


The impact of greenwashing on stakeholders' perceptions and reactions to environmental scandals

EL IMPACTO DEL GREENWASHING EN LAS PERCEPCIONES Y REACCIONES DE LOS STAKEHOLDERS ANTE ESCÁNDALOS AMBIENTALES

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Abstract

Purpose: To analyze the impact of greenwashing practices on stakeholder reactions by examining different levels of misleading environmental communication.

Methodology: A quasi-experimental design was carried out with 160 participants in Chile, divided into eight groups of 20 participants each. Participants were exposed to real environmental scandals involving companies operating in the country. A structured questionnaire was administered to assess stakeholder perceptions. Statistical analysis included descriptive tests and nonparametric methods such as Shapiro-Wilk, Levene, and Kruskal-Wallis.

Results: Findings indicate that more sophisticated greenwashing strategies, particularly “obscure” and “strategic” messages, were perceived as more credible than corporate or product claims. This suggests that complex environmental narratives can mask organizational intentions and maintain a facade of legitimacy, even after exposure to scandals.

Implications: The findings reveal that the sophistication of environmental scandal influences stakeholder perception more than actual environmental responsibility. These results underscore the importance of transparency, regulatory oversight, and the promotion of critical awareness among consumers.

Originality: This study replicates and adapts a previous design to the Chilean context, providing novel empirical evidence from Latin America and contributing to the debate on sustainability communication and the risks of greenwashing.

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Resumen

Propósito: Analizar el impacto de las prácticas de greenwashing en las reacciones de los stakeholders, para examinar diferentes niveles de comunicación ambiental engañosa.

Metodología: Se llevó a cabo un diseño cuasi-experimental con 160 participantes en Chile, divididos en ocho grupos de 20 participantes cada uno. Los participantes fueron expuestos a escándalos ambientales reales de empresas que operan en el país. Se aplicó un cuestionario estructurado que evaluó las percepciones de los stakeholders. Los análisis estadísticos incluyeron pruebas descriptivas y métodos no paramétricos como Shapiro-Wilk, Levene y Kruskal-Wallis.

Resultados: Se observó que las estrategias de greenwashing más sofisticadas, en particular los mensajes «oscuros» y «estratégicos», se percibieron con mayor credibilidad que las afirmaciones corporativas o de producto. Esto sugiere que las narrativas ambientales complejas pueden enmascarar las intenciones organizacionales y mantener una fachada de legitimidad, incluso tras la exposición a escándalos.

Implicaciones: Los hallazgos revelan que la sofisticación del escándalo ambiental influye en la percepción de las partes interesadas más que la responsabilidad ambiental real. Estos resultados subrayan la importancia de la transparencia, la supervisión regulatoria y la promoción de una conciencia crítica entre los consumidores.

Originalidad: Este estudio replica y adapta un diseño previo al contexto chileno, aportando evidencia empírica novedosa de América Latina y contribuyendo al debate sobre la comunicación de la sostenibilidad y los riesgos del greenwashing.

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INTRODUCTION

Sustainability has become a key focus of contemporary business management; along with this, corporate communications on green practices play an important role in building legitimacy. However, with the rise of sustainability, greenwashing—the exaggeration or invention of environmental characteristics not supported by real actions (Delmas & Burbaño, 2011; Seele & Gatti, 2017; Khan & Hinterhuber, 2025)—has also increased. These practices damage the trust of consumers, investors, and regulators, and are a cultural obstacle to the change towards sustainable models (Von Flüe et al., 2021; Truc et al., 2024). Indeed, recent experimental studies show that even experienced purchasing managers cannot differentiate well between legitimate certifications and misleading environmental claims, which highlights the sophistication of the situation (Khan & Hinterhuber, 2025).

Lai (2021) mentions that methods put in place to reduce the lack of information and generate trust can be “snatched away” when companies create their own seals or do not register them,

damaging credibility mechanisms. In this case, the literature has proven that the credibility of environmental information is very important: if the messages are unclear, consumers think they are forms of deception, which damages the corporate image (Chen & Chang, 2013; Jamal et al., 2021). Also, the use of rhetorical resources, such as talking about product scarcity, can increase doubt, since it would be seen as a communication trick (Ye et al., 2024).

The effects of greenwashing on consumer perceptions have been well documented. Research shows that these actions reduce the desire to buy eco-friendly products, damage the green image of brands, and hinder green word of mouth (Chen et al., 2014; Natasya et al., 2023; Nyilasy et al., 2014). In the case of H&M in Jakarta, Natasya et al. (2023) showed that the perception of greenwashing decreases both the willingness to purchase and the likelihood of recommending the brand, findings that are consistent with past research in Europe on the hotel industry (Rahman et al., 2015). These results suggest that although the problem is global, its impact is higher in emerging markets where knowledge on the issue is limited, and buyers are easier to deceive.

The literature also points out that skepticism about greenwashing depends on personal factors, such as concern and/or awareness for the environment. Consumers with a greater concern for the planet tend to be more critical of messages perceived as misleading (Biswas & Roy, 2015; Newton et al., 2015; Kwon et al., 2016; Zapata-Soto et al., 2025). Likewise, Research has shown that the relationships with stakeholders and coherence between the company's values and environmental commitments are very important in reducing the feeling of greenwashing and maintaining a good reputation (Truc et al., 2024). But when green speeches are not followed by real actions, they not only harm the companies that issue them, but can also discredit the credibility of the entire field of sustainability, even in the case of authentic initiatives (Christensen et al., 2013; Kovač et al., 2025).

Beyond individual consumption, the phenomenon extends to the financial sphere. Green bonds have been shown to be keyways to pay for projects that care for the environment and direct money to the energy transition (Flammer et al., 2021; Ye et al., 2024). However, it has been questioned that in some cases these bonds act more as symbolic mechanisms than verifiable commitments, repeating actions of financial greenwashing (Mansour et al., 2022; Ye et al., 2024). This shows that the danger of deception not only affects the consumer market but also reaches investors and corporate governance.

The literature also suggests that stakeholder responses to greenwashing are not uniform, but are influenced by individual characteristics such as environmental awareness, prior attitudes, and sociodemographic factors. Studies have shown that individuals with higher levels of environmental concern tend to exhibit greater skepticism toward ambiguous or misleading sustainability claims, while less engaged stakeholders may be more susceptible to symbolic or rhetorical forms of environmental communication. These individual differences can act as moderating or confounding variables in the interpretation of greenwashing practices, shaping perceptions of credibility, legitimacy, and corporate responsibility. Although the present study focuses on isolating the direct effects of different levels of greenwashing and industry type through a controlled experimental

design, the role of individual-level variables remains theoretically relevant. Consequently, these factors are acknowledged as important limitations and constitute promising avenues for future research aimed at developing more comprehensive, multivariate models of stakeholder responses to greenwashing.

Beyond its contextual contribution to Latin America, this study contributes to the broader literature on greenwashing and organizational legitimacy. It does so by empirically examining how the form and sophistication of environmental communication, in real environmental scandals, influence the perceptions, credibility judgments, and reactions of young consumer-stakeholders in the Chilean context. By employing real environmental scandals as experimental stimuli, the study advances the understanding of greenwashing as a symbolic legitimacy strategy rather than merely a misleading marketing practice, responding to calls for greater ecological validity in experimental research. Given its exploratory nature, the objective is not to establish definitive causal effects, but rather to identify perceptual patterns and tendencies in how young consumer-stakeholders process ambiguity, credibility, and trust in sustainability communication, thereby extending legitimacy-based perspectives on greenwashing and opening avenues for future research on the interaction between communication form, stakeholder characteristics, and perceived corporate responsibility.

METHODOLOGY

Research design

The research adopted a quasi-experimental between subjects design following the proposal by Torelli et al. (2019) and adapting it to the context in Chile. This type of design is characterized by the manipulation of independent variables to observe their effects on dependent variables. It relies not on strictly random assignment of all participants, but rather on controlled criteria that ensure adequate internal validity (Shadish et al., 2002).

The experimental model corresponded to a 4x2 factorial design, where two independent variables were manipulated:

1. Level of greenwashing: corporate, strategic, dark and product.
2. Type of industry: environmentally sensitive (ESI) and non-environmentally sensitive (NON- ESI).

Thus, eight experimental groups were formed, to each of which 20 participants were randomly assigned. The stimuli consisted of real environmental scandals associated with companies operating in Chile, classified according to the level of greenwashing and the type of industry, which allowed the experiment to be situated in a context that was relatable and credible to the participants. Figure 1 shows the group distribution.

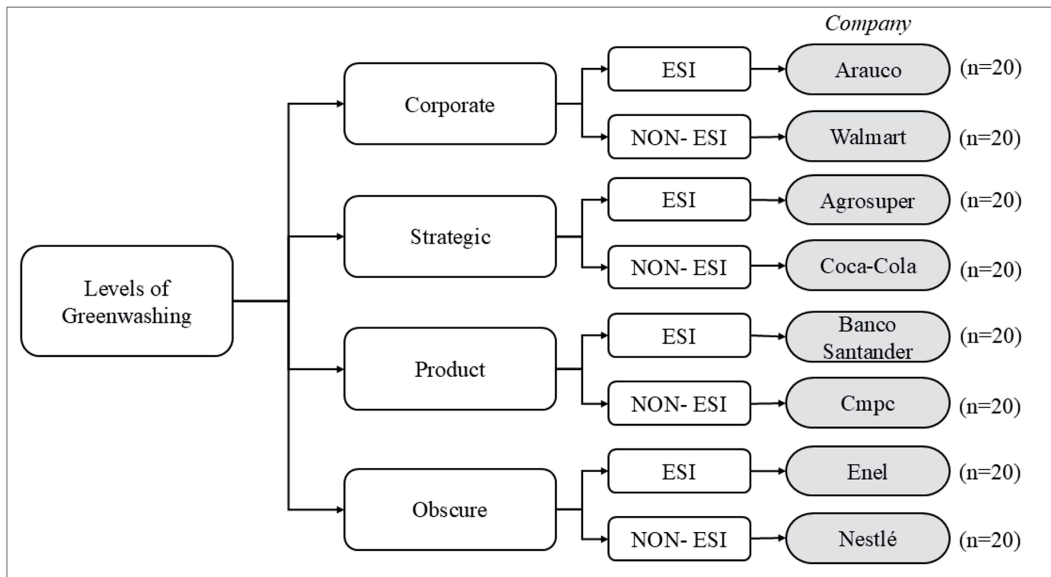


Figure 1. Experimental research design: distribution of the eight groups by level of greenwashing and industry. Source: Own elaboration.

Eight environmental scandals from Chile were used, involving companies from different industrial sectors. These scandals were chosen for their media coverage and for their utility as good examples of different ways of greenwashing tactics. Among businesses that affect the environment (ESI), the following were included: Arauco, punished for polluting water in Valdivia; Agrosuper, fined for pollution at its animal production plants; CMPC, criticized for cutting down native trees while claiming to be kind to the planet; and Nestlé, criticized for pumping water from places where it is scarce and using containers with green messages.

Regarding companies that are not environmentally sensitive (NON- ESI), the following were chosen: Walmart Chile, which was fined in 2025 for Selling conventional

plastic bags as “biodegradable” Coca-Cola, criticized for its high water use in places where there is little water and for green ads related to packaging; Banco Santander, accused outside the country in 2024 of giving money to businesses that cut down trees in the Amazon rainforest while showing green banking reports; and Enel, questioned about energy projects with low effects on communities and ecosystems despite campaigns. Together these cases provided a variety of facilitated a comparison of greenwashing across ESI and NON- ESI industries.

The study was conducted in a controlled environment by presenting slides with representative images and descriptions of the selected scandals.

Sample and population

The study sample consisted of 160 students from a Chilean state university business school. This population was chosen because young people tend to have a higher level of environmental awareness and exposure to sustainability debates through social media and digital media, making them a relevant group for analyzing perceptions of greenwashing (Torelli et al., 2020).

The selection of university students as participants is based on their high sensitivity to environmental issues and their frequent access to messages about caring for the planet through digital media. Recent studies indicate that young people between 18 and 25 years old strengthen their commitment to the planet and their sense of power when they see ecological information on social networks (Truc, 2024), while greater use of the internet is positively related to green attitudes and actions that help the environment (Hamid et al., 2017). In universities, social networks are a very important means of raising awareness about the environment and promoting critical thinking regarding deceptive things such as greenwashing (Awan et al., 2022; Meng et al., 2023). Therefore, this sample is suitable for analysis since students are a very open and active group regarding communication from their environment.

Participants were equally distributed among the eight experimental groups (20 participants per group). Participation was voluntary and anonymous, based on informed consent.

Information gathering

The information was collected through a structured questionnaire, administered in digital format immediately after exposure to the stimuli. The instrument used was Torelli et al. (2019) and nine items, distributed in three dimensions: the first is the perception of corporate environmental responsibility (2 items), aimed at evaluating participants' trust in the company's environmental practices; the second is the perception of greenwashing (3 items), intended to measure the degree to which respondents perceived the practices as deceptive; and the third is the reactions to an environmental scandal (4 items), which evaluated emotional and behavioral responses.

All items were measured on a 5-point Likert scale (1 = Strongly disagree; 5 = Strongly agree).

A section with sociodemographic questions (gender, age, and self-perceived environmental awareness) was also included.

The questionnaire developed by Torelli et al. (2019) to measure people's perceptions of greenwashing was adapted to the Chilean context translated and reviewed by professionals in sustainability and corporate communication. Although the scale had not been previously validated in Chile, an internal reliability test was conducted with the data from this research. The Cronbach's alpha coefficient obtained was 0.735 (with 95% confidence); This value is considered appropriate for an exploratory study and demonstrates good internal consistency across the items measured.

Information analysis

Data analysis was conducted using JAPS 0.19.3.0 software. Descriptive analyses (means and standard deviations) were performed to characterize the sample and the variables of interest. Subsequently, the assumptions of normality and homogeneity of variances were verified. To contrast the means, statistical normality tests such as the Shapiro-Wilk and Levene's homogeneity of variance tests were applied, and graphical tests such as histograms by group were used. Data did not follow a normal distribution, so we employed non-parametric methods, specifically the Kruskal-Wallis test. In cases where comparisons between groups were not necessary, the Dunn-Bonferroni post-hoc test was used. Finally, descriptive statistics were calculated by dimension, looking at the different levels of greenwashing and the industry's sensitivity. The significance level adopted was $p < 0.05$ to estimate the magnitude of the differences.

Methodological limitations

This study presents several methodological limitations that should be acknowledged. First, the use of self-administered questionnaires may introduce social desirability bias, as participants could adjust their responses to align with socially acceptable pro-environmental attitudes. Second, the study is embedded in a specific cultural and institutional context, as it was conducted in Chile with university students from a single business school; therefore, cultural

norms, educational background, and local sustainability discourses may have influenced how environmental scandals and greenwashing practices were interpreted.

Additionally, the reliance on a convenience sample limits the external validity of the findings, as young, highly educated stakeholders with medium-to-high environmental awareness are not representative of the broader consumer population or stakeholders. Although individual variables such as environmental awareness, age, and gender were measured, they were not incorporated into the inferential analysis in order to preserve the internal consistency of the exploratory, bivariate design. This analytical decision entails a methodological trade-off, as it restricts the ability to control for potential moderating or confounding effects. Future research should address these limitations by employing more heterogeneous samples and incorporating multivariate

analytical approaches that allow for a nuanced examination of how individual characteristics interact with different forms of greenwashing to shape perceptions of credibility, legitimacy, and corporate responsibility.

RESULTS

Descriptive statistics of the sample

To explore how different levels of greenwashing and types of industry influence perceptions of environmental responsibility, identification of deception, and emotional responses to potential corporate scandals, descriptive analyses were conducted on the sample.

Table 1 summarizes the main characteristics of the sample, offering an initial overview that subsequent comparative analyses.

Table 1. Sociodemographic characteristics of the participants: gender, age, academic year and interest in environmental issues.

Variable	Level	Counts	Total	Proportion
Gender	Female	89	160	55.6%
	Male	67	160	41.9%
	I prefer not to say it	4	160	2.5%
General interest in social and/or environmental issues	High	15	160	9.4%
	Half	105	160	65.6%
	Low	37	160	23.1%
	Very low	3	160	1.9%
Age	18	16	160	10.0%
	19	65	160	40.6%
	20	38	160	23.7%
	21	22	160	13.8%
	22	9	160	5.6%
	23	6	160	3.7%
	24	2	160	1.3%
	30	1	160	0.6%
31	1	160	0.6%	

Source: Own elaboration.

The sample is predominantly composed of young university students, with a higher representation of women and a strong concentration in early academic years.

Most participants report a medium level of interest in social and environmental issues, suggesting a moderate degree of engagement with sustainability-related topics. This profile

is consistent with the study's focus on young consumer-stakeholders who are regularly exposed to environmental communication through academic and digital contexts, and who possess sufficient awareness to critically evaluate greenwashing practices.

Descriptive statistics of the instrument between experimental groups

Table 2 presents the descriptive statistics of the instrument used to assess perceptions of environmental responsibility, perceived greenwashing, and reactions to environmental scandals.

Table 2. Descriptive statistics of the instrument.

Item	Mean	SD	Min	Max
1. I perceive specific attention and responsibility towards environmental issues.	4.650	1.260	1	7
2. Certification or adherence to a standard confirms or increases my confidence.	4.688	1.294	1	7
3. The company presents itself as environmentally conscious to improve its reputation.	5.231	1.446	1	7
4. The company has hidden intentions and interests.	5.044	1.523	1	7
5. The company presents itself as more environmentally conscious than it really is.	4.925	1.721	1	7
6. I have lost confidence in the company after the environmental scandal.	4.819	1.423	1	7
7. Even if I had more information, I wouldn't change my opinion of the company.	4.194	1.486	1	7
8. I will no longer re-evaluate the company, even if its behavior seems correct.	4.213	1.300	1	7
9. In the future, I will avoid this company.	4.188	1.505	1	7
Overall average	4.706	0.880	1	7

Source: Own elaboration.

Overall, the results indicate a moderate-to-high level of skepticism toward corporate environmental communication. Items related to reputational motivations and hidden intentions show stronger agreement, suggesting that participants tend to attribute symbolic or strategic motives to corporate environmental claims. In contrast, behavioral intention items display comparatively lower and more dispersed evaluations, indicating ambivalence between critical perceptions and concrete behavioral responses. This pattern suggests that while greenwashing practices are readily identified, negative perceptions do not always translate into consistent avoidance or disengagement behaviors.

Shapiro-Wilk Normality Test

The statistical analysis focused on comparing the experimental groups according to their levels of greenwashing and the type of industry, using bivariate nonparametric tests. Although the study collected data on sociodemographic variables (gender, age, academic year, and environmental awareness), these were not included, as the main objective was to examine the direct effect of the stimuli on greenwashing perception, rather than how they were combined with personal characteristics. This approach is justified by the study's exploratory nature and the need for a statistical design that aligns with the sample.

To assess the assumption of normality in the independent variables, the Shapiro-Wilk test was applied to the data from each of eight experimental groups (Table 3). This procedure,

recommended for small samples, allows us to identify whether the data conform to a normal distribution, a necessary condition for applying parametric tests for comparing means.

Table 3. Results of the Shapiro-Wilk normality test for the eight experimental groups.

	GROUPS							
	1	2	3	4	5	6	7	8
Valid	20	20	20	20	20	20	20	20
Shapiro-Wilk	0.85	0.80	0.74	0.64	0.85	0.78	0.74	0.67
Shapiro-Wilk p-value	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001
Minimum	2	1	4	4	3	3	4	4
Maximum	6	7	6	5	7	7	6	6

Source: Own elaboration.

Regarding the normality test, the Shapiro-Wilk values ranged from 0.64 (Group 4) to 0.85 (Groups 1 and 5), accompanied in all cases by significance levels below 0.05. This implies the rejection of the null hypothesis of normality in all groups, confirming that the data do not follow a normal distribution. Consequently, the results suggest the need to consider nonparametric statistical tests or, failing that, robust techniques that allow comparing means between groups under non-normal conditions.

Given the exploratory nature of this study, the analysis focuses on identifying descriptive patterns and tendencies across experimental conditions rather than on testing confirmatory causal hypotheses. The nonparametric Kruskal-Wallis test was used, which is appropriate for comparing response distributions when the assumptions of normality and homogeneity of variance are not met. This test determines there were significant differences in the distribution of students' perceptions and reactions to the different experimental scenarios of greenwashing and environmental scandals, ensuring greater robustness in the interpretation of the results.

Although the Kruskal-Wallis test did not reveal statistically significant differences among groups, the observed variations in medians

and dispersion suggest notable tendencies in how participants interpret more sophisticated forms of greenwashing. These patterns should be interpreted cautiously as indicative rather than conclusive evidence. These findings are consistent with Szabo and Webster (2021), who argue that consumers react not only environmental information but also to the way it is communicated, identifying signs of inconsistency or hidden intentions. Although the variation was not significant, the results show that stakeholders have a critical threshold for analysis, showing greater sensitivity to symbolic and ambiguous practices.

Analysis of the dimensions of the instrument

The analysis of perceptions of corporate environmental responsibility (Table 4) shows that levels of greenwashing generate significant differences in how participants evaluate the legitimacy and credibility of corporate actions. The "dark" level had the highest mean (5.4), followed by the strategic level (4.9), corporate (4.7) and product (4.7) levels. This pattern shows that more elaborate and sophisticated messages are interpreted as signals of greater environmental commitment.

Table 4. Descriptive statistics of the perception of corporate environmental responsibility according to the level of greenwashing.

Level	SME			NO SME			Row average (level)		
	N	M	OF	N	M	OF	N	M	OF
Product	20	4.8	1.3	20	4.5	1.2	40	4.7	1.3
Corporate	20	4.9	1.0	20	4.6	1.1	40	4.7	1.1
Strategic	20	5.0	0.9	20	4.8	1.6	40	4.9	1.3
Dark	20	5.4	0.9	20	5.4	1.0	40	5.4	1.0
Row average (industry)	80	5.0	1.0	80	4.8	1.2	160	4.9	1.1

Notes: Abbreviations: Mean (M); Standard Deviation (SD). Source: Own elaboration.

However, the standard deviations, exceeding 1.2 in several cases, reflect significant heterogeneity in the interpretation of the messages: while some participants perceive genuine environmental responsibility, others hold more critical or skeptical positions. Consequently, the

results suggest that environmental discourse manages to capture the public’s attention but does not guarantee a homogeneous perception of its authenticity, as illustrated more clearly in Figure 2.

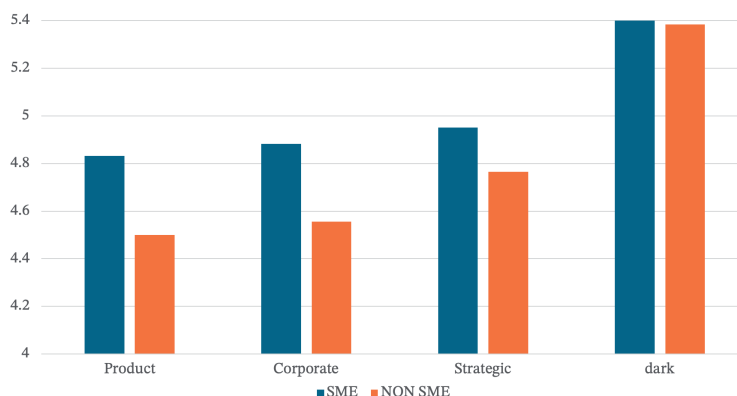


Figure 2. Graphic comparison of the perception of corporate environmental responsibility between experimental groups. Source: Own elaboration.

The analysis of the second dimension (Table 5), which assesses perceived distrust and hidden intentions in environmental messages, shows that participants more clearly identify a greenwashing component when the discourses are more sophisticated. As observed in Table 10, the “dark” level presents the highest means

(5.4), followed by the product (5.1), corporate (5.0), and strategic (4.9) levels. This pattern aligns with the trend of the first dimension: more elaborate messages tend to be interpreted as strategies to conceal opaque intentions, which reinforces the critical perception toward companies.

Table 5. Descriptive statistics of the perception of greenwashing according to level and type of industry.

Level	SME			NO SME			Row average (level)		
	N	M	OF	N	M	OF	N	M	OF
Product	20	5.3	1.7	20	5.0	1.2	40	5.1	1.5
Corporate	20	5.0	1.6	20	5.1	1.1	40	5.0	1.4
Strategic	20	5.0	1.2	20	4.9	1.6	40	4.9	1.4
Dark	20	5.2	1.5	20	5.5	1.1	40	5.4	1.3
Row average (industry)	80	5.1	1.5	80	5.1	1.3	160	5.1	1.4

Source: Own elaboration.

However, the standard deviations, around 1.4–1.5, reflect a high dispersion in the responses, indicating that there is no unequivocal consensus: while some participants openly distrust corporate motivations, the others do not perceive the lack of honesty with the same intensity. In this sense, the dimension shows

that, although sustainability messages manage to attract attention, they also deepen the suspicion that companies are more interested in improving their reputation than in making a genuine commitment to sustainability, this is graphically represented in Figure 3.

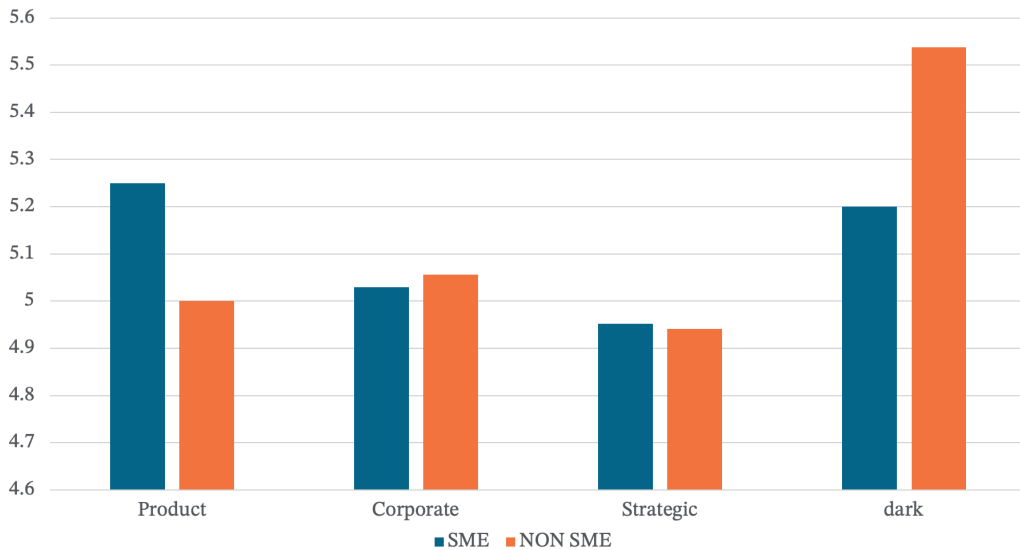


Figure 3. Graphical comparison of perceptions of corporate greenwashing between experimental groups. Source: Own elaboration.

The analysis of the third dimension, presented in Table 6, reveals how participants react to an environmental scandal according to the level of greenwashing and the type of industry.

The results show that the “dark” level has the highest means (M = 4.9), while the product, corporate, and strategic levels obtain lower and more uniform scores (M = 4.4).

Table 6. Descriptive statistics of reactions to an environmental scandal according to the level of greenwashing and type of industry.

Level	SME			NO SME			Row average (level)		
	N	M	OF	N	M	OF	N	M	OF
Product	20	4.8	0.5	20	4.1	0.7	40	4.4	0.6
Corporate	20	4.5	1.1	20	4.3	1.0	40	4.4	1.0
Strategic	20	4.4	1.1	20	4.3	1.4	20	4.4	1.2
Dark	20	4.8	0.6	20	5.0	0.9	20	4.9	0.7
Row average (industry)	80	4.6	0.8	80	4.4	1.0	120	4.5	0.9

Source: Own elaboration.

Greenwashing messages tend to generate less critical responses, possibly because their ambiguity makes it difficult to clearly identify the deceptive intent, even in the context of environmental crisis. In contrast, product, corporate, and strategic

messages appear to be more transparent or easy to decipher, making it easier for participants to adopt a more critical stance toward them, as best illustrated in Figure 4.

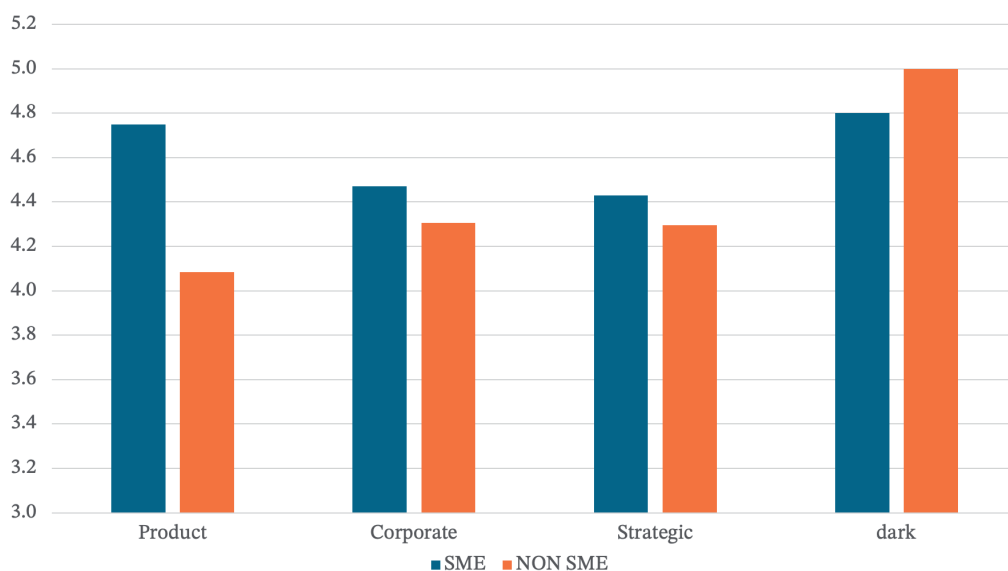


Figure 4. Graphic comparison of the reaction to an environmental scandal between experimental groups. Source: Own elaboration.

DISCUSSION

The results of this study provide exploratory insights into how young consumer-stakeholders perceive and interpret different forms of greenwashing, rather than offering confirmatory or generalizable evidence of causal effects. Obscure greenwashing was consistently perceived as more deceptive, confirming that

the opacity and ambiguity of environmental discourse arouses greater suspicion, in line with what was reported by Torelli et al. (2019) and Urbański et al. (2020). These findings highlights that the form of the message is more influential than the industrial sector in building credibility, which coincides with the warning by Lyon and Montgomery (2015) regarding the fact that communication strategies can distort

the perception of organizational legitimacy. The lack of statistically significant differences across experimental conditions may reflect a generalized baseline of skepticism toward corporate environmental communication among informed stakeholders, rather than an absence of perceptual sensitivity.

The presence of widespread skepticism toward corporate environmental communication was also reflected in the relative homogeneity of perceptions across groups. As Christensen et al. (2013) warn, the reiteration of environmental discourses without verifiable support can erode trust even in genuine initiatives. In this sense, greenwashing not only discredits the organizations that practice it but also threatens the legitimacy of sustainability as a business field. This phenomenon raises the need for regulators to strengthen oversight mechanisms through verifiable labels, more severe sanctions, and oversight systems, in line with the arguments made by Delmas and Burbano (2011), who argue that the proliferation of deceptive practices weakens the effectiveness of environmental policies.

For companies, the results are a wake-up call regarding the risks of resorting to ambiguous environmental discourse. While complex messages may offer temporary reputational benefits, they also intensify long-term distrust. Christensen et al. (2013) emphasize that repeating aspirational discourses without verifiable evidence erodes stakeholder trust, even in the face of authentic practices. Therefore, transparency and coherence in communication emerge as more sustainable strategies over time, especially considering that informed consumers are increasingly critical and prone to detect inconsistencies.

From an academic perspective, this study reinforces the importance of delving deeper into how individuals process and evaluate environmental messages. While this study provides evidence of the relevance of discursive form, future research should explore individual factors, such as environmental awareness, previous experiences, or educational level, that modulate perception. Szabo and Webster (2021) highlight that consumers' critical evaluation of greenwashing is mediated by their environmental sensitivity, which opens a fertile line of research to better understand the differences in the interpretation of these practices.

Finally, for consumers, the findings reinforce the need to adopt a critical stance toward green narratives. Greenwashing, especially in its obscure form, can project a convincing image without verifiable support, which increases the likelihood of mistrust. In this scenario, environmental literacy and pressure from critical consumers become essential to discourage deceptive practices and encourage more honest corporate communication. As Lyon & Montgomery (2015) point out, citizens' ability to demand transparency is key to building a more legitimate communication environment.

This study has some limitations that must be considered. The sample consisted only of university students, which decreased external validity and restricted the generalization of the results. Also, the analysis focused on bivariate tests without adding variables such as sex, age or environmental awareness. It is suggested that future studies use larger and more varied samples and combine multivariate models that better show how the variables Individuals affect the idea about the perception of greenwashing.

The findings show that stakeholders evaluate environmental claims not only based on their content, but also on the form and sophistication of the message, supporting the view of greenwashing as a symbolic communication strategy. The results also indicate a pattern of skepticism and behavioral ambivalence; whereby deceptive practices are identified without necessarily leading to behavioral disengagement. From a practical perspective, this suggests that ambiguous sustainability narratives may preserve short-term credibility while undermining long-term trust, highlighting the need for clearer communication standards, stronger regulatory oversight, and enhanced environmental literacy to support more critical evaluation of sustainability claims. Taken together, the results suggest that greenwashing is a double-edged sword, while it can project a convincing green image, it undermines trust in companies and in sustainability as a field, posing urgent challenges for regulators, academics, businesses, and citizens. This pattern suggests a form of stakeholder ambivalence, in which critical awareness of symbolic or deceptive practices coexists with relatively stable behavioral intentions, reflecting the complexity of sustainability-related decision-making among young consumers.

CONCLUSIONS

This study examined how young consumer-stakeholders perceive and interpret different forms of greenwashing. The findings suggest consistent perceptual patterns whereby more sophisticated forms of greenwashing tend to be interpreted as more credible, even in the context of environmental scandals. Although no statistically significant differences were found between the experimental groups, consistent patterns were identified: more complex levels (particularly obscure greenwashing) tend to be perceived as more credible, even when exposed to an environmental scandal, while more direct messages generate greater distrust.

The dimensions assessed show that stakeholders do not process environmental discourses homogeneously but rather filter messages according to their degree of sophistication, coherence, and level of engagement with the issue. Consequently, greenwashing is not a merely superficial phenomenon, but a mechanism capable of influencing the construction of judgments and attitudes toward organizations. Perceived credibility was the dimension with the greatest weight in the assessments, while attributed environmental responsibility and behavioral reactions presented more uniform patterns. This finding reinforces the idea that, in many cases, it is not so much how sustainable the action is that matters, but how convincing the narrative that accompanies it. This pattern reinforces the notion of stakeholder ambivalence identified in the discussion; whereby critical awareness of symbolic environmental practices does not necessarily translate into immediate behavioral disengagement.

The study has limitations, including the relatively small and homogeneous sample in terms of age and educational background, as well as the omission of sociodemographic variables in the analysis, which restricts the scope of generalization beyond similar populations of young, educated consumer-stakeholders. These limitations encourage replication of the design with more diverse samples. Nevertheless, the findings provide exploratory support for the argument that green discourses can shape stakeholder perceptions and evaluative judgments. This opens opportunities for future research that incorporates mixed

methodologies, examines individual-level variables, and further explores how consumers interpret sustainability narratives. Finally, this study carries implications for companies, regulators, and educational institutions, highlighting the importance of promoting transparency, strengthening the regulation of environmental communication, and fostering critical citizenship in sustainability contexts.

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Authors' contributions:

Conceptualization: TZS and JDP; Data Curation: TZS, NGC, and TAS; Formal Analysis: TZS and NGC; Research: TZS, JDP, and TAS; Methodology, Project Management, Resources, Software: TZS; Supervision: TZS and NGC; Validation: TZS, NGC, and JDP; Visualization: TZS; Writing - Original Draft: TZS and JDP; Writing - Review and Editing: TZS and NGC.

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