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How Green Trust, Consumer Brand Engagement and Green Word-Of-Mouth mediate Purchasing Intentions

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Abstract: An increasing interest in environmental problems around the world has significantly expanded the demand for green goods, transforming green marketing into an effective tool for businesses to achieve competitive advantage. Yet, as more firms become aware of this strategic advantage, greenwashing activities can also flourish, and customers grow more cautious about green efforts by firms. The present research examines how greenwashing expectations of customers affect their green buying decisions by studying how green trust, consumer brand engagement and green word-of-mouth mediate this relationship. A total of 302 subjects participated in a survey to study greenwashing effects using a high involvement green ad and a low involvement green ad. Results were analyzed using a PLS-SEM approach. The findings show that the greenwashing expectations of customers have no direct effect on green purchase decisions, but that green trust and green word-of-mouth mediate this relationship. Likewise, greenwashing perception significantly affects customer brand engagement indirectly through green trust and there is a full mediation between greenwashing perception and green purchasing intention through green trust, customer brand engagement and green word of mouth. Therefore, the study shows that having a low perception of greenwashing is not enough to increase purchases. For that to occur, companies need to ensure that WOM communicates such efforts and that consumers trust these green initiatives.

Keywords: greenwashing; green trust; green word-of-mouth; green purchasing intentions; green marketing

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1. Introduction

The increasing awareness of climate change effects has led customers to prefer brands and goods that support green initiatives and strive to have limited adverse environmental effects [1,2]. However, with the rise of green marketing worldwide, greenwashing and consequently consumer skepticism has increased [3]. In fact, consumers are becoming more cautious about these issues and want businesses to be environmentally responsible, which may cause them to avoid companies that promote unethical green initiatives [4]. Greenwashing is therefore a very promising subject, and academic attention is increasing steadily [5]. Although extant research has focused on discussing the topics of brand loyalty, interaction, word-of-mouth and purchasing preferences regarding green marketing, to the best of the authors' knowledge the current paper is the first to study the effects of greenwashing on purchase intention by examining whether greenwashing expectations affect green purchasing intentions though the mediating roles of green trust, green word-of-mouth and customer brand engagement.

2. Theoretical Framework

Greenwashing has multiple definitions in the literature. Zhang et al. [6] (p. 740) present greenwashing as "a firm's over-communication about their environmental performance", very similar to the definition of Delmas and Burbano [7] (p. 65) who define it as "the intersection of two firm behaviors: poor environmental performance and positive communication about environmental performance". In addition, Delmas and Burbano [7] categorize companies with respect to their environmental performance — "brown" firms are those with poor environmental performance, and "green" firms those with good environmental performance. When a "brown" company decides not to remain silent about its bad environmental performance, and instead chooses to communicate it in a positive light, it is practicing greenwashing. The increasing demand for more sustainable brands in the market have pressured companies to disclose environmental, social and governance (ESG) information about their activity. ESG disclosure is known to impact corporate profitability, performance, and value [8–10]. However, findings also show that when companies have a less transparent disclosure of ESG information, such as presenting isolated ESG information or an unplanned over-investment in ESG activities (a potential greenwashing behavior), their perceived value decreases. An example of such greenwashing behavior is that of Volkswagen and its emissions scandal. In 2015 the Environmental Protection Agency (EPA) discovered the presence of a "device" in Volkswagen cars in which the installed software detected when the cars were being tested, thus emitting less CO2 than normal. In normal circumstances levels of nitrogen oxide pollutants were emitted up to 35 times above what is legally allowed in the US. Volkswagen admitted to having installed this engine in almost 500,000 cars, that were sold in the United States between 2009 and 2015 [11]. This is one of the biggest known cases of greenwashing in recent years, since this was discovered after Volkswagen's marketing campaign was named "Clean Diesel" and highlighted and publicized its cars' low emissions. According to the company's reports, Volkswagen was also committed to establishing itself as a leader in environmental sustainability, with particular reference to the reduction in CO2 emissions [11]. This greenwashing scandal had serious consequences for the company, with the loss of trust and loyalty from consumers and other stakeholders. After the scandal, the sales of Volkswagen dropped worldwide [12] and Volkswagen's stock crashed 22% in just one day on the Frankfurt Stock Exchange [11]. However, despite such a drop in the market after the scandal occurred, a recent study suggests that, although consumers are concerned about environmental issues, there is still a lack of perceived environmental knowledge (PEK)—when consumers are not very concerned about environmental information—and green consumption practices [13].

Greenwashing has been reported as a main cause of consumer skepticism towards CSR [14]. There is the concern that its increase will threaten the effectiveness of genuine companies' CSR policies and possibly compromise global sustainable development [5,15]. Greenwashing practices have attracted attention especially from environmental organizations and consumer groups who criticize companies for false advertising and misleading environmental claims, with the purpose of creating false "green" images in the minds of the public [16]. Research shows that people in individualistic countries support regulation of functional green ads when they perceive that ads are being used to deceive them. The reverse occurs in collectivist countries, in which people are more willing to regulate when they perceive communication is being used as a manipulative persuasion tactic for others [17]. Consumers are increasingly aware of environmental problems and are, thus, more aware of greenwashing cases. As a result, environmental organizations and NGOs are growing in strength, and are researching and reporting on greenwashing cases, and holding corporations responsible. Greenwashing also reflects popular interest. Oil and utility sectors are the primary targets, because they are more visible and draw more media attention. [7,18].

Greenwashing may have serious consequences in terms of shareholders trust, as socially conscious investors steer clear of green investment in such cases. Therefore,

greenwashing is risky when stakeholders start questioning firm's environmental claims and being reluctant to reward companies for environmental-friendly performance [7,18,19]. Besides, perception or suspicion of greenwashing can damage consumers' attitudes towards the company [20], and even cause consumers to revolt against the company [21]. Several studies suggest that greenwashing might have negative effects on consumers [5], having negative effects on green trust [1,22], green word-of-mouth [6,15] and green purchasing intentions [6,15,19,23]. However, no study has explored the effect of greenwashing on consumer-brand engagement.

Green purchasing intentions refers to the chances that a consumer will buy a particular product in consequence of his/her environmental concerns and represents the extent to which consumers are willing to purchase products and services from companies that they perceive as being environmentally friendly [6], but there is no guarantee that customers will, in all instances, buy green products. There are many factors that affect their green buying intention [24]. Green concern, product involvement, promotions and perceived quality, all influence how the consumer thinks about buying environmentally friendly products [25].

Regarding the influence of perceived greenwashing, various authors have reported that, when consumers realize that a firm is greenwashing, they tend to be more skeptical and, consequently, are less likely to buy products from those firms [6,19,23]. Hence:

Hypothesis H1: *Greenwashing perception is negatively related to green purchasing intentions.*

In order to establish long-term relations with stakeholders, companies must show consistency, competence, honesty, and accountability - all linked with brand trust [2]. As mentioned earlier, there is a common tendency to distrust green products, green marketing and advertising in general due to a growing skepticism about such campaigns. This skepticism emerges because consumers commonly feel that brands are over-exaggerating their green benefits or misleading them with highly vague and confusing claims (greenwashing), with the sole purpose of profiting from people's environment concern [6,19,26,27]. This green skepticism indicates very low levels of green trust.

Although the relation between green trust and its effects on consumer behavior have already been studied in the literature, the authors of [28] state that the broader dimension of green trust and its antecedents have remained under-researched and that there is a need to better explore the variables that can influence green trust in the context of purchasing intention. Some studies have discussed that greenwashing negatively influences green trust [1,22], but the current study intends to fill a gap in the literature by studying its mediating effect on the relationship between greenwashing perception and green purchasing intention.

Green trust measures how much consumers are confident that a specific product, service or brand excels in environmental performance [2]. Several studies show a positive link between companies' business ethics and consumer trust, and that business ethics can have a key role in establishing long-term relationships [24]. When consumers are faced with greenwashing claims from certain companies, they are more reluctant to engage in long-term relationships [6,15,22]. In the face of false and unclear green promises, customers are also less likely to trust the company [2].

Therefore, we posit that:

Hypothesis H2: *Greenwashing perception is negatively related to green trust*.

Companies should invest in their green image and in gaining and maintaining green customer trust in order to boost green purchasing intentions [1]. In fact, some authors have already established the positive relationship between green trust and green purchasing intention [1,28]. Indeed, research shows that when low performing products

are associated with ethical cues, consumers rely on such ethical information to form their opinion about the product [29].

Green trust influences green buying intentions because customers connect themselves with trusted ethical businesses and remove themselves from dubious ethical activities [24]. Greenwashing damages consumers' trust in a company, and consequently their intention to buy green [15,30]. Zhang et al. [6] state that this lack of trust generated by perceived greenwashing can ultimately lead to a reduction in consumers' green purchasing intentions, assuming green trust as a mediator of the relationship between greenwashing perception and green purchasing intention.

That said, in order to increase consumers' green purchasing intentions, companies should avoid actions that may lead to green skepticism and focus on developing good relationships with consumers and building green trust [24].

Hence:

Hypothesis H3: *Green trust is positively related to green purchasing intentions*.

The role of greenwashing on consumer brand engagement

Consumer brand engagement (CBE) is a relatively new concept in strategic marketing and branding [31]. Companies are focusing on CBE because they are becoming aware of the potential beneficial consequences that a long-term two-way valuable relationship with the consumer can have on consumer marketplace behavior [32,33]. Therefore, building CBE is, nowadays, one of managers' top priorities [32]. In fact, CBE has been associated with higher advertising effectiveness [34], increased trust, rapport, commitment and customer satisfaction [35], and arises as a business strategy that aims to improve corporate performance by creating competitive advantage, consumer loyalty and, ultimately, increasing sales and financial results [34,36].

CBE is a multidimensional concept that depends on the context and on the consumer expression of relevant cognitive, emotional and behavioral dimensions, such as absorption (cognitive), dedication (emotional) and interaction (behavioral) towards the brand [34–36]. Thus, it can be defined as "the level of an individual customer's motivational, brand-related and context-dependent state of mind characterized by specific levels of cognitive, emotional and behavioral activity in direct brand interactions" [35] (p. 790). The relationship the consumer has with the brand goes well beyond just a transactional relationship [37].

CBE is considered a psychological state because it goes beyond the mere manifestation of behaviors, since it also involves cognitive and emotional responses [36]. The two-way interaction in the relationship between the subject (consumer) and object (brand) is one of the main characteristics of CBE, where the consumer is a crucial factor in the creation of engagement because they are no longer passive audiences, but active players [31,33]. In fact, Brodie et al. [34] (p. 253) addressed CBE as "an interactive experience and value co-creation within marketing relationships".

Few research studies link CBE to greenwashing. Nevertheless, research has shown that customers often forgive brands when they are highly engaged [38]. In a recent study, [36] showed that perceived CSR influences CBE. They also recognized that perceived CSR created trust among customers, which in turn helped to make consumers more ready to establish connections with the company. When customers believe a brand is trustworthy, they will show more brand engagement and loyalty [36]. Thus, if perceived CSR develops trust and consequently promotes higher CBE, it can be expected that perceived greenwashing will have the opposite effect by decreasing consumer's trust, and consequently lowering CBE.

Therefore:

Hypothesis H4: *Greenwashing perception is negatively related to consumer brand engagement*.

Hypothesis H5: *Green trust is positively related to consumer brand engagement.*

CBE was also shown to increase brand use intent, brand loyalty, and brand performance [32,37]. When talking about purchasing intentions, and specifically green purchasing intentions, it would be expected that consumers who are more engaged with a certain brand have more access to information regarding environmental, social and governance activities (ESG) and are therefore more prone to buy or have the intention to buy products of that brand, including green ones [9,29]. Therefore, this research proposes that high levels of CBE will lead to higher green purchasing intentions. Thus:

Hypothesis H6: *Consumer brand engagement is positively related to green purchasing intention.*

When customer involvement is strong, customers are less likely to switch brands, thereby extending the life of a brand and spreading positive WOM [32,36]. Consumers engage in WOM so they can communicate and discuss their experiences (positive or negative) with friends, relatives and colleagues, in order to exchange information and improve decision-making [39]. WOM has a great impact on consumers' decision making because people look for it to avoid or diminish uncertainty of their purchases [6].

Engaged consumers tend to believe, trust, and have pride and passion for the brand [34], and to develop a sense of belonging that makes them brand advocates, who like to spread positive WOM [36,38]. High brand engagement makes the consumer more interested in supporting the brand and recommending and discussing its products or services with others. In fact, positive WOM is one of the main manifestations of brand engagement [36]. In terms of green marketing, the concept of green WOM can be defined as "the extent to which a customer would infer friends, relatives, and colleagues about positive environmental messages of a product or a brand" [15] (p. 2414). Therefore, we suggest that green WOM is also related to CBE and in this case:

Hypothesis H7: *Consumer brand engagement is positively related to green word-of-mouth.*

Brand trust also can influence consumers' relationship and behavioral results toward a brand. Papista & Dimitriadis [40] related brand trust, as well as commitment, love, intimacy and self-connection, with positive WOM. However, and according to Sichtmann [41], these studies focused on brand trust and have not fully explored the impact of trust on WOM behavior. However, he suggests that when a consumer trusts a certain brand, the risk of giving bad advice and disappointing another person decreases, the consumer being more disposed to recommend and say good things about the brand to others. Thus, he proposed that trust in a brand positively influences WOM behaviour [41].

Therefore, in the case of green trust and green WOM specifically, it can be hypothesized that when a consumer does not trust a brand's green intentions, claims and/or actions it would be expected that they would not be willing to spread positive green WOM regarding that brand's green actions. In fact, in research conducted by Skarmeas & Leonidou [39], it was found that green skepticism was associated with negative green WOM.

Hence:

Hypothesis H8: *Green trust is positively related to green word-of-mouth.*

Some companies feel tempted to engage in greenwashing activities, so they can effortlessly achieve this consumer satisfaction regarding sustainability. However, when consumers perceive the company is involved in greenwashing, this can have an undesired adverse effect, since it has been established that perceived greenwashing negatively affects green WOM [15], and that negative experiences tend to have a stronger impact and to stay longer in consumer's memories [39]. Actually, when consumers are aware that a

company's green actions and communication are not fully transparent and that the company intends to mislead consumers through greenwashing, they stop spreading positive green WOM, or even start spreading negative green WOM so they can warn others [6,15,39]. It was shown in research conducted by [15] that greenwashing causes a decline in green WOM. Perceived quality, satisfaction, green trust and CBE are mediators of such a relationship. In fact, the impact of perceived greenwashing on green WOM can constitute a big threat for companies if consumers turn to negative green WOM - especially in this social media era, since a larger number of people can become skeptical towards the company's green intentions and boycott the company by stopping the purchasing of its products [6]. Therefore, it is recommended that companies reduce or completely avoid greenwashing activities in order to improve green WOM [15], so we expect that:

Hypothesis H9: *Greenwashing perception is negatively related to green word-of-mouth.*

Customers explore products beforehand to mitigate perceived risk. Today, people use the internet to obtain information because it allows for real-time consumer-to-consumer interactions [42]. Products with positive green WOM opinions are trusted by consumers and, thus, they influence other customers' purchasing decisions. When customers are uncertain about green goods, they are more inclined to trust and buy those with superior green WOM [15]. Indeed, green WOM communication may impact long-term and short-term product choices and customer risk taking [42]. Therefore, and following Zhang et al. [6], we expect that green WOM will positively affect green purchasing intentions.

Thus:

Hypothesis H10: *Green word-of-mouth is positively related to green purchasing intention.*

Figure 1. shows the suggested conceptual model.

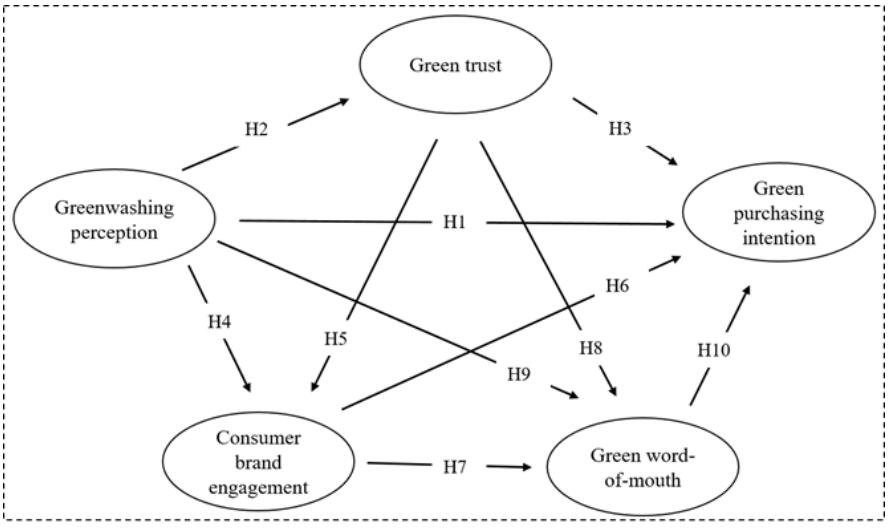

Figure 1. Conceptual Model.

3. Materials and Methods

A survey was conducted to test the hypotheses using two green ads (one with a high involvement product and other with a low involvement product). Nestlé (bottled water) was used as a low-involvement product and Apple notebook was used as a high-involvement product. Both Nestle and Apple were tested in terms of brand love due to the effect that brand love may have on marketing outcomes [43]. Brand love has been

positively associated with brand loyalty, brand commitment and brand repurchase intentions [43–45]. Greenwashing perception, green purchase intention and green word-of-mouth were measured using scales adapted from [6]. Green trust was measured using an adapted scale from [2]. Consumer brand engagement followed items adapted from [36]. All the items were measured using a 5-point Likert-scale. Table A1 details the items for each scale in the conceptual model. An independent t-test was conducted and showed that there were no significant differences on the levels of brand love between the two brands (t = - 1.734, p = .084). A total of 302 valid responses were obtained, with 57.9% of the respondents being women and 42.1% of the respondents being men. Differences between the sample of both groups regarding age, gender, education and green concern [6] were assessed. The results of the independent t-tests showed that there were no significant differences on age (t= .605, p= .545), gender (t= -.275, p= .784), education (t= -.655, p= .513) and green concern (t= 1.363, p= .174) between the two groups. Thus, it can be concluded that the sample characteristics of both groups are statistically similar.

4. Results

The conceptual model was tested using a partial least square structural equation modelling (PLS-SEM) using SmartPLS 3. The current research evaluates the research model in two steps: the outer model (measurement model) and the inner model (structural model) [46]. To test the hypotheses, bootstrapping procedure with 5000 samples was used. Table 1 shows the results of the measurement model in terms of convergent validity, internal consistency reliability and discriminant validity. The outer loadings are all above 0.70 [47] varying from 0.769 to 0.952, all statistically significant (p< 0.001). One indicator for the greenwashing perception construct (GWP2) was deleted from the original model since the removal of its low outer loading (0.674) led to an increase in the composite reliability and average variance extracted [47]. Furthermore, Cronbach's alpha and composite reliability of the constructs were all well above the recommended levels of 0.70 [47], which indicates that the model is internally reliable. The average variance extracted (AVE) of all constructs was also above 0.50, suggesting that each has convergent validity [47].

Table 1. Reliability and validity test for the complete data.

Constructs	Items	Outer Loadings	Cronbach's α	CR	AVE
Greenwashing perception	GWP1	0.859	0.834	0.900	0.750
	GWP3	0.851			
	GWP4	0.888			
Green trust	GTRUST1	0.917	0.955	0.965	0.848
	GTRUST2	0.952			
	GTRUST3	0.944			
	GTRUST4	0.888			
	GTRUST5	0.903			
Consumer brand engagement	CBE1	0.769	0.919	0.936	0.711
	CBE2	0.820			
	CBE3	0.888			
	CBE4	0.869			
	CBE5	0.844			
	CBE6	0.864			
Green word-of-mouth	GWOM1	0.957	0.967	0.976	0.911
	GWOM2	0.968			
	GWOM3	0.958			
	GWOM4	0.935			
Green purchasing intention	GP1	0.933	0.921	0.950	0.864
	GP2	0.944			

	GP3	0.911

Note: Greenwashing Perception (GWP), Green trust (GTRUST), Consumer brand engagement (CBE), Green word-of-mouth (GWOM), Green purchasing intention (GPI) | Composite Reliability (CR), Average of Variance Extracted (AVE).

Discriminant validity was accessed using the Fornell-Larcker criterion in which the square root of AVE of all constructs needs to be greater than its highest correlation with any other construct [46]. In this research the square root of AVE of all constructs is higher than the correlation with any other construct (see Table 2), which suggests discriminant validity. Discriminant validity can also be established by Heterotrait-Monotrait (HTMT) ratio criterion [46]. The ratios are all lower than 0.850 which indicates satisfactory discriminant validity within the data [46].

Table 2. Discriminant validity of the constructs. Fornell–Larcker criterion analysis and HTMT ratios.

	CBE	GPI	GWOM	GTRUST	GWP
CBE	**0.843**				
GPI	0.581 (0.626)	**0.929**			
GWOM	0.527 (0.554)	0.788 (0.834)	**0.954**		
GTRUST	0.524 (0.547)	0.723 (0.770)	0.756 (0.786)	**0.921**	
GWP	− 0.370 (0.407)	− 0.566 (0.643)	− 0.602 (0.665)	− 0.669 (0.746)	**0.866**

Note: Greenwashing Perception (GWP), Green trust (GTRUST), Consumer brand engagement (CBE), Green word-of-mouth (GWOM), Green purchasing intention (GPI). HTMT ratios are in parentheses. The diagonal elements in bold are the square roots of the variance between the constructs and their measures (AVE).

An analysis of the structural model fit reveals that the proposed model fits the data with an SRMR = 0.053 and NFI = 0.894 [48]. The structural model values of R2 estimates, Stone-Geisser's Q2 value, effect size (f2), path coefficients (β), and p-values are depicted on Figure 2 and Table 3.

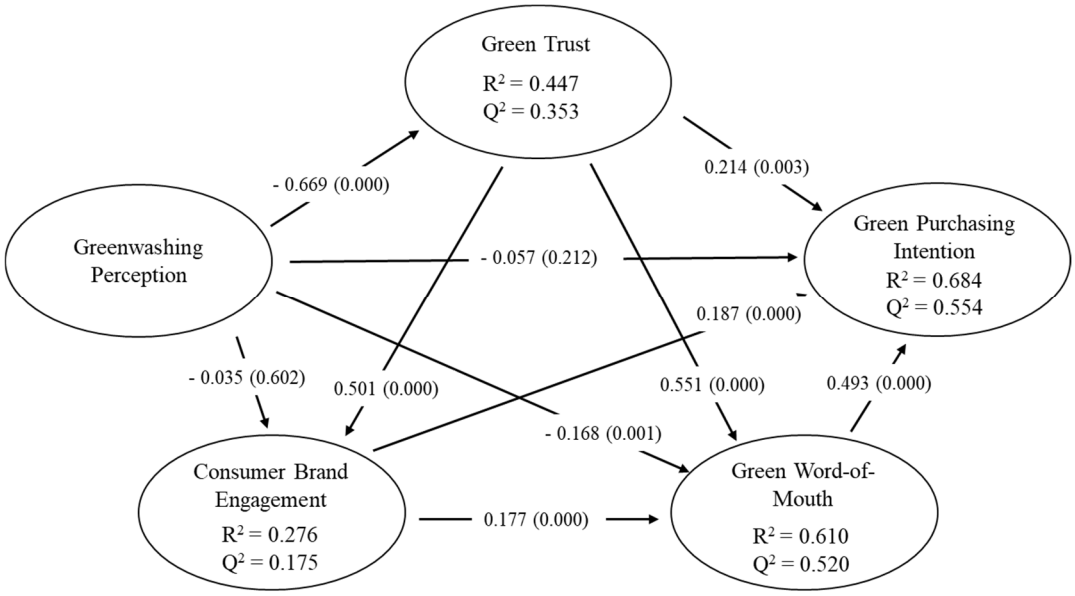

Figure 2. – Research model with PLS-algorithm and bootstrapping results. Note: the values correspond to the path coefficients. P-values are in the parentheses.

Table 3. Structural Model Results.

Hypothesized relationship	Proposed effect	Path coefficient	f^2	Results
GWP → GPI	Negative	− 0.057	0.005	H1: Not supported
GWP → GTRUST	Negative	-0.669**		H2: Supported
GTRUST → GPI	Positive	0.214*	0.049	H3: Supported
GWP → CBE	Negative	− 0.035		H4: Not supported
GTRUST → CBE	Positive	0.501***		H5: Supported
CBE → GPI	Positive	0.187***	0.076	H6: Supported
CBE → GWOM	Positive	0.177***		H7: Supported
GTRUST → GWOM	Positive	0.551***		H8: Supported
GWP → GWOM	Negative	− 0.168**		H9: Supported
GWOM → GPI	Positive	0.493***	0.300	H10: Supported

Note: *** p < .001 **p<.01 * p<.05 | Effect Size (f^2). Variance explained: GTRUST (R^2 = 0.447), CBE (R^2 = 0 .276), GWOM (R^2 = 0.610) and GPI (R^2 = 0.684). Predictive validity: GTRUST (Q^2 = 0.353), CBE (Q^2 = 0.175), GWOM (Q^2 = 0.520) and GPI (Q^2 = 0.554).

The model predicts 68.4% of the variance in green purchasing intention, 61% of the variance in green WOM, 44.7% of the variance in green trust and 27.6% of the variance in CBE. Furthermore, the effect size (f2) of greenwashing perception, green trust, CBE and green WOM in relation to green purchasing intention suggests weak effect size at the structural level whereas green WOM in relation to green purchasing intention has a medium effect size [49]. All the dependent variables' Stone–Geisser's Q2 are larger than zero, and therefore confirm the model's predictive validity.

All the proposed paths are statistically significant, except for the paths of the main effect from the greenwashing perception to green purchasing intention (t = 1.249, p = 0.212), and from greenwashing perception to consumer brand engagement (t = 0.522, p = 0.602). Overall, the analysis supports all the hypotheses except 1 and 4.

Regarding hypothesis 4 (GWP -> CBE), it is rejected since greenwashing perception does not significantly influence consumer brand engagement directly (β = − 0.035, p = 0.602), contrarily to what was predicted. However, despite acknowledging that greenwashing behavior conflicts with main drivers of CBE such as with brand self-expression [31] and brand self-congruity [37], it is also known that high levels of engagement can sometimes make consumers more willing to forgive a brand for misconduct [38]. This may explain why greenwashing perception does not affect CBE directly. However, greenwashing perception significantly affects CBE indirectly through green trust (β = - 0.335, p = 0.000). This confirms the idea discussed previously that, when consumers consider a brand reliable, they are more likely to engage with that brand [36].

Furthermore, concerning the main effect of the model—hypothesis 1 (GWP -> GPI)—this hypothesis was also rejected (β = − 0.057, p = 0.212). Thus, and contrarily to other studies [6], greenwashing perception does not negatively impact greenwashing perception directly. However, this conclusion strengths the purpose and relevance of this research regarding the need to analyze and discover relevant mediators for this relationship. Therefore, a mediation analysis was conducted, in order to understand what variables fully or partial mediate this relationship.

Mediation Analysis

This research follows Cepeda-Carrion et al. [50] for the mediation analysis. The bootstrapping procedure was used to compute 97.5% confidence intervals for the indirect effects. Table 4 shows that CBE alone is not a mediator of the relationship between GWP and GPI (GWP -> CBE -> GPI, β = − 0.007, p = 0.620). The same is true for CBE as a single mediator of GPI through GWOM (GWP -> CBE -> GWOM -> GPI, β = −0.003, p = 0.617). When green trust is added (effect 7), the mediation becomes significant, which is also the

case for the significant mediation path between GWP -> GTRUST -> CBE -> GWOM -> GPI. Thus, CBE mediates the relation between GWP and GPI through GTRUST AND WOM.

Furthermore, green trust is also a mediator (effect 3) of the relationship between GWP and GPI (β = − 0.143, p= 0.004), and becomes stronger when adding green WOM (β = -.182, p = .000), which revealed to be the strongest mediation effect in the model (effect 6). In agreement with the studies of Chen & Chang [15] and [22], this research establishes the negative relation between greenwashing perception and green trust. Consumers when faced with greenwashing tend not to trust the company and the company's products anymore and may not be willing to establish long-term relationships [2]. Consequently, confirming the relation between green trust and green purchasing intentions (H3), this lack of green trust generated by perceived greenwashing will impact negatively green purchasing intentions, since consumers tend to associate themselves with trustful ethical companies [24]. This relationship becomes stronger when adding green WOM because this research confirms that green trust is positively associated to green WOM (H8). Thus, when a consumer trusts a certain brand, he/she will recommend and say good things about the brand to others [41]. Therefore, when a consumer perceives greenwashing, he/she will tend to distrust the brand and its products [15,22] and will consequently talk and warn other consumers about it [40,41], and as result his/her intention to buy from that brand will decrease [6,15].

Overall, given that the direct effect between greenwashing perception and green purchasing intention is not significant, and both the indirect and the total indirect effects are significant (except for effect 1 and 4), full mediation can be defended [50]. This is also supported by applying the variance accounted for (VAF) index to the total indirect effect (Table 4). When the VAF has an outcome above 80%, a full mediation can be assumed [51]. Thus, it can be concluded that 89.9% of the total effect is due to the seven mediation effects jointly.

Results also demonstrate that the confidence interval of all indirect effects (except effects 1 and 4) does not contain 0, and thus suggests mediation is established. However, for effects 1 and 4 the indirect effect is not significant and thus there is no mediation effect. Table 4 shows the full results.

Table 4. Mediation Analysis Results.

Effect	Indirect effect	CI Indirect 2.5%	97.5%	VAF	Result
(1) GWP → CBE → GPI	− 0.007^{nsig}	− 0.037	0.016	1.2%	No mediation
(2) GWP → GWOM → GPI	− 0.083*	− 0.143	− 0.035	14.7%	Full mediation
(3) GWP → GTRUST → GPI	− 0.143*	− 0.241	− 0.046	25.2%	Full mediation
(4) GWP → CBE → GWOM → GPI	− 0.003^{nsig}	− 0.017	0.008	0.5%	No mediation
(5) GWP → GTRUST → CBE → GPI	− 0.063**	− 0.100	-0.031	11%	Full mediation
(6) GWP → GTRUST → GWOM → GPI	− 0.182**	− 0.252	-0.122	32.2%	Full mediation
(7) GWP → GTRUST → CBE → GWOM → GPI	− 0.029*	− 0.050	-0.013	5.1%	Full mediation
Total indirect effect Total effect =: − 566	− 0.509**	− 0.597	-0.425	89.9%	

Note: H1: GWP → GPI path coefficient: -0.057 p-value = 0.208 | The ** and * indicate p-values less than 0.001, 0.01 respectively. | VAF: variance accounted | nsig: not significant.

5. Conclusions

Contributions of the current study are twofold. First the study shows that green advertising efforts can easily backfire, especially when they are misleading and discrepant with real environmental performance, making greenwashing a significant barrier to the progress of green marketing. In terms of theoretical contributions, this research explored the influence mechanism of greenwashing perception on green purchasing intentions by considering the mediating role of green trust, CBE, and green WOM. Results show that greenwashing perception does not negatively impact greenwashing perception directly. However, this relationship was found to be mediated by green trust and green WOM. The study shows that greenwashing has five ways to negatively affect consumers' green purchasing intention. The first is that greenwashing negatively influenced green purchasing intentions indirectly through green trust. Greenwashing erodes green trust, a fundamental building block of green purchase intention. The second way is that greenwashing negatively influences green purchase intentions indirectly via their green WOM. As in the previous finding, greenwashing erodes green WOM, which is a necessary requirement to increase green choice. Third, it would impact the relationship negatively indirectly through green trust together with CBE. Fourth, greenwashing affects green purchase intention through green trust together with green WOM. Lastly, the negative effect occurs through green trust, together with CBE and green WOM.

Second, the study makes important contributions to practice. One of the big challenges for companies nowadays is to raise green trust in a context of growing popularity of greenwashing practices. Therefore, companies should incorporate environmental concerns and responsibility in their core values and communicate their green efforts and attributes consistently and coherently with the company's overall strategies and actions. ESG disclosure, although a fundamental tool to increase trust, loyalty and performance, must be consistent and show stable efforts to change environment policies [8,9,10]. Therefore, companies should avoid spreading misleading green ads or environmental messages with the sole purpose to insert themselves in this new "green trend". In fact, this can be more damaging if consumers perceive that environmental concern does not fit the company's core values, identity and overall activity, and that it may be just an easy path to profit. Thus, consumers need to trust companies' green efforts and motivations, and a better way to accomplish this is by communicating green efforts in a clear and honest way, embedding this environmental concern and responsibility in the company's core values and identity. In addition, the significant mediating effect of green WOM also suggest that companies need to strengthen this to encourage green purchasing intentions. By maintain good levels of green trust, consumers will be willing to spread green WOM and consequently buy more products from that brand. In this technological and social media era, managers should be attentive and monitor social platforms where they can gain insights into what is being said about their brand or product, and even collect suggestions for green improvements. By knowing what consumers feel and what they share about the product's environmental features or performance, managers can develop and better adjust the strategies to maintain consumers happy and meet their environmental expectations.

Although this research makes contributions to the research on the effects of greenwashing, it is also subject to several limitations. First, other possible mediating effects may be helpful to a better understanding of this relationship, such as green skepticism, brand loyalty and brand love, which was used to confirm there were no differences in the brands used in the study. Future research can also take in consideration the importance of green features compared to other products attributes (e.g., price, quality, accessibility, brand familiarity) in consumers' green purchasing intention criteria.

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Appendix A

Table A1. Measurement Items.

Items	Adapted Question	Adapted from
GWP1	This product misleads with words regarding its environmental features	[6]
GWP2	This product misleads with visuals or graphics regarding its environmental features	
GWP3	This product is associated with a green claim that is vague of seemingly un-provable	
GWP4	This product overstates or exaggerates what its green funcionality actually is	
GTRUST1	You feel that this brand's environmental commitements are generally reliable	[2]
GTRUST2	You feel that this brand's environmental performance is generally dependable	
GTRUST3	You feel that this brand environmental argument is generally trustworthy	
GTRUST4	This brand environmental concern meets your expectations	
GTRUST5	This brand keeps promisses and commitements for environmental protection	
CBE1	I am passionate about using the brand's services.	[36]
CBE2	I can continue using the brand's services for very long periods	
CBE3	I feel enthusiastic when interacting with the brand	
CBE4	I am proud of the brand	
CBE5	I get absorbed when I interact with the brand.	
CBE6	I feel happy when I am interacting with the brand.	
GWOM1	I would highly recommend this product to others due to its environmental image	[6]
GWOM2	I would positively recommend this product to others due to its environmental functionality	
GWOM3	I would encourage others to buy this product because it is environmentally-friendly	
GWOM4	I would say good things about this product due to its environmental performance	
GP1	I will buy the products of this company due to their environmental concern	[6]
GP2	I am willing to buy the products of this company in the future due to their environmental performance	
GP3	I am happy to buy the products of this company because they are environmentally friendly	
GC1	I'm worried about the worsening of the quality of environment	
GC2	The environment is a major concern for me	[6]
GC3	I am passionate about environmental protection issues	
GC4	I often think about how the condiction of the environment can be improved	
BL1	I'm passionate about the products of this brand	
BL2	I would use the products of this brand for long periods of time	
BL3	I feel thrilled to interact with the products of this brand	[52]
BL4	I feel proud to use the products of this brand	
BL5	I feel absorbed when I interact with the products of this brand	
BL6	I feel happy when I am interacting with the product of this brand	

Note: Greenwashing Perception (GWP), Green trust (GTRUST), Consumer brand engagement (CBE), Green word-of-mouth (GWOM), Green purchasing intention (GPI), Green Concern (GC), Brand Love (BL).

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