UNIVERSIDADE FUMEC

PRETEXTO

GREEN MARKETING X GREENWASHING IN ENVIRONMENTAL LABELING

MARKETING VERDE X GREENWASHING NA ROTULAGEM AMBIENTAL

TAÍS PASQUOTTO ANDREOLI
Universidade Federal de São Paulo (UNIFESP)
tais.andreoli@unifesp.br
https://orcid.org/0000-0002-9173-9294

ANDRESSA DA SILVA CRUZ
Universidade Federal de São Paulo (UNIFESP)
andressa.cruz@unifesp.br
https://orcid.org/0000-0001-5417-7176

KUMIKO OSHIO KISSIMOTO
Universidade Federal de São Paulo (UNIFESP)
kissimoto.kumiko@unifesp.br
https://orcid.org/0000-0002-0316-1307

ABSTRACT

The aim of the work was to compare the correct adoption of green marketing and the practice of greenwashing in environmental labeling according to consumer assessment. The theoretical framework focused on discussions related to green marketing and the practice of greenwashing, mainly in relation to environmental labeling and its potential competitive advantage among consumers. As a methodological procedure, a hypothetical-deductive approach was adopted, carried out through an experiment with two stages, the first (n=20) of an exploratory nature, using the neuroscientific technique of ocular monitoring (eye tracker), and the second (n=72) with an explanatory nature, with data collection through a questionnaire and use of the ANOVA statistical technique to validate the hypotheses. With this, it was possible to verify that green appeals on packaging, even with false speeches (greenwashing), represent an important influencer among consumers. Thus, the work presents advances in understanding the different environmental appeals used in packaging and their influence on consumer purchasing behavior, in a comprehensive manner, with explicit (self-declared) and implicit data (through the neuroscientific technique of eye monitoring).

Keywords: Green Marketing; Greenwashing; Environmental Labeling; Consumer Behavior.

RESUMO

O trabalho teve objetivo comparar a adoção correta do marketing verde e da prática de greenwashing na rotulagem ambiental segundo a avaliação do consumidor. O referencial teórico concentrou discussões relacionadas ao marketing verde e à prática de greenwashing, principalmente em relação à rotulagem ambiental e seu potencial diferencial competitivo diante dos consumidores. Como procedimento metodológico, adotou-se uma abordagem hipotético-dedutiva, realizada por meio de um experimento com duas etapas, a primeira (n=20) de caráter exploratório, com o emprego da técnica neurocientífica de monitoramento ocular (eye tracker), e a segunda (n=72)

Este trabalho está licenciado sob uma Licença Creative Commons Attribution 3.0.

Enviado em 07/12/2022
Aceito em 17/03/2024

com caráter explicativo, com coleta de dados por meio de questionário e emprego da técnica estatística ANOVA para a validação das hipóteses. Com isso, foi possível constatar que os apelos verdes nas embalagens, ainda que com falsos discursos (greenwashing), representam um importante influenciador diante dos consumidores. Assim, o trabalho apresenta avanços na compreensão acerca dos diferentes apelos ambientais empregados nas embalagens e a influência deles no comportamento de compra do consumidor, de maneira abrangente, com dados explícitos (autodeclarados) e implícitos (por meio da técnica neurocientífica de monitoramento ocular).

Palavras-chave: *Marketing Verde; Greenwashing; Rotulagem Ambiental; Comportamento do Consumidor.*

1 INTRODUCTION

Discussions about sustainability have been increasingly on the agenda of managers who have sought to develop strategies that aim to benefit current and future generations through actions that seek a balance between financial aspects, social inclusion and environmental preservation (Geissdoerfer, Savaget, Bocken, & Hultink, 2017; Pieroni, McAloone, & Pigosso, 2019; Bhardwaj *et al*., 2023). Among the motivators is the need to meet a demand from customers, who are increasingly aware of their role in environmental issues, choose to purchase products that are presented as sustainable, thus creating an environment in which companies, customers and the environment gain in set (Caldas *et al*., 2021; Bhardwaj *et al*., 2023; Qayyum, Jamil & Sehar, 2023).

Brazilian market has also been moving in this direction. In 2019, the Consumer Defense Institute published a report that corroborates this reality in the country (IDEC, 2019). In June of the same year, Nielsen released a study informing that almost half of Brazilian consumers are changing their consumption habits towards reducing the environmental impact, as well as approximately one third declared to be more attentive to the composition of products. In 2018, the Credit Protection Service (SPC) in Brazil showed that 71% of consumers declared that they preferred products from brands committed to environmental and social actions, as well as more than half reported that they would even give up the purchase if they knew that the company adopts practices that are harmful to the environment. Beauty Fair (2019) also attests to the growing importance of sustainable value, pointing out that sustainability is among the three biggest decision factors at the time of purchase, particularly for products in the Hygiene & Beauty line.

In this context, green marketing emerges as a strategy to promote the search for balance between the organization's objectives, that is, to maintain the profitable commercial purpose while incorporating social responsibility (Andreoli, Crespo & Minciotti, 2017; Bhardwaj *et al*., 2023). However, the real adaptation to green marketing still presents itself as a slow, difficult process that demands substantial investments, of the most diverse resources, such as time, money and labor (Andreoli & Batista, 2020).

The green speech and actions that demonstrate some aspect of sustainability offer a competitive advantage to organizations, however, not all are prepared or willing to adopt this new environmentally correct perspective. But in order to attract an environmentally conscious public to themselves, they start to promote discourses in this sense, but without real practical support, which is characterized as greenwashing (Andreoli, Crespo & Minciotti, 2017) which is characterized when there is the disclosure of a false market discourse focused on the environmental

aspect, with the promotion of any environmental attributes and/or benefits, but without proper proof of its veracity (Andreoli & Batista, 2020; Szabo & Webster, 2021).

In general, the relevant literature points to the proliferation of the practice of greenwashing, which permeates the most diverse formats or media, from product labeling to final disclosures (Andreoli, Costa & Prearo, 2022; Correa *et al.,* 2018; Lyon & Maxwell, 2011). One of the main justifications for this derives from the very ability of this practice to influence consumer behavior, which, in turn, is still unable to identify or differentiate the environmental appeals derived from the correct adoption of green marketing from those misleadingly publicized (greenwashing) (Andreoli, Costa & Prearo, 2022; Braga *et al.* 2019; Junior, da Silva, Moares & Garcia, 2016).

Therefore, the objective of this work was to compare the correct adoption of green marketing and the practice of greenwashing in environmental labeling according to consumer evaluation. To this end, initially, a theoretical framework was built with discussions related to green marketing and the practice of greenwashing, mainly in relation to environmental labeling and its potential competitive advantage for consumers. As a methodological procedure, a hypothetical-deductive approach was adopted, carried out through an experiment with two stages: the first (n=20), of an exploratory nature, with the use of the neuroscientific technique of ocular monitoring (eye tracker); and the second (n=72), with an explanatory character, with data collection through a questionnaire and the use of statistical techniques to validate the hypotheses.

There are some justifications for this study. Despite the defense of adding value and competitive differential generated by green marketing and especially environmental labeling, the literature concerning this still does not appear to be consensual, requiring better understanding (Andreoli, Lima & Prearo, 2017; Araújo, Gonçalves-Dias , & Pagotto, 2019; Nunes, Basso, Perin & Paulin, 2016; Mello & Sauerbronn, 2014). The need for better understanding regarding the practice of greenwashing has also been argued by previous studies, especially in relation to the largest interested public, the consumer (Andreoli, Crespo & Minciotti, 2017; Szabo & Webster, 2021; Qayyum, Jamil & Sehar, 2023). In this sense, the study contributes by investigating consumer reaction to the characterization of green marketing in comparison to the practice of greenwashing, doing so in a comprehensive manner, with implicit and explicit metrics, including the use of the neuroscientific technique of eye monitoring (eye tracker).

2 GREEN MARKETING AND GREENWASHING

The evolution of discussions on environmental and climate change in different spheres boosted debates on this issue in society, which culminated in influencing a change in consumer behavior (Andreoli, Lima, & Prearo, 2017; Qayyum, Jamil & Sehar, 2023). In view of this, the market increasingly sought and valued products whose production and marketing processes were inserted in a context of environmental preservation (Calderon-Monge, Pastor-Sanz & Garcia, 2020; Bhardwaj *et al*., 2023).

Aware of these environmental issues, in 2015, the United Nations (UN) agreed with the 193 member countries on a set of goals aimed at achieving sustainable development in 17 different areas, called the Sustainable Development Goals (SDGs) for 2030. Among these objectives, objective 12 stands out by proposing to ensure sustainable production and consumption

standards by proposing a more efficient and rational use of environmental resources, reducing waste, minimizing negative environmental impacts and encouraging sustainable practices such as recycling and reuse by part of companies and industries (IPEA, 2021).

Marketing activities aim to satisfy the desires and needs of consumers by offering products (goods and services). However, a major criticism stems from the fact that many of these activities end up not incorporating social and environmental problems into their concerns, which, consequently, does not contribute to the long-term well-being and quality of life of society (Motta & Oliveira, 2007; Lawrence & Mektoh, 2023).

Green marketing consolidates its strength as a potential marketing reaction, with a more responsible perspective. One of the first conceptualizations of green marketing was proposed by the American Marketing Association (AMA) in the 1970s, defining it as the study of the positive and negative aspects of marketing activities in relation to pollution, energy depletion and the depletion of resources. non-renewable resources (Lopes & Pacagnan, 2014). After that, the understanding established is that green marketing incorporates a wide range of activities in order to minimize the environmental impact, including product modification, production and marketing process, as well as of further promotion and dissemination (Polonsky, 1994; Bhardwaj *et al*., 2023).

Therefore, green marketing is defended as a marketing improvement, in the sense that it expands the limited vision of merely achieving the profitable commercial purpose (traditional) of organizations, incorporating a perspective of awareness and accountability, guided by environmental value (Andreoli, Crespo & Minciotti, 2017). Thus, the purpose of green marketing is understood to be the search for a balance between the organization's financial objectives and society's values, especially those related to environmental issues (Caldas *et al*., 2021; Bhardwaj *et al*., 2023).

Considering this new paradigm, it seems clear that the central objective of green marketing focuses, first, on a readjustment of marketing practices in view of the environmental issue, and then, in a second moment, translate and disseminate this change of posture in a suitable image (Andreoli & Batista, 2020). This means that a company that chooses to adopt green marketing must, firstly, promote a real readjustment of its management, action and decision-making, functions and processes, to, as a consequence, disseminate it to the market in the most appropriate way, with real translation of what is actually done.

One of the main directions of the practice of green marketing comprises environmental labeling (Qayyum, Jamil & Sehar, 2023), which consists of appeals and statements displayed on the labels or packaging of products, which signal their environmental attributes. Although it is not yet consensual (Andreoli, Lima & Prearo, 2017; Araújo, Gonçalves-Dias, & Pagotto, 2019; Mello & Sauerbronn, 2014), there is an extensive argument for adding value and consolidating the competitive edge derived from environmental labeling. This effect happens not only in broader terms, such as in relation to suppliers and the market as a whole, but especially related to the consuming public, which, in general, responds with a better evaluation when environmental labeling is present (Araújo, Gonçalves-Dias, & Pagotto, 2019; Nunes *et al.*, 2016; Schleder, de Oliveira, Neto & Volpato, 2019).

From this discussion, the first general expectation of the study emerges - the possibility of achieving a greater competitive advantage attributed by consumers to the exposure of packaging with green marketing, which should occur in three metrics of interest. First, in the percep-

tion of sustainability of the product, considering the sales capacity of the green image (Araújo, Gonçalves-Dias, & Pagotto, 2019). This should, secondly, lead to greater willingness to purchase, influencing consumer behavior in a more direct way (Schleder, de Oliveira, Neto & Volpato, 2019). Thirdly, the evaluation of the practice of green seals, more generally, should also be more favorable (Andreoli, Lima & Prearo, 2017). The first three research hypotheses are as follows:

> H1 – Greater attribution of sustainability to the product should happen in green marketing, compared to greenwashing.
>
> H2 – Greater willingness to purchase the product should be attributed to green marketing, compared to greenwashing.
>
> H3 – Better evaluation of the practice of green seals should relate to green marketing, compared to greenwashing.

2.1 *Greenwashing*

In view of the previous discussion, it is important to highlight that not all organizations were prepared and/or willing to adopt this new marketing perspective (Andreoli, Crespo & Minciotti, 2017; Andreoli & Batista, 2020). From this, with the aim of becoming more competitive, some organizations bet on the dissemination of environmental appeals and a "green" discourse that were not always accompanied by real changes in internal processes, thus not necessarily consistent with their organizational practices (Andreoli & Batista, 2020; Andreoli, Crespo & Minciotti, 2017). This practice of promoting a misleading discourse on environmental issues, especially in terms of managing the public perception of the market, is called greenwashing (Andreoli, Crespo & Minciotti, 2017; Braga *et al*., 2019; Szabo & Webster, 2021).

By the translation of the term, greenwashing can be understood as the green washing that is misleadingly given to a product, a brand or an organization, so that they appear environmentally responsible, without necessarily actually being (Andreoli & Batista, 2020; Andreoli, Costa & Prearo, 2022). For this reason, the practice of greenwashing is argued as an advertising maneuver, which intentionally seeks to confuse or even deceive consumers about the environmental posture of organizations (Andreoli, Crespo & Minciotti, 2017; Andreoli, Costa & Prearo, 2022).

There are several studies that support the current and still growing context of proliferation of the practice of greenwashing, which permeates the most diverse formats or means of communication, from product labeling, disclosure campaigns, to annual reports (Andreoli, Costa & Prearo, 2022; Caldas *et al*., 2021; Correa, Machado & Braga Junior, 2018; Lyon & Maxwell, 2011; Qayyum, Jamil & Sehar, 2023). The reason given for this, which even makes the scenario even more alarming, is the very ability of this practice to influence consumer behavior, which is still not capable of identifying or differentiating the environmental appeals derived from the correct adoption of green marketing from those deceptively disclosed (greenwashing) (Andreoli & Minciotti, 2023; Andreoli & Batista, 2020; Braga *et al*., 2019; Correa, Machado & Braga Junior, 2018; Junior *et al*., 2016).

This difficulty in identification and subsequent differentiation derives from the very characterization of the practice of greenwashing, which, as previously discussed, has the intentional purpose of directing the consumer to confusion, as well as subsequent deception and/or error (Andreoli & Minciotti, 2023 ; Andreoli, Costa & Prearo, 2022). This is clear in the summary of the actions most frequently used when practicing greenwashing, a pioneering effort carried out

by the agency Terra Choice, in 2009 (Andreoli, Costa & Prearo, 2022). Thus, called "sins of greenwashing", they were grouped into seven: lack of evidence, trade-off, vagueness, irrelevance, lesser of evils, lies, and false labels.

First, 'lack of evidence' refers to environmental claims that cannot be substantiated with easily accessible information or by credible third-party certification, possible example being claims of percentages of post-consumer recycled content without providing clear evidence and objective. Second, the 'hidden exchange' is based on emphasizing some specific appeals, without necessarily looking at the environmental context as a whole: paper, for example, is not necessarily environmentally preferable just because it comes from a sustainably harvested forest, it should consider other equally important environmental issues in the papermaking process (such as greenhouse gas emissions). Third, 'vagueness' encompasses ill-defined, imprecise or very broad claims, such as the saying "all natural", which is not necessarily true, nor green or sustainable. 'Irrelevance', on the other hand, encompasses the appeal that may even be true, but has no confirmed importance, whose most notorious example is the claim that it does not contain CFCs, something that has already been prohibited by law. Similarly, the 'lesser of evils' also consists of a claim that may even be true, but the product category itself is already harmful, such as "organic cigarettes", for example. More aggravating, the 'lie' characterizes simply false environmental claims, which do not have a plausible argument. And finally, the 'fake labels', which through words or images give the impression of third-party endorsement that does not exist.

As a summary, it can be argued that a considerable part of the practice of greenwashing ends up being expressed in the packaging of products, with the occasional display of appeals (whether in the form of written text or illustrative images), seals and labels. Therefore, the context of the practice of greenwashing is more problematic when considering consumer behavior in relation to the appeals on the packaging, which was previously discussed as environmental labeling.

Corroborating this argument, there are some previous studies in this direction. Varela et al. (2017) scanned the environmental labeling of convenience products in the categories of food, personal care and housewares in a sample of supermarkets, attesting to the practice of greenwashing in more than 75% of cases, according to the seven sins previously discussed. Andreoli, Lima and Prearo (2017) carried out two experiments with an A4 paper product packaging, comparing a real and notoriously relevant green seal, the FSC, to two fictitious ones, the EIH and the ECO. Two results were found, respectively: first, the inability to differentiate the real appeal in the face of greenwashing, and second, more worrying, the better consumer assessment of the appeal with greenwashing. Nunes (2021) focused on organic products, interviewing consumers who agreed with the confusion felt in relation to the practice of green seals, especially due to the increased possibility of greenwashing (in this case, more specifically organicwashing).

Therefore, it seems to be the consensus direction of the literature that one of the main consequences of the proliferation of the practice of greenwashing, especially focused on environmental labeling, is the generalized confusion of the consumer, who is vulnerable in the face of options, not knowing how to identify or differentiate environmental actions true from the misleading ones (Andreoli, Lima & Prearo, 2017). Even more aggravating, as attested by other studies, from broader scopes, the confusion felt by the consumer seems to configure a vicious circle, of diminished trust and loss of credibility, as well as an increase in the perceived green risk (de Oliveira, Aguiar, Melo & Correa, 2019; Junior *et al*., 2016).

As a result of the discussion, the second general expectation of the study appears, related to the inability to identify or differentiate real green seals from those greenwashed by the consumer, which should focus on a metric of interest, influencing (non) skepticism of the consumer in relation to the environmental appeals. Then, the fourth research hypothesis is presented:

> H4 – Exposure to different packages does not affect consumer skepticism regarding environmental claims.

3 METHODOLOGICAL PROCEDURE

As a methodological procedure, a hypothetical-deductive approach was adopted, carried out through an experiment with two stages: the first (n=20), of an exploratory nature, with the use of the neuroscientific technique of ocular monitoring (eye tracker); and the second (n=72), with an explanatory character, with data collection through a questionnaire and the use of statistical techniques to validate the hypotheses. The development of the experiment in two stages is justified by the importance of understanding the process of reception and evaluation by the consumer in a broader way, covering implicit and explicit metrics.

The procedure adopted consisted of presenting one of these presentations, followed by the collection of responses. In both cases, the format was between subject, in which each subject participates in only one manipulation (or packaging characterized as green marketing or greenwashing). Both samples were non-probabilistic, chosen for convenience and randomly distributed among treatments, selecting university students as participants, due to the tendency to more easily achieve homogeneity between treatments.

As material, a packaging of a hygiene product with environmental labeling was adopted, using the original "Seventh Generation" line, offered by Unilever, as a base. Therefore, to characterize green marketing, a simple adaptation was made, simply making the environmental appeals more evident (larger in size). To characterize greenwashing, a more incisive manipulation was carried out, using the main signs of the practice of greenwashing, more commonly called "sins of greenwashing" (Andreoli, Costa & Prearo, 2022), especially here using vagueness (say 100% natural) and false labeling (display of four fictitious stamps).

Picture 1 - *Materials - characterization of green marketing versus greenwashing*

Source: Own elaboration.

In view of ethical concerns, before starting the research, a consent form was presented, which the participants had to agree with and sign in order to start the actual collection procedure. In a similar sense, at the end of the questionnaire, there was a debrifing, with the presentation of the research and the clarification of its real purpose. It should be noted that the methodological procedure of the work as a whole was evaluated by the university's Ethics Committee, having been approved in 2021.

Some specifics regarding the execution of each step were detailed in the respective subtopics below.

3.1 Exploratory Stage

The exploratory stage (n=20) had remote eye monitoring (eyetracker), performed through the Real Eye platform. Here, we followed the guidance of Pradeep (2012), who argues the need for a limited number of respondents when using neuroscientific techniques, around 10% of traditional surveys.

Eye monitoring is a neuroscientific technique that allows for a general mapping of participants' views and fixations, both in general terms and in relation to specific spaces, called areas of interest. With this technique, it is possible not only to illustrate which were the most viewed areas, characterized by faster movements, but also which were actually focused on by the participants. This analysis takes place with the data grouped into a final group.

As a result, we have "heatmaps", which show views and fixations along with their intensities, classified in three colors: less intense (green), medium (yellow) and more (red). In addition, some metrics can also be explored, for both focuses, in particular the average elapsed time (of the total twenty seconds available), how many times this area was revisited (searched again), in addition to the sum of captured focal points and the average time. The image generation was adapted according to the analysis in question, with visualizations and fixations with points of 50px, 50px equal for shadow and opacity of 0.2 and 0.5, respectively.

3.2 Explanatory Stage

The explanatory stage (n=72) collected the evaluation of the participants through an online questionnaire, available on the Survey Monkey platform. Here, the G-power program was used to run the sample power test, which informs the sample size needed to validate the results obtained. Thus, a high statistical power was obtained (ANOVA test, with a power of 0.71), an effect of average size (0.3) and a significance level of 5%, indicating the ability of the sample to reliably detect the analyzed effect.

The data collection instrument was structured according to the four metrics of interest: the attribution of sustainability to the product, with four statements, whose scale was developed for this study; willingness to purchase the product, also with four assertions, according to the scale proposed by Andreoli and Vieira (2022) ; the evaluation of the practice of green seals, with seven sentences, according to the scale developed by Andreoli, Lima and Prearo (2017); and consumer skepticism regarding environmental appeals, with four assertions, being an adaptation of the

original scale by Mohr, Eroglu and Ellen (1998), previously replicated by Andreoli and Minciotti (2023). Below, the aforementioned scales are presented with their assertive components.

Table 1 - *Metrics of interest*

Attribution of sustainability to the product- I consider this product sustainable / This product has arguments that convince me that it is sustainable / This product has seals that prove its sustainability / This product seems to me to be certified in environmental matters.
Willingness to purchase the product - I would like to receive more information about the viewed product / I would be willing to purchase the viewed product / I would recommend the viewed product to others / I was very interested in the viewed product.
Evaluation of the practice of green seals -- Almost everyone knows the green seals shown on the parts / The vast majority of consumers understand what these green seals mean / I believe that consumers always notice the green seals on products / These green seals are a very reliable certification in relation to the performance of organizations / It is impossible to confuse or even deceive consumers with fake green labels / I would rather buy products that have these green labels, rather than buy similar products without these labels / I would be willing to pay a little more for products that have these green labels, instead of buying similar cheaper ones without these seals.
Skepticism about sustainable claims- Most of the environmental claims on packaging labels are not true. / As environmental claims are exaggerated, it would be better for consumers if they were removed from packaging labels / Most environmental claims on packaging labels are intended to mislead rather than inform the consumer / I do not believe most claims environmental information on packaging labels.

Source: Own elaboration.

All scales presented had a random presentation of the statements for each participant, who was asked to assign a score of agreement on a scale from 0 to 10, with 0 being completely disagree and 10 being completely agree. Finally, the questionnaire was completed with questions measuring the participants' profile, such as gender, sexual orientation, age and family income.

Different data analysis techniques were used, such as basic descriptive statistics (frequency, minimum and maximum, and mean). In the case of the scales, exploratory factor analyzes were carried out, paying attention to consistency assumptions, such as: minimum sample size of five participants for each variable; multivariate data normality; significant Bartlett's Sphericity test; Kaiser-Meyer-Olkin (KMO), Measure of Sampling Adequancy (MSA) and total explained variance tests greater than 0.5 (Hair et al, 2009). To test the hypotheses raised, the parametric Anova technique was adopted.

4 PRESENTATION AND DATA ANALYSIS

The presentation and data analysis follows the same logic as the structuring of the method, that is, it begins with the exploratory stage, followed by the explanatory stage.

4.1 Exploratory Stage

The sample (n=20) had a balanced gender distribution, with a mean age of 24 years (ranging between 19 and 30). Below is the heatmap analysis of the two packages, green marketing versus greenwashing, in general terms, with views and fixations, respectively.

Picture 2 - *Heatmap Analysis - Previews and Fixations - General*

Source: Taken from RealEye.io collection platform.

Then, the three areas of interest were analyzed, specifically, both in terms of views and in terms of fixations. These areas consisted of the product's main appeals, whether original (true) or manipulated (greenwashing) (Figure 3), as highlighted below, respectively.

Picture 3 - *Representation of areas of interest*

Source: Own elaboration.

For the first area of interest, referring to saying "0% Petrochemical Assets" or "100% Green", greenwashing achieved better results in terms of views, both with a higher proportion of participants (80%, compared to 60% of marketing green), as well as a faster first hit (less than 3 seconds, compared to almost 10 seconds for green marketing) and also a longer average duration (close to 0.5 seconds, compared to 0.3 seconds for green marketing). In fixations, a better result of greenwashing was also observed in the sum of uptakes (seven, compared to three of green marketing), but that was not repeated in relation to the average duration elapsed, the result of which was the opposite (close to 0.5 seconds, compared to nearly a second for green marketing).

Similarly, the second area of interest, concerning saying "0% Artificial Fragrances and Colors" or "100% Natural", also indicated better greenwashing results in visualizations, both with a higher proportion of participants (70%, compared to 50% for green marketing), as well as faster first hits (less than 7 seconds, compared to more than 11 seconds for green marketing), but here, the average duration was very close to green marketing (around 0.5 second). In fixations, a better result of greenwashing was also observed in the sum of uptakes (repeating the seven, compared to four of the green marketing), with equal average durations elapsed (0.3 seconds).

Finally, in the third area of interest, which concerns green seals, greenwashing not only accounted for better results, again, but here they were more expressive, in both areas of investigation. Thus, in the views, a higher proportion of participants (100%, compared to 70% for green marketing), as well as faster first targeting (less than 6 seconds, compared to almost 11 seconds for green marketing) were observed once again.), and also longer average elapsed duration (0.8 second, compared to nearly 0.4 second for green marketing). Also, here the difference in the average of revisits was clearer, again with superiority for greenwashing (one, contrasting with 0.1 for green marketing). This was also evident in the fixations, with greenwashing adding up to a considerably higher amount (23, versus four for green marketing), in addition to the average time also taking longer (close to one second, against 0.5 seconds for green marketing).

Table 2 - *Metrics Synthesis - Eye Monitoring*

	Visualization								**Fixation**			
	Proportion		**First capture**		**Proportion**		**Média Revisitação**		**Somatória**		**Tempo Médio**	
Prática	V	*G*	V	*G*	V	*G*	V	*G*	V	*G*	V	*G*
Dizer1	6/10	**8/10**	9,4	**2,7**	0,3	0,4	0,2	0,2	4	**7**	**1**	0,4
Dizer2	5/10	**7/10**	11,3	**6,7**	0,5	0,5	0	0,2	4	**7**	0,3	0,3
Selos	7/10	**10/10**	10,8	**5,5**	0,4	**0,8**	0,1	**1**	4	**23**	0,5	**1**

Legenda: V – Marketing verde; G – *Greenwashing*. The highest values were highlighted in bold.

Source: Prepared by the author.

As a summary, in general, a better performance of greenwashing in eye monitoring was observed, in both views and fixation metrics. In a way, this goes against the competitive differential linked to green marketing, in the sense that it illustrates equal to superior results in the case of misleading green claims. Still, in a related way, it also contributes to support the expectation of inability to identify or differentiate on the part of consumers. Therefore, the results found reinforce the defense raised by previous studies regarding the ability of greenwashing to influence consumer behavior (Andreoli & Batista, 2020; Andreoli, Lima & Prearo, 2017). They also endorse the discussion that the mere presence of green seals, whether real or not, is capable of adding value perceived by the consumer (Andreoli, Lima & Prearo, 2017). Thus, it is argued that the results from eye monitoring are in line with the alarming proliferation of false marketing discourses, specifically the practice of greenwashing, especially considering its successful ability to influence (Andreoli & Batista, 2020; Andreoli, Lima & Prearo, 2017).

4.2 Explanatory Stage

The sample obtained equal distribution between gender expressions (cisgender woman 48.5% and cisgender man 50%, in addition to 1.5% non-binary), with a preponderance of heterosexual orientation (74.2%, followed by bisexual 18.2 % and homosexual 7.6%), and mean age of 25 years (SD=7.68) and approximate personal income of R$3,320 (SD=2,210). No statistically significant differences were found between the variables concerning the profile of the respondents between the two experimental groups.

First, exploratory factor analyzes were carried out on the scales of the metrics of interest in this study: attribution of sustainability to the product, resulting in a factor, with 79% of the total explained variance (KMO=0.81 and α=0.908); willingness to purchase the product, also with one factor, with 73% of the total explained variance (KMO=0.817 and α=0.870); evaluation of the practice of green stamps, which after the elimination of one assertion (seven), indicated in the first round due to commonality, formed two factors, the first with the first three assertions and the second with the next three, adding up to 74% of the variance explained (KMO=0.743, 52% and α=0.857, 22% and α=0.780, respectively), and skepticism regarding environmental appeals, with one factor, with 64% of the total explained variance (KMO=0.725 and α= 0.812).

Regarding the attribution of sustainability to the product, no statistically significant differences were found (F=2.238, p=0.139). In addition, high averages can be observed in all the assertions concerned, for both manipulations. This reinforces the argument that consumers are unable to identify and differentiate the green appeals displayed on packaging, who are unable to make a critical assessment of what is real and what is false (Andreoli, Lima & Prearo, 2017; Harbaugh, Maxwell, & Roussillon, 2011), reinforcing the second major expectation of the study. More incisively, it corroborates the defense that the mere adoption of green appeals, even if false, is enough to get a good reaction from the consumer market (Andreoli & Batista, 2020; Andreoli, Lima & Prearo, 2017).

Regarding the willingness to purchase the product, the difference was close to the significance zone (F=3.663, p=0.060), with greater attribution in the case of green marketing (M=7.76, SD=1.24), compared to à with greenwashing (M=6.88, SD=2.46). This result can be interpreted from two different perspectives. First, positive, in the sense that it indicates that the consumer appreciates green marketing, attesting to its competitive advantage in the face of consumers (Araújo, Gonçalves-Dias, & Pagotto, 2019; Nunes et al., 2016; Schleder et al., 2019), which adds support to the second hypothesis of the study. And second, negative, considering the still incipient ability of consumers to identify and differentiate the green appeals displayed on packaging (Andreoli, Lima & Prearo, 2017; Harbaugh, Maxwell, & Roussillon., 2011). Still, a possible explanation for this stems from the manipulation of packaging itself, in which the characterization of green marketing brought information about the production process and the composition of the product, while that of greenwashing was intentionally more generalist (due to the sins of vagueness, ambiguity and lie), which may have influenced the level of confidence felt by the consumer, negatively impacting the interest in purchasing the product presented, as seen in a previous study (Braga Junior, Martínez, Correa, Moura-Leite, & Da Silva, 2019).

The practice´s evaluation of green seals was based on two factors. In the first factor, assertions aimed at the general understanding of the consumer in relation to this practice were grouped (about repairing, knowing and understanding), which did not show a statistically significant difference (F=0.448, p=0.506). A possible argument is the similarity of logic with the first metric, the perception of sustainability about the product, which returned the same result, of non-differentiation on the part of the consumer (Andreoli, Lima & Prearo, 2017). As said by Paixão (2016), the practice of greenwashing is in fact difficult for the consumer to perceive, due to a multitude of hidden, dubious and false information that is exposed on the packaging, built with the already known aesthetic attributes, which result in this intentionally created confusion.

In turn, the second factor was related to the more specific consumer buying behavior (with assertions focused on reliability, purchase preference and willingness to pay more), finding a statistically significant difference (F=6.429, p=0.014), also with greater attribution in the case of green marketing (M=7.89, SD=1.37), compared to greenwashing (M=6.76, SD=2.19). With the same reasoning as the first factor, one can observe a similarity in logic between this factor and the second metric, purchase willingness, which also showed a difference between the manipulations. Therefore, this result also contributes to the defense of the competitive differential linked to green seals (Araújo, Gonçalves-Dias, & Pagotto, 2019; Nunes et al., 2016; Schleder et al., 2019), seen here under a broader perspective, of the practice of green seals as a whole, and not just on the product or packaging in question, which adds support to the third hypothesis of the study.

Finally, regarding skepticism regarding environmental appeals, no statistically significant differences were found (F=0.003, p=0.957). It should be mentioned that the averages of the assertions concerned were considerably low, in both manipulations, which reinforces the argument about the consumer's inability to identify and distinguish between true and misleading green claims (Andreoli, Lima & Prearo, 2017; Andreoli & Batista, 2020; Harbaugh, Maxwell, & Roussillon, 2011), adding support to the fourth hypothesis of the study.

Table 3 - Summary of Hypotheses, Metrics and Results

Hypotheses and Metrics	ANOVA	Results
(H1) Attribution of sustainability to the product	F=2,238, p=0,139	Not proven
(H2) Willingness to purchase the product	F=3,663, p=0,060	Proven. Green marketing (M=7,76, DP=1,24) > Greenwashing (M=6,88, DP=2,46)
(H3) Evaluation of the practice of green seals - Factor 1 – general understanding - Factor 2 - purchasing behavior	F=0,448, p=0,506 F=6,429, p=0,014	Not proven Green marketing (M=7,89, DP=1,37) > Greenwashing (M=6,76, DP=2,19)
(H4) Skepticism towards environmental claims	(F=0,003, p=0,957)	Proven

Source: Elaborated by the author

In summary, it was possible to attest to the competitive advantage attributed by consumers to true green labels, praising green marketing as a responsible marketing perspective, especially in relation to environmental labeling (Araújo, Gonçalves-Dias, & Pagotto, 2019; Schleder et al., 2019; Qayyum, Jamil & Sehar, 2023), proven by H2. Although not being able to cover all the aspects raised in this study, it is emphasized that the hypotheses that were supported refer precisely to the more targeted consumer buying behavior, configuring the main factor of consideration.

Despite this, on the other hand, it can be argued that consumers lack the ability to identify and further differentiate green appeals, which corroborates the favorable scenario for the proliferation of greenwashing practices (Andreoli, Lima & Prearo, 2017; Andreoli & Batista, 2020; Harbaugh, Maxwell, & Roussillon, 2011). In addition to validating the relevant hypothesis (H4), this was also confirmed in the implicit metric, eye monitoring, which illustrated the best result achieved by greenwashing in both views and fixations. The main discussion arising from this is that, first, there is a greater ability to attract the consumer by this manipulation, in addition to, second, as a consequence, greater attention is also inferred by the consumer, which tends to increase the influence potential. In this way, it seems to be the case that mere exposure to green labels, whether they are real or not, proves to be sufficiently capable of influencing the consumer, automatically configuring itself in a perceived competitive advantage.

In view of this, the argument that is woven is that there is an urgent need for greater awareness in the organizational environment in relation to the promotion of marketing discourses, with due incorporated accountability (Andreoli & Minciotti, 2023). This review is necessary considering the very potential of adding value to green marketing, which, given the lack of appreciation on the part of the consumer market, may end up not being configured. As warned by Razzolini Filho and Leinig (2019) and Andreoli and Batista (2020), ultimately, maintaining the current alarming scenario poses the risk of a generalized trivialization of the wide range of considerations related to sustainability.

5 FINAL CONSIDERATIONS

The objective of this work was to compare the correct adoption of green marketing and the practice of greenwashing in environmental labeling according to consumer evaluation. As a main result, on the one hand, it was possible to attest the competitive differential of environmental labeling and green seals before consumers, highlighting the importance of green marketing, but, on the other hand, it also showed the ability to influence the practice of greenwashing, mainly facing the still vulnerability of the consumer.

At first, in ocular monitoring, in general, better performance was verified in the manipulation of greenwashing, in both views and fixations. This indicates the competitive differential linked to the practice, at least in implicit terms, especially directly related to attracting the eye and awakening the consumer's interest in focusing on the exposed content. Still, one should also consider the relationship with attention, in the sense that the more time is spent on receiving stimuli, the greater attention that can be inferred in the processing can be inferred, which, subsequently, can result in greater potentiality of the ability to influence of the practice of greenwashing.

On the other hand, in a second moment, in the explicit metric, the results attest to the competitive differential attributed by consumers to real green seals, especially with regard to more specific purchasing behavior, managing to influence both the willingness to purchase the product and the evaluation of the practice of green seals in relation to the aggregation of value in the decision-making process. Considering the non-totality or expressiveness of the aggregations supporting the hypotheses, the results found at this stage were interpreted according to two different perspectives. On the positive side, the competitive differential of green marketing is validated, more specifically of environmental labeling and green seals, which are in fact valued by consumers, mainly in the decisive factor of consideration, the more specific purchase behavior. But on the negative side, it is attested to the inability of consumers to identify or further differentiate true and misleading green appeals, leaving them vulnerable to the influence of the practice of disseminating false market discourses.

As a main contribution, the study advanced the understanding of the different environmental appeals used in packaging, analyzing and comparing the influence of true (green marketing) and false (greenwashing) practices as a competitive differential for consumers. In this sense, it contributes not only to extending the literature on green marketing and the practice of greenwashing, but it does so by considering the main interested public: consumers. Furthermore, important empirical evidence can be aggregated comprehensively, encompassing implicit measures (with the neuroscientific technique of ocular monitoring) and explicit measures (verbal report).

Therefore, some highlights can be made in relation to the managerial and social implications of the study. First, it reiterates the ability to influence consumer behavior and the lack of distinction on the part of the consumer regarding greenwashing practices. This scenario is aggravating given the increasing use of false appeals and without argumentation by the organizational environment. Secondly, it emphasizes the need for greater responsibility on the part of organizations in relation to speeches and business practices, disclosing sufficient and true information, guided by ethics, transparency and argumentation in order to ensure a relationship of trust with the its stakeholders (Szabo & Webster, 2021). It also shows the need for greater

awareness and search for information by consumers related to the development of a critical sense regarding claims and visual appeals. In conclusion, there is a need for marketing to also work on promoting consumer self-education, since it is a disseminator of ideas and would exert a positive influence on the behavior of the population (Andreoli & Nogueira, 2021). This could be done through advertising campaigns, communications or even "out of home" actions, emphasizing the importance of consumers basing themselves on real arguments and not just on visual appeals present on packaging.

Despite this, some limitations of this study must be considered, especially regarding the delimitations of the methodological procedure, whose samples were chosen for convenience, with specific materials adopted and manipulations defined by the authors (including it is a between-subject design). Therefore, it should be considered that an atypical scenario of packaging exposure and subsequent reception by consumers was intentionally set up, with explicit (and even repeated) disclosure of the displayed green seals. Although it is in line with the purpose of internal validity, the results are limited to the specific context of application.

With this in mind, new studies are suggested, such as studies that have a greater focus on consumer behavior at the point of sale in relation to sustainable appeals versus manipulated with greenwashing, or even working with less or stronger brands, with the aim of to understand more deeply the contradictions raised in this study. It is also suggested to understand more deeply the context of the implicit and explicit attitudes, argued in the results of the research in question.

REFERENCES

Andreoli, T. P., & Batista, L. L. (2020). Possíveis ações regulatórias do greenwashing e suas diferentes influências na avaliação de marca e no julgamento dos consumidores. *ReMark-Revista Brasileira de Marketing, 19*(1), 29-52.

Andreoli, T. P., Costa, E. d. S., & Prearo, L. C. (2022). Julgamento dos Consumidores Acerca da Prática do Greenwashing: Desenvolvimento e Validação de Escala. *BBR. Brazilian Business Review, 19*, 508-524.

Andreoli, T. P., Crespo, A., & Minciotti, S. (2017). What has been (short) written about greenwashing: a bibliometric research and a critical analysis of the articles found regarding this theme. *Rev. Gestão Soc. Ambient. RGSA, 11*, 54.

Andreoli, T. P., Lima, V. A., & Prearo, L. C. (2017). A (in) eficácia dos selos verdes sobre o comportamento dos consumidores: um estudo experimental. *Revista Eletrônica de Ciência Administrativa, 16*(1), 62-79.

Andreoli, T. P, & Minciotti, S. A. (2023). Attention and skepticism to greenwashing: analysis of influence on consumer behavior. *Brazilian Journal of Management/Revista de Administração da UFSM*, *16*(4).

Andreoli, T. P., & Vieira, B. d. A. (2022). " Oi, Meu Nome É…" x" Me Poupe": Influenciadores Digitais e a Reação dos Consumidores. *Revista Gestão & Conexões, 11*(1), 39-60.

Araújo, R. S., Gonçalves-Dias, S. L. F., & Pagotto, Érico L. (2019). Rotulagem ambiental e greenwashing: análise de discursos e práticas empresariais. Organizações E Sustentabilidade, 7(2), 25–42. https://doi.org/10.5433/2318-9223.2019v7n2p

Braga, S., Martínez, M. P., Correa, C. M., Moura-Leite, R. C., & Da Silva, D. (2019). Greenwashing effect, attitudes, and beliefs in green consumption. *RAUSP Management Journal, 54*, 226-241.

Bhardwaj, S., Nair, K., Tariq, M. U., Ahmad, A., & Chitnis, A. (2023). The State of Research in Green Marketing: A Bibliometric Review from 2005 to 2022. *Sustainability*, *15*(4), 2988.

Caldas, M. V. d. A., Veiga-Neto, A. R., Guimarães, L. G. d. A., Castro, A. B. C. d., & Pereira, G. R. B. (2021). Greenwashing in environmental marketing strategy in the brazilian furniture market. *Revista de Economia e Sociologia Rural, 59*.

Calderon-Monge, E., Pastor-Sanz, I., & Garcia, F. J. S. (2020). Analysis of sustainable consumer behavior as a business opportunity. *Journal of Business Research, 120*, 74-81.

Choice, T. (2009). *Sins of Greenwashing - Environmental Claims in Consumer Markets. Summary Report: North America*. Retrieved from https://www.map-testing.com/assets/files/2009-04-xx-The_Seven_Sins_of_Greenwashing_low_res.pdf

Correa, C. M., Camargo Ferraz Machado, J. G. d., & Braga Junior, S. S. (2018). Greenwashing's relationship with market reputation and consumer discount. *Revista Brasileira De Marketing*, 590-602.

de Oliveira, V. M., Aguiar, E. C., Melo, L. S. A., & Correia, S. É. N. (2019). Marketing e consumo verde: a influência do greenwashing na confiança verde dos consumidores. *Revista de Gestão Social e Ambiental, 13*(2), 93-110.

Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy–A new sustainability paradigm? *Journal of Cleaner Production, 143*, 757-768.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2009). *Análise multivariada de dados - 6ed*: Bookman.

Harbaugh, R., Maxwell, J. W., & Roussillon, B. (2011). Label confusion: The Groucho effect of uncertain standards. *Management Science, 57*(9), 1512-1527.

IPEA. (2021). ODS 2030 - Objetivos de Desenvolvimento Sustentável.

Junior, S. S. B., Da Silva, D., De Moraes, N. R., & Garcia, S. F. A. (2016). Verdadeiro ou falso: a percepção do consumidor para o consumo verde no varejo. *ReMark-Revista Brasileira de Marketing, 15*(3), 390-400.

Lawrence, Jeevan, & Mekoth, Nandakumar. (2023) Demarketing for sustainability: A review and future research agenda. **International Journal of Consumer Studies**.

Lopes, V. N., & Pacagnan, M. N. (2014). Marketing verde e práticas socioambientais nas indústrias do Paraná. *Revista de Administração, 49*(1), 116-128.

Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy, 20*(1), 3-41.

Mello, L. T., & Sauerbronn, J. F. R. (2014). Um experimento sobre intenção de compra e atitude frente a embalagem de consumidores de cosméticos com certificação ecológica. *Revista Vianna Sapiens, 5*(Especial), 23-23.

Motta, S. L. S., & Oliveira, B. (2007). O marketing ecológico como vantagem competitiva. *REGE Revista de Gestão, 14*(2), 49-59.

Nunes, A. d. S., Basso, K., Perin, M. M. S. A., & Pauli, J. (2016). INFLUÊNCIA DOS SELOS SOCIOAMBIENTAIS NA INTENÇÃO DE COMPRA, CONFIANÇA E VALOR PERCEBIDO PELOS CONSUMIDORES. *Revista GESTO, 4*(2), 62-78.

Nunes, E. L. (2021). OS CONSUMIDORES CONFIAM NO PRODUTO ORGÂNICO OU ACHAM QUE É ORGANICWASHING? *Revista Ibero-Americana de Humanidades, Ciências e Educação, 7*(12), 322-345.

Paixao, C. R. (2016). Gestao da mídia: embalagem, sustentabilidade e o marketing greenwashing. *Razón y palabra*(92), 40-21.

Peattie, K. (2001). Towards sustainability: the third age of green marketing. *The marketing review, 2*(2), 129-146.

Pieroni, M. P., McAloone, T. C., & Pigosso, D. C. (2019). Business model innovation for circular economy and sustainability: A review of approaches. *Journal of Cleaner Production, 215*, 198-216.

Polonsky, M. J. (1994). An introduction to green marketing. *Electronic green journal, 1*(2).

Qayyum, A., Jamil, R. A., & Sehar, A. (2023). Impact of green marketing, greenwashing and green confusion on green brand equity. *Spanish Journal of Marketing-ESIC*, *27*(3), 286-305.

Razzolini Filho, E., & Leinig, A. G. (2019). Greenwashing: planejamento estratégico de como enganar o consumidor que pretende ser sustentável (comparativo 2017/2018). *Revista Brasileira de Planejamento e Desenvolvimento, 8*(3), 382-401.

Schleder, M. V. N., de Oliveira, M. O. R., Neto, A. V., & Volpato, G. K. (2019). Verde ou Marca? Impacto do Reconhecimento do Produto Como Verde na Decisão de Compra do Consumidor. *Revista Interdisciplinar de Marketing, 9*(2), 126-143.

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

Varela, D. M., Reinaldo, H. O. A., Mota, R. C., Varela, E. M., & de Sousa, W. L. (2017). Estratégias de Greenwashing em Fortaleza-Ce, Brasil: Uma Análise de Rotulagens Ecológica. *Revista Espacios, 38*(39), 1-18.