge was found to have a positive effect on WOM; thus, the more environmentally aware a consumer is, the more they would talk about the green product. However, it did not interact with the greenwashing perception in affecting WOM, showing that no matter how environmentally knowledgeable a consumer is, the perception of green washing affects WOM in the same way.

The paper significantly adds to the literature on how perceived greenwashing adversely affects consumer behavioral outcomes-on-the-whole, influencing negatively both word-of-mouth and intentions to buy green products. The mediating role of WOM reveals how transparency and authenticity in communication are paramount when it comes to consumer perceptions and choices. In support, though environmental knowledge positively influenced WOM, it did not moderate the relationship of greenwashing perception with WOM, implying consumers across the board at various levels of environmental knowledge are vulnerable to the negative influences of perceived greenwashing. These findings carry some lessons that could be generalized through the adoption of companies to develop effective and responsible environmental marketing strategies, underlining real environmental commitment and open communication with regard to positive consumer WOM, which may help in promoting sustainable consumption.

References

Ahmad, W. and Zhang, Q. (2020). Green purchase intention: Effects of electronic service quality and customer green psychology. *Journal of cleaner production*, 267:122053.

Akturan, U. (2018). How does greenwashing affect green branding equity and purchase intention? an empirical research. *Marketing Intelligence & Planning*, 36(7):809–824.

Al-Abdallah, G. M. and Al-Salim, M. I. (2021). Green product innovation and competitive advantage: an empirical study of chemical industrial plants in jordanian qualified industrial zones. *Benchmarking: An International Journal*, 28(8):2542–2560.

Ali, M., Hassan, U., Mustapha, I., and Osman, S. (2021). An empirical analysis of the moderating effect of consumer skepticism between social value orientations and green advertising effectiveness. *Nankai Business Review International*, 12(3):458–482.

Allen, M. W. and Spialek, M. L. (2018). Young millennials, environmental orientation, food company sustainability, and green word-of-mouth recommendations. *Journal of food products marketing*, 24(7):803–829.

Amatulli, C., De Angelis, M., Pino, G., and Guido, G. (2020). An investigation of unsustainable luxury: How guilt drives negative word-of-mouth. *International Journal of Research in Marketing*, 37(4):821–836.

Awwad, A., Anouze, A. L. M., and Elbanna, S. (2025). Green product innovation: influences on environmental sustainability performance. *Management decision*.

Bulut, C., Nazli, M., Aydin, E., and Haque, A. U. (2021). The effect of environmental concern on conscious green consumption of post-millennials: The moderating role of greenwashing perceptions. *Young Consumers*, 22(2):306–319.

Burhanudin, B., Ronny, R., and Sihotang, E. T. (2021). Consumer guilt and green banking services. *International Journal of Consumer Studies*, 45(1):38–53.

Chen, Y.-S. and Chang, C.-H. (2012). Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust. *Management decision*, 50(3):502–520.

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

Chen, Y.-S., Chang, T.-W., Li, H.-X., and Chen, Y.-R. (2020). The influence of green brand affect on green purchase intentions: The mediation effects

of green brand associations and green brand attitude. *International Journal of Environmental Research and Public Health*, 17(11):4089.

Cheung, F. M. and Hong, Y.-y. (2021). *Green finance, sustainable development and the belt and road initiative*. Routledge London, UK.

Childers, C. and Boatwright, B. (2021). Do digital natives recognize digital influence? generational differences and understanding of social media influencers. *Journal of Current Issues & Research in Advertising*, 42(4):425–442.

Dangi, N., Gupta, S. K., and Narula, S. A. (2020). Consumer buying behaviour and purchase intention of organic food: a conceptual framework. *Management of Environmental Quality: An International Journal*, 31(6):1515–1530.

Delmas, M. A. and Burbano, V. C. (2011). The drivers of greenwashing. *California management review*, 54(1):64–87.

Dost, F., Phieler, U., Haenlein, M., and Libai, B. (2019). Seeding as part of the marketing mix: word-of-mouth program interactions for fast-moving consumer goods. *Journal of marketing*, 83(2):62–81.

Eagly, A. H. and Chaiken, S. (1993). *The psychology of attitudes*. Harcourt brace Jovanovich college publishers.

Ferrón-Vílchez, V., Valero-Gil, J., and Suárez-Perales, I. (2021). How does greenwashing influence managers' decision-making? an experimental approach under stakeholder view. *Corporate Social Responsibility and Environmental Management*, 28(2):860–880.

Fryxell, G. E. and Lo, C. W. (2003). The influence of environmental knowledge and values on managerial behaviours on behalf of the environment: An empirical examination of managers in china. *Journal of business ethics*, 46(1):45–69.

Goh, S. K. and Balaji, M. (2016). Linking green skepticism to green purchase behavior. *Journal of Cleaner Production*, 131:629–638.

Guagnano, G. A., Stern, P. C., and Dietz, T. (1995). Influences on attitude-behavior relationships: A natural experiment with curbside recycling. *Environment and behavior*, 27(5):699–718.

Guerreiro, J. and Pacheco, M. (2021). How green trust, consumer brand engagement and green word-of-mouth mediate purchasing intentions. *Sustainability*, 13(14):7877.

Hair, J. F., Gabriel, M., and Patel, V. (2014). Amos covariance-based structural equation modeling (cb-sem): Guidelines on its application as a marketing research tool. *Brazilian Journal of Marketing*, 13(2).

Hameed, W. U., Nisar, Q. A., and Wu, H.-C. (2021). Relationships between external knowledge, internal innovation, firms' open innovation performance, service innovation and business performance in the pakistani hotel industry. *International journal of hospitality management*, 92:102745.

Hu, J., Liu, Y.-L., Yuen, T. W. W., Lim, M. K., and Hu, J. (2019). Do green practices really attract customers? the sharing economy from the sustainable supply chain management perspective. *Resources, Conservation and Recycling*, 149:177–187.

Hüttel, A., Ziesemer, F., Peyer, M., and Balderjahn, I. (2018). To purchase or not? why consumers make economically (non-) sustainable consumption choices. *Journal of Cleaner Production*, 174:827–836.

Iyer, R. and Griffin, M. (2021). Modeling word-of-mouth usage: A replication. *Journal of Business research*, 126:512–523.

Kahraman, A. and Kazançoğlu, İ. (2019). Understanding consumers' purchase intentions toward natural-claimed products: A qualitative research in personal care products. *Business Strategy and the Environment*, 28(6):1218–1233.

Kamalul Ariffin, S., Mohan, T., and Goh, Y.-N. (2018). Influence of consumers' perceived risk on consumers' online purchase intention. *Journal of research in Interactive Marketing*, 12(3):309–327.

Khan, S., İftikhan, K., Farooq, S., and Mehmood, R. (2021). The impact of greenwash on consumer green purchase behavior: moderating role of green brand loyalty. *PJAEE*, 18(10):869–880.

Kumar, M. and Rodrigues, V. S. (2020). Synergetic effect of lean and green on innovation: A resource-based perspective. *International Journal of Production Economics*, 219:469–479.

Laroche, M., Tomiuk, M.-A., Bergeron, J., and Barbaro-Forleo, G. (2002). Cultural differences in environmental knowledge, attitudes, and behaviours of canadian consumers. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 19(3):267–282.

Laufer, W. S. (2003). Social accountability and corporate greenwashing. *Journal of business ethics*, 43(3):253–261.

Leonidou, C. N. and Skarmeas, D. (2017). Gray shades of green: Causes and consequences of green skepticism. *Journal of business ethics*, 144(2):401–415.

Lim, W. M., Ting, D. H., Bonaventure, V. S., Sendiawan, A. P., and Tanusina, P. P. (2013). What happens when consumers realise about green washing? a qualitative investigation. *International journal of global environmental issues*, 13(1):14–24.

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

Mandal, A. and Pal, B. (2021). Effects of green innovation and advertisement in an imperfect production-based competitive supply chain under two-tier credit facility. *Mathematical Methods in the Applied Sciences*, 44(17):13227–13251.

Martínez García de Leaniz, P., Herrero Crespo, Á., and Gómez López, R. (2018). Customer responses to environmentally certified hotels: The moderating effect of environmental consciousness on the formation of behavioral intentions. *Journal of Sustainable Tourism*, 26(7):1160–1177.

Mehdikhani, R. and Valmohammadi, C. (2022). The effects of green brand equity on green word of mouth: the mediating roles of three green factors. *Journal of Business & Industrial Marketing*, 37(2):294–308.

Mohiuddin, M., Al Mamun, A., Syed, F. A., Mehedi Masud, M., and Su, Z. (2018). Environmental knowledge, awareness, and business school students' intentions to purchase green vehicles in emerging countries. *Sustainability*, 10(5):1534.

Molinari, L. K., Abratt, R., and Dion, P. (2008). Satisfaction, quality and value and effects on repurchase and positive word-of-mouth behavioral intentions in a b2b services context. *Journal of Services Marketing*, 22(5):363–373.

Moore, S. G. and Lafreniere, K. C. (2020). How online word-of-mouth impacts receivers. *Consumer Psychology Review*, 3(1):34–59.

Mukherjee, B. and Chandra, B. (2022). Unravelling the differential effects of pride and guilt along with values on green intention through environmental concern and attitude. *Kybernetes*, 51(7):2273–2304.

Newton, P. and Newman, P. (2015). Critical connections: The role of the built environment sector in delivering green cities and a green economy. *Sustainability*, 7(7):9417–9443.

Ng, P. M., Chan, J. K., Lit, K. K., Cheung, C. T., Lau, M. M., Wan, C., and Choy, E. T. (2025). The impact of social media exposure and online peer networks on green purchase behavior. *Computers in Human Behavior*, 165:108517.

Olk, S. (2021). The effect of self-congruence on perceived green claims' authenticity and perceived greenwashing: the case of easyjet's co2 promise. *Journal of Nonprofit & Public Sector Marketing*, 33(2):114–131.

Oraedu, C., Izogo, E. E., Nnabuko, J., and Ogba, I.-E. (2021). Understanding electronic and face-to-face word-of-mouth influencers: an emerging market perspective. *Management Research Review*, 44(1):112–132.

Pagiaslis, A. and Krontalis, A. K. (2014). Green consumption behavior antecedents: Environmental concern, knowledge, and beliefs. *Psychology & Marketing*, 31(5):335–348.

Paro, C. E., da Silva, H. M. R., Spers, E. E., Jugend, D., and Hamza, K. M. (2021). The technology effect, green consumption and age in propensity to collaborative consumption. *Cleaner and Responsible Consumption*, 2:100008.

Pimonenko, T., Bilan, Y., Horák, J., Starchenko, L., and Gajda, W. (2020). Green brand of companies and greenwashing under sustainable development goals. *Sustainability*, 12(4):1679.

Pizzetti, M., Gatti, L., and Seele, P. (2021). Firms talk, suppliers walk: Analyzing the locus of greenwashing in the blame game and introducing 'vicarious greenwashing'. *Journal of business ethics*, 170(1):21–38.

Rambocas, M. and Ramsubhag, A. X. (2018). The moderating role of country of origin on brand equity, repeat purchase intentions, and word of mouth in trinidad and tobago. *Journal of Global Marketing*, 31(1):42–55.

Rausch, T. M. and Kopplin, C. S. (2021). Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. *Journal of cleaner production*, 278:123882.

Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., and Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological forecasting and social change*, 163:120481.

Roos, A. (2025). Greenwashing: a critical realist approach to the study of false ecological claims. *Journal of Critical Realism*, pages 1–22.

Salem, S. F. and Alanadoly, A. B. (2021). Personality traits and social media as drivers of word-of-mouth towards sustainable fashion. *Journal of Fashion Marketing and Management: An International Journal*, 25(1):24–44.

Schmuck, D., Matthes, J., and Naderer, B. (2018). Misleading consumers with green advertising? an affect–reason–involvement account of greenwashing effects in environmental advertising. *Journal of Advertising*, 47(2):127–145.

Serrano Archimi, C., Reynaud, E., Yasin, H. M., and Bhatti, Z. A. (2018). How perceived corporate social responsibility affects employee cynicism: The mediating role of organizational trust. *Journal of business ethics*, 151(4):907–921.

Sheng, G., Xie, F., Gong, S., and Pan, H. (2019). The role of cultural values in green purchasing intention: Empirical evidence from chinese consumers. *International journal of consumer studies*, 43(3):315–326.

Siguaw, J. A., Mai, E., and Sheng, X. (2020). Word-of-mouth, servicescapes and the impact on brand effects. *SN Business & Economics*, 1(1):15.

Söderlund, M. and Mattsson, J. (2015). Merely asking the customer to recommend has an impact on word-of-mouth activity. *Journal of Retailing and Consumer Services*, 27:80–89.

Szabo, S. and Webster, J. (2021). Perceived greenwashing: the effects of green marketing on environmental and product perceptions. *Journal of business ethics*, 171(4):719–739.

Taufique, K. M. R. and Vaithianathan, S. (2018). A fresh look at understanding green consumer behavior among young urban indian consumers through the lens of theory of planned behavior. *Journal of cleaner production*, 183:46–55.

Tran, T. T. H. and Paparoidamis, N. G. (2020). Eco-innovations in global markets: The effect of ecological (in) congruence on consumers' adoption intentions. *Journal of International Marketing*, 28(3):64–83.

Wang, J., Wang, S., Xue, H., Wang, Y., and Li, J. (2018a). Green image and consumers' word-of-mouth intention in the green hotel industry: The moderating effect of millennials. *Journal of cleaner production*, 181:426–436.

Wang, X., Zhou, K., and Liu, W. (2018b). Value congruence: a study of green transformational leadership and employee green behavior. *Frontiers in psychology*, 9:1946.

Wu, Y., Zhang, K., and Xie, J. (2020). Bad greenwashing, good greenwashing: Corporate social responsibility and information transparency. *Management Science*, 66(7):3095–3112.

Yang, X., Li, N., Mu, H., Ahmad, M., and Meng, X. (2022). Population aging, renewable energy budgets and environmental sustainability: does health expenditures matter? *Gondwana Research*, 106:303–314.

Yoon, D. and Chen, R. J. (2017). A green shadow: the influence of hotel customers' environmental knowledge and concern on green marketing skepticism and behavioral intentions. *Tourism Analysis*, 22(3):281–293.

Yu, Y., Zhang, M., and Huo, B. (2021). The impact of relational capital on green supply chain management and financial performance. *Production Planning & Control*, 32(10):861–874.

Zaman, U., Bolia, B., and Anjam, M. (2021). Do women customers love to talk about financial brands? an empirical evidence on the mediated service responsiveness and brand sincerity

in creating a positive word of mouth. *Cogent Business & Management*, 8(1):1945426.

Zhang, L., Li, D., Cao, C., and Huang, S. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of cleaner production*, 187:740–750.

Zhao, Y., Wang, L., Tang, H., and Zhang, Y. (2020). Electronic word-of-mouth and consumer purchase intentions in social e-commerce. *Electronic Commerce Research and Applications*, 41:100980.