Greenwashing detection: a comparison between Argentina and The Netherlands.

Student Name: Nicolas van Dam
Student Number: 581613

Supervisor: Dr. Petra Tenbült

MA Media & Business
Erasmus School of History, Culture and Communication
Erasmus University Rotterdam

Word count: 13.185

Master Thesis (CM5000)
June 2023

ABSTRACT

The main aim of this research paper is to answer the following question: To what extent does the perceived greenwashing knowledge of respondents from Argentina and The Netherlands, affect greenwashing detection in different types of claims in advertisements? To investigate whether the amount of knowledge respondents have between two different countries influences the detection of greenwashing in advertisements, Argentina and The Netherlands were chosen as case studies. This was partially due to the respondent's different levels of education (different knowledge levels regarding greenwashing) and UAI (Uncertainty avoidance index) scores. With regards to academic relevance, many studies, such as Zhang et al. (2018) and Akturan (2018), suggested in their limitations and future studies suggestions section, that it was necessary to replicate the study across countries and that definitions regarding greenwashing should be more clear cut. Furthermore, the research would therefore societally help both Argentina and The Netherlands regulate and control companies when greenwashing is detected and should help consumers make better future decisions when buying any product which tries to mislead them with regards to sustainability. Three different hypotheses have been formulated: **H1**: Vague and false claims in green advertising score higher on consumer's greenwashing detection compared to the true claim. **H2a:** Dutch consumers score higher on greenwashing perceived knowledge compared to Argentine consumers. **H2b:** Dutch consumers score higher on greenwashing detection, compared to Argentine consumers. **H3**: Dutch consumers score higher on greenwashing perceived knowledge and greenwashing detection when presented with advertisements containing false and vague claims, compared to true claim advertisements, than their Argentine counterparts. For this thesis, a mixed (within subject and between) design was used and surveys had been sent to both countries. After analysing the survey's results, through the use of a mixed ANCOVA and t-tests, only one hypothesis had been accepted. This being hypothesis 1, as all data showed that vague and false claims in green advertising scored higher than on greenwashing detection compared to true claim.

KEYWORDS: *Green Advertising, Greenwashing, Misleading Claims, Greenwashing Detection, Corporate Social Responsibility*

Contents

Chapter 1: Introduction

Corporate social responsibility (CSR), broadly speaking, is a business function aimed at financial success through methods that uphold our moral principles and respect individuals, groups of people, and the environment (Parguel et al., 2011). Businesses are under constant pressure to position themselves as an eco-friendly company due to the continuously rising demand for environmentally friendly products. They are additionally under scrutiny to generate and share innovative green ideas to gain a competitive advantage in this international market (Butt et al., 2021). Companies, however, frequently make ambiguous, sometimes deceptive, eco-friendly statements in an effort to appeal to the green market (goods produced using sustainable technology that does not cause any environmental harm) (Butt et al., 2021; Mishra & Sharma, 2014). Greenwashing is the term used to describe the dishonest promotion of a company's image as being environmentally friendly through marketing or public relations (Butt et al., 2021). In other words, Greenwashing is the practice of businesses presenting misleading or fraudulent green marketing claims in their advertising in an attempt to win over environmentally aware consumers (de Freitas Netto et al., 2020). According to Baldas (2009), greenwashing, and false claims about sustainability in companies are on the rise and this issue affects customers who wish to know how sustainable their products really are.

Academic relevance:

The term "greenwash" has caught the interest of many academics, primarily in the marketing area, with an emphasis on consumers or general public decision-making processes (Santos et al., 2023). Furthermore, greenwashing research studies have identified the detrimental implications of these activities, mostly on consumers. As a result of public interest in greenwashing activities, it has evolved into an increasingly popular topic in the literature, with a staggering increase over the last two decades (Santos et al., 2023). A few researchers have previously studied consumer's greenwashing detection (Akturan, 2018; Naderer & Opree, 2021; Schmuck et al., 2018; Szabo et al., 2021). However, many studies, such as Zhang et al., (2018) and Akturan (2018), suggest in their limitations and future studies suggestions section that it is necessary to replicate the study across countries because it would help to understand the extent to which two different countries evaluate greenwashing claims. Thus, this thesis will conduct a study across two different countries: (Argentina and The Netherlands). Argentina and The Netherlands were chosen as case studies due to the

difference in the overall education levels of their population (which are thought to be associated with different levels of greenwashing knowledge) and Uncertainty avoidance index (UAI) scores. These concepts will be thoroughly explained in chapter 2, the literature review of this thesis. Furthermore, Zhang et al. (2018) and Akturan (2018), also state that definitions regarding greenwashing should be more clear-cut, as these can affect the way a person can to detect greenwashing. This is why this thesis will go through different definitions of greenwashing in the literature review and stick to the most suitable one. According to Zhang et al. (2018), greenwashing knowledge and green scepticism were not taken into consideration in their study, and they recommend doing so in future studies. Moreover, they state that they failed to use different forms of greenwashing in their article (e.g. deceptive manipulation) and thus, also recommend their inclusion in future studies (Zhang et al., 2018). Therefore, for this thesis, a true claim, vague claim, and a false claim shall be presented to analyse the extent of greenwashing detection and a cross country study will be carried out for the purpose of understanding the extent to which respondents from Argentina and The Netherlands evaluate greenwashing claims. This will be further explained in this introduction and the literature review. Mohr et al. (1998) study and Naderer and Opree (2021) study measured consumer's perceived greenwashing knowledge as an independent variable. On the other hand, Zhang et al. (2018) and Schmuck et al. (2018) measured consumers greenwashing detection as a dependent variable. It would be interesting, however, to investigate whether the amount of knowledge respondents have between two different countries influences the detection of greenwashing in advertisements.

Societal relevance:

It is critical to comprehend how greenwashing influences consumer perception and behaviour to help consumers make more educated purchasing decisions and regulators create rules that are more successful at protecting consumers from misleading and inaccurate environmental claims (Schmuck et al., 2018 & Naderer & Opree, 2021). Therefore this research could therefore be used both in Argentina and The Netherlands to better regulate and control companies when greenwashing is detected and should help consumers make better future decisions when buying any product which tries to mislead them with regards to sustainability. Additionally, this study should encourage companies to take corporate social responsibility more seriously. Moreover, greenwashing could indirectly threaten the UNDP's sustainable development goals. The United Nations Development Program has outlined a

sustainable development agenda which also encompasses environmental concerns. Their goals aim to work towards a sustainable world, in particular the goal 12 which concerns "responsible consumption and production" (Sustainable development goals, n.d.). Thus, greenwashing may prevent progress toward these goals by creating misleading knowledge of environmentally friendly behaviors and may halt real initiatives. Therefore, this urges companies to reduce their ecological footprints which in turn could also impact consumption behavior.

The following research question will therefore be studied:

To what extent does the perceived greenwashing knowledge of respondents from Argentina and The Netherlands, affect greenwashing detection in different types of claims in advertisements?

Chapter 2: Literature review

In order to answer the research question formulated in the introduction, a few key concepts will be explained throughout chapter 2. These concepts are related to each other, as one influences the other. The first concept that will be spoken about is greenwashing, this is because understanding the context regarding to greenwashing gives us a better idea of why this thesis concerns this topic. Environmental problems led to people who are aware of these issues, to buy products which are sustainable, which in turn led to environmental advertising. However, companies knew that they could take advantage of environmental advertisements and started creating misleading campaign through the use of greenwashing.

2.1 Greenwashing:

To better understand the concept of greenwashing, we must first understand the root cause of the problem. Numerous issues of public concern, such as ozone depletion, excessive waste, acid rain, pollution of the atmosphere as well as water, and forest destruction, have been identified in the early 1960s as a result of increased mass production and contemporary society's level of consumption effect on the planet. As the severity of these challenges became more widely known, ecological concerns became more prevalent. Although one person's impact on the planet is typically quite minor, the combined impact of all people on the ecosystem is enormous (Axelrod & Lehman, 1993).

Campaigning for the environment was sparked by Rachel Carson's 1962 publication entitled Silent Spring (Zimmer et al., 1994). The Club of Rome (in their book, "The limits to Growth") reaffirmed Carson's warnings on the hazards of unchecked environmental alteration by a developing civilization in the 1970s. After emerging and growing in Europe, as primarily a political movement in the 1960s, what is known as the "Green Movement" is now making significant progress in North America, possibly as a result of that campaign. But the shift from "sustainable" politics to consumer concern for the planet has only recently emerged as an established trend in The United States of America. The "Green Movement" has emerged in the US in a number of different appearances, including politics, consumerism, consumption and purchase behaviour, advertising, and production (Zimmer et al., 1994). Furthermore, similarly to Zimmer et al. (1994), Axelrod and Lehman (1993) state that people's concern for the environment is influenced by a range of factors, including personal experiences, cultural values, and socio-economic status. Moreover, according Axelrod and Lehman (1993), strong environmental values and beliefs increase a person's propensity to adopt sustainable lifestyles and therefore lower their environmental impact. In accordance

with this, people are more inclined to take action to lessen their carbon footprint if they are more aware of how their actions affect the environment.

Environmental Advertising:

Greenwashing is linked to environmental advertising, as these are the types of advertisements that most often use it. Companies have responded to climate change demonstrations by creating what they refer to as ecologically friendly items. Numerous other terminologies for green marketing have been defined by academics, including "ecological marketing," "environmental marketing," and "responsible marketing" (Aji & Sutikno, 2015). As a way to show its care for environmental issues, a corporation may use the concept and approach of "green marketing" to promote its green activities. Manju (2012), refers to it as a complete concept in which goods and services are manufactured, sold, used, and discarded of in an environmentally friendly manner. Prior to sustainability concerns, the primary focus of green marketing, which was formerly on the ecological context, has changed to the socioeconomic and environmental context. Since these labels can have a significant impact on consumers' perceptions and lifestyles, marketers must carefully promote their green products to avoid giving the impression that they are being deceived by misleading advertising (Aji & Sutkino, 2015).

Customers who care about the environment, in particular, are attentive to the need to live a more sustainable healthier lifestyle so they can assist efforts to address environmental problems or promote such goals (Mohd Suki & Mohd Suki, 2015). For instance, their purchasing habits are cantered on recyclable, non-animal tested, and ozone favourable products. They also try to comprehend how green items are made and how ecological labelling is used. Better recycling education also encourages people to recycle more since it makes them feel more protective of the environment and affects every step of their choices (Mohd Suki & Mohd Suki, 2015).

Moreover, the rising use of environmentally friendly goods and services has prompted many organizations to embrace and promote green practices, improving their standing in the eyes of the public (Braga et al., 2019). As a result, environmental dedication has emerged as a key factor in the market. Consumers have been impacted by environmental preservation and attention, leading them to buy environmentally friendly goods. Some customers are altering their purchasing patterns to lessen the negative effects of their consumption on the

environment. These consumers opt for green consumption, which is consumption that is friendly to the environment (Braga et al., 2019).

Additionally, organizations' use of environmental claims in their advertising is coming under more and more public scrutiny as they try to attract consumers who care about the environment (Kangun et al., 1991). Numerous studies have revealed that if consumers feel they are doing their part to protect the environment, they are more inclined to buy one product over another. As a result, a number of organizations work to enhance their environmental reputation through efficient advertising. Unfortunately, a lot of corporations make claims that are quite deceptive in an effort to appear environmentally conscious (Kangun et al., 1991).

Defining Greenwashing:

Now that we established how the problem of greenwashing arose, we can define greenwashing as follows: Greenwashing is known as the practice of businesses presenting misleading or fraudulent environmental marketing claims in an attempt to win over environmentally aware consumers (de Freitas Netto et al., 2020; Akturan, 2018; Aji & Sutkino, 2015; Braga et al., 2020). According to Braga et al., (2019), making inappropriate or inflated statements about sustainability in an effort to win market share is also known as "greenwashing," a word that first originated in the 1980s and quickly gained widespread popularity. These authors further state that this term arose in reaction to growing concerns about the way certain corporations cleverly maintain their image in front of the general public, financial sector and regulatory bodies, disguising their guilt by misrepresenting the nature of their issue or claim. Many businesses engage in "greenwashing" to influence how the public perceives their brand. The way in which the information is disclosed is designed to increase the perception of validity. However, there are more social and ecological audits being conducted to address the lack of public oversight and verification. Despite the fact that the concept of "greenwashing" is not new, its use is on the rise, presumably due to the rising demand for environmentally friendly and organic products. This trend is also being exacerbated by the regulatory bodies' tardiness in establishing guidelines and norms to limit this activity. The result of this circumstance, along with ineffective regulation, raises consumer distrust about green products, resulting in distrust of the remedies intended to safeguard the environment during the manufacturing, shipping, or sales processes (Braga et al., 2019).

Additionally, because consumers frequently depend on advertising from companies to guide their decisions, greenwashing has eroded their trust (Braga et al., 2019). Greenwashing has led to consumer unhappiness, credibility loss, inferior or inadequate purchase choices, and an ineffective use of resources. Businesses must therefore, make it possible for customers to get appropriate details in order to mitigate this lack of trust.

According to Akturan (2018), however, the term "greenwashing" is derived from the verb "whitewash," which implies to conceal, disguise, or camouflage. American conservationist Jay Westerveld used it for the first time in the year 1986. By encouraging customers to reuse towels for environmental reasons, hotels, in Westerveld's opinion, were engaging in greenwashing. In fact, hoteliers were only concerned about making a profit. Greenwashing behaviour is a form of an innovative way of handling reputation used by businesses to cover up wrongdoing. Complex paperwork, processes, and procedures within businesses are the source of confusion. Monitoring and restricting the flow of paperwork and data to authorities and attorneys helps businesses manage confusion. Advertising is the primary tool used by communication media to engage in greenwashing. Claim greenwashing and executional greenwashing are the two categories of greenwashed promotion that are described in green advertising literature. Utilizing ambiguous or debatable words, creating misleading claims, and altering statements to exclude crucial details are all examples of claim greenwashing. Executional greenwashing, on the contrary, involves utilizing elements of nature in advertising, such as using colours (i.e. green), sound(i.e. animals, the ocean), and natural scenery (i.e. coast, sun) (Akturan, 2018). This thesis shall analyse claim greenwashing as there will be three different claims (true, false and vague) which will be used in order to measure greenwashing detection. This will further be explained in the greenwashing detection section of the literature review.

Misleading and Deceptive Claims:

Greenwashing is an example of use of misleading and deceptive claims. A misleading advertisement, according to Olson and Dover (1978), is one that instils erroneous or wrong beliefs about the good in question. Clearly, as Olson and Dover (1978) noted, the fundamental issue here is determining whether a specific belief is untrue or inaccurate. However, Aditya (2001) further conceptualized a societal advertising definition of deceptive marketing as any action, statement, or message that has the ability to (1) influence any number of consumers acting rationally to select choices they might not usually choose to

take; (2) affects at most a couple of customers acting rationally to assume something about the item, company, or producer that isn't clearly true; or (3) has the ability to cultivate mistrust of any type of consumer.

Although different settings with regards to deceptive claims, such as marketing research, have been investigated (Axelrod & Lehman, 1993), the majority of studies investigating deception in products, examine claims made by advertisements (Braun & Loftus, 1998; Carlson et al., 1993 & Carson et al., 1985). The impact of advertising in influencing consumer ideas and attitudes is discussed in the paper "Advertising's Misinformation" by Braun and Loftus (1998). The authors claim that disinformation found in advertisements frequently can result in detrimental behaviours and incorrect beliefs. Moreover, they describe the ways that advertising can be deceptive. They point out that information is frequently presented in advertising in a way that is intended to persuade rather than to be truthful. They also claim that the way misinformation can be spread through advertising, depends on appeals to emotion that can be overcome by reason (Braun et al., 1998). Carson et al. (1985), however, state that lying in advertisement is unethical because it goes against the idea of autonomy, which asserts that people have a right to make decisions based on correct information. They list the different forms deception in advertisements can take, including false advertising, omissions from the facts, and unclear language. On the other hand, Carlson et al. (1993) determine the different environmental claims that are made in advertising, and evaluate the veracity and legitimacy of such claims. According to the study, the vast majority of environmental claims made in the advertising were general and non-specific, focusing more on overall environmental advantages than on specific steps the company has taken to protect the environment. Energy conservation was the most frequently cited environmental benefit, followed by trash minimization and recycling. The analysis also reveals that there were significant differences in the trustworthiness of the environmental claims, with many commercials making assertions that were impossible to verify or that lacked scientific backing. The authors suggest that consumers may be sceptical of environmental advertising promises because they lack precision and believability, which reduces their ability to influence them to act in an environmentally responsible manner.

2.2 Greenwashing detection:

Several studies have investigated greenwashing and its effects on consumer greenwashing detection, including Peattie (2001), which found that up to 90% of consumers in the UK were sceptical and believed that environmental claims made by companies were

misleading or false. Additionally, another study discovered data that supports the idea that advertisements using greenwashing can actually hurt businesses, this is especially true in situations where business performance is poor (Nyilasy et al., 2012). This is because, consumers are less likely to believe environmental claims made by companies that have a history of environmental violations, or are seen as profit-driven, and therefore would less likely buy any of these products (Braga et al., 2019).

Parguel et al. (2015), discovered that when participants saw commercials containing references to nature in the language and visuals, they tended to think more favourably of the offered goods and businesses than when they saw the same ads without the naturalistic references. Participants who expressed a great deal of care for the environment showed this effect to be highest. Kangun et al's. (1991) study, moreover examined the amount and kinds of sustainable statements made in a sample of ads from multiple companies. The article detects a variety of advertising claims that are irrelevant, unclear, and deceiving. The findings demonstrate the prevalence of environmental claims in advertising throughout sectors, with a focus on recycling and energy efficiency claims in particular. The analysis also makes clear that many of these assertions lack specifics or supporting data. According to the authors, this tendency raises concerns since it could encourage consumers to believe that things are more ecologically friendly than they actually are.

Green is furthermore frequently connected to ideas regarding the natural world and sustainability (Clarke et al., 2008). According to Seo (2010), Customers could not detect greenwashing, when commercials' promises were manipulated with natural or green-coloured images. Additionally, Xue and Muralidharan (2015), discovered that commercials using exclusively green imagery enhanced consumers' detection of firms' environmental initiatives. In a subsequent study where the impact was boosted by the inclusion of environmental claims, there was no distinction amongst green-coloured images and no images in greenwashing; confirming that claims served as the deciding element. Green colour, however, did improve people's opinion of the firms' environmental initiatives when they weren't there. In terms of presentation, Seo and Scammon (2017) could not discover any impacts for the significance of the colour green on the perceived ecological impact of companies. Comparatively to when the identical environmental claim was paired with the colour red, nevertheless, the detection of an environmental impact was raised when coupled with an environmental claim. As Seo and Scammon (2017) and Xue and Muralidharan (2015) state,

claims serve as the deciding element when it comes to greenwashing detection, and this is why environmental claims shall be used as a detection method in this thesis.

Moreover, two studies have created ways to measure consumer's ability to detect greenwashing. Greenwashing detection is "consumers recognition of corporate acts to mislead consumers regarding corporate environmental practices and benefits" (Zhang et al., 2018, p. 774). In other words, greenwashing detection "refers to the consumers ability to detect or unmask greenwashing intentions in ads" (Schmuck et al., 2018, p. 3). This definition will further be used, as it best suits this thesis and its measurement method shall be used and explained in the methodology section. The three claims that shall be used to measure greenwashing detection are the true claim, false claim and vague claim.

True, false and vague claims:

The true, false and vague claims are three claims which have been previously used by Schmuck et al., (2018), in their study to measure greenwashing. The claim that can found in image 1 found in the appendix A and B will be used as the true claim, this is because this image does not contain any statement with regards to sustainability, but only states that the water bottle contains "100% Pure Spring Water" (Schmuck et al., 2018). Furthermore, the false claim found in image 2, contains the following words "Drink ALSE bottled water. The world's most environmentally friendly consumer good" and the vague claim found in image 3 contains the following: "Drink ALSE bottled water to help the environment. Together we can save our nature" (Schmuck et al., 2018). All three claims will be further used in this thesis to analyse greenwashing detection.

To better understand why the false and vague claims are considered as such, Aji and Sutikno (2015), explain that "Terra Choice", a Canadian-based commercial advertising and environmentalist consulting firm had named seven corporate "sins" which were included in deceptive marketing for environmental products. Aji and Sutikno (2015) give explanations of the seven sins, which are the following. "1. Sin of the hidden trade-off; 2. Sin of no proof; 3. Sin of vagueness; 4. Sin of worshipping a fake label; 5. Sin of irrelevance; 6. Sin of the lesser of two evils; 7. Sin of fibbing." (Aji & Sutikno, 2015, p. 437).

Out of the seven sins, three sins can be found in the images containing the false and vague claims which have been taken from Schmuck et al. (2018): These three sins are number 2, 3 and 7 out of the seven mentioned before.

Sin number 2. Sin of no proof or Lack of evidence. This is a sustainability claim that is unable to be supported by verifiable independent verification or by readily available supporting data. The advertisement shown to respondents in this thesis (image 2 and 3) contain claims that are unable to be supported as they do not show any label nor data that states that the bottles help the environment.

Sin number 3. Sin of Vagueness. This claim is so vaguely defined or so general that the consumer is prone to misinterpret its true meaning. One such instance is the claim that an item is "100% natural" or "all natural," when in reality some or all of the "natural" ingredients may be toxic chemicals. In the case of image 3 (vague claim), the advertisement is vaguely explained, as "Together we can save our nature" is not backed up by information on how these bottles save nature.

Sin number 7. The sin of fibbing (lying). This includes outright misleading environmental claims (Aji & Sutikno, 2015). In the case of image 2 shown to respondents, the claim that is found, is a false claim, as it states that the water bottle is "The world's most environmentally friendly consumer good" without any supporting data. These claims will further be explained in the materials section of the methodology found in this thesis.

According to Johar and Gita(1995), if incorrect conclusions about the brand's use of environmental statements are demonstrated to have been formed at the time the advertisement was processed, the advertisement may be held accountable for creating misinformation and may therefore be deemed dishonest. This is why it takes mental effort to recognize attempts at greenwashing that are both vague and false (Schmuck et al., 2018). When a consumer is presented with a misleading statement, the likelihood that they will exert more mental effort is increased, as these claims present misinformation, increasing the alertness of the consumer towards it. As a consequence, one can state that consumers score higher in vague and false claims with regards to greenwashing detection compared to true claims, as these require effort and concentration due to the claims that are presented (Schmuck et al., 2018).

H1: Vague and false claims in green advertising score higher on consumer's greenwashing detection compared to the true claim.

2.3 Perceived Greenwashing knowledge:

Morris et al. (1995), discovered a favourable correlation between education and an understanding of environmental concepts. This study shows that several people lack the knowledge necessary to effectively detect greenwashing in products that use environmental statements. Moreover, customers who are educationally disadvantaged are believed to be the most susceptible of being deceived by false or misleading claims found in advertisements, as they are expected to have somehow lower levels of environmental awareness compared to other consumers. In this case, scepticism can shield customers from false claims in circumstances when they lack understanding (Morris et al., 1995).

In terms of the mental engagement of consumers, their perceived knowledge or awareness of greenwashing may affect their capacity and desire to analyse the information contained in an advertisement, enabling them to accurately comprehend the supplied item-related characteristics. As a result, consumers' knowledge of a subject may be crucial in enabling them to recognize deceptive claims in an objective manner and to feel more confident in their ability to recognize greenwashing in general (Parguel et al., 2015). This is why for this study, perceived greenwashing knowledge will be analysed before analysing greenwashing detection. Perceived greenwashing knowledge is defined as, "how well-informed participants consider themselves regarding the topic of greenwashing and sustainability" (Naderer & Opree, 2021, p. 7). The way that perceived greenwashing knowledge will be measured will further be explained in the methodology section of this study.

2.4 Country:

The degree to which people are alarmed by uncertainty and seek to avoid certain situations is referred to as uncertainty avoidance. In nations where there is a significant need to prevent ambiguity, there is a need for rules and formality to control life (De Mooij & Hostede, 2010). This affects marketing as well as greenwashing consumer perception. This is reflected in the UAI or Uncertainty Avoidance Index, which is an index that shows people's needs for formality and structure as well as following experts decisions. People from countries with a high uncertainty avoidance score have a hard time making decisions on purchases which may mislead them (Anne Lee et al., 2007). As previously explained, greenwashing is one way companies can mislead their customers. One study showed that, compared to customers from low uncertainty avoidance nations, consumers from high UAI

countries consider goods with high product uncertainty (in this case the use of greenwashing causes a high product uncertainty level among respondents) to be of poorer quality. This study also states that consumers from high UAI nations are less likely to make purchases of products with high product uncertainty than they are of products with low product uncertainty (Anne Lee et al., 2007). The country case studies used in this thesis are Argentina and the Netherlands. These nations were selected due to the stark contrast in UAI scores. The Netherlands scored lower in terms of UAI as its country score is 53, compared to Argentina that has a score of 86 (Hofstede-Insights, 2021).

Additionally, demographic factors like education level can also influence how greenwashing affects customer behaviour and purchase choices. According to a study by Carrete et al. (2012), consumers who have higher levels of education are more likely to be aware of environmental issues claims and therefore also more likely to seek out environmentally responsible products. Those who were older and had lower levels of education and income, on the other hand, were less likely to be swayed by environmental arguments and to look for ecologically friendly products. A second reason for choosing Argentina and The Netherlands is due to their level of education. The OECD stated that in 2021, 56% of 25 to 34-year-olds in the Netherlands had a tertiary degree, this is higher compared to the OECD average of 47%. On the other hand, in Argentina, only 19% of those 25 to 34 year-olds had a tertiary degree in 2021 (OECD, 2022). Looking at the statistics, one could state that the average young person found in the Netherlands has a higher education compared to Argentina, this is because more people are able to graduate with a tertiary degree (or University) (OECD, 2022). As previously explained, consumers with higher levels of education are more likely to be aware of environmental issues and would, in principle, score higher with regards to perceived greenwashing knowledge (Carrete et al., 2012; Morris et al., 1995). Because the Netherlands has a better level of education, it could be expected that they have higher perceived greenwashing knowledge compared to respondents from Argentina, as education level influences how greenwashing affects customer behaviour and purchase choices (Carrete et al., 2012; Morris et al., 1995).

As previously explained, Dutch consumers have, in general, a higher level of education, and consumers with higher levels of education are more likely to be more aware of greenwashing and would score higher with regards to perceived greenwashing knowledge

and detection (Carrete et al., 2012; Morris et al., 1995). Therefore, one can expect and state the following:

H2a: Dutch consumers score higher on greenwashing perceived knowledge compared to Argentine consumers.

H2b: Dutch consumers score higher on greenwashing detection, compared to Argentine consumers.

Additionally, if one can state that vague and false claims are more easily detectable compared to true claims, as these require effort and concentration, and Dutch consumers score higher in greenwashing detection (because they have, generally speaking, a higher level of education and thus a higher level of perceived greenwashing knowledge), one can state the following:

H3: Dutch consumers score higher on greenwashing perceived knowledge and greenwashing detection when presented with advertisements containing false and vague claims, compared to true claim advertisements, than their Argentine counterparts.

Chapter 3: Research design and methods

3.1 Description of method:

For this study, an experimental survey will be at the core of the methodology. Although the reasoning behind social science experiments is quite strong, there are significant moral and practical restrictions (Neuman, 2006). Additionally, according to the author, in an experiment, some components of the environment are altered and then the results are evaluated; yet, researchers are unable to influence many aspects of human life to progress in science. Researchers are confined to challenges that have definite, controllable parameters and that obviously comply with ethical guidelines for work involving people. Furthermore, researchers take into account one or two aspects of a particular scenario (Neuman, 2006). In this study, a survey will be used to carry out the experiment. The use of surveys in research has many advantages. One reason for conducting an online survey is that it makes use of the Internet's capability to connect with people and organizations that would be otherwise challenging, if not impossible, to reach through other channels (Wright, 2005). Additionally, another benefit is the potential time saved for researchers when conducting an online-based survey research. Therefore, an online survey enables researchers to quickly connect with hundreds or thousands of individuals possessing comparable traits, even when they may be spread across vast geographic regions.

In this study, the survey will ask respondents from Argentina and The Netherlands on a 1-5 Likert scale answer, questions regarding perceived greenwashing knowledge and greenwashing detection. For this study, within the two countries, participants perceived greenwashing knowledge will be measured, as well as their ability of greenwashing detection. This will be done by comparing and measuring respondent's ability to detect greenwashing with each of the three advertisements that will be used (containing vague, false and true claim versions) within 2 countries (Argentina and The Netherlands). The three different advertisements can be observed in the appendix **A** and **B** of this thesis.

3.2 Mixed subject design:

For this thesis, a mixed design will be used. According to Murrar et al., (2018), a mixed design requires a minimum of two categorical independent factors that vary between units and within units. In this study, three factors are used namely, type of country (Argentina vs. The Netherlands); level of greenwashing perceived knowledge (high vs. low), and type of claim (true vs. false vs. vague). In this 2 x 2 x 3 design, every participant will receive all three

claims to analyse. The benefit of this within-subject aspect is that it requires fewer participants (Vargas et al., 2017). Moreover, the between-subject aspect in this design was measured with the type of country (Argentina vs. The Netherlands) and the level of greenwashing perceived knowledge (high vs. low). The two different levels of greenwashing perceived knowledge will be thoroughly explained in the results section. The type of analysis that will be conducted to either accept or reject the different hypotheses is a three-way multivariate analysis of covariance, or mixed ANCOVA because it will also include controlled variables which shall be later explained in the results section of the thesis.

3.3 Sampling strategy:

This survey will be translated and sent in Spanish for the Argentinean respondents and in Dutch for those from The Netherlands. The translation procedure will take place in two steps. The first step will be a translation through the automated process of Qualtrics. The second step will be manual editing by the researcher of any questions that have not been clearly translated through Qualtrics. The sampling strategy will be a combination of purposive and snowball sampling. This is because people who will respond to the survey will be specifically from Argentina and The Netherlands (so it is not random) (Etikan et al., 2016). Furthermore, a snowball sampling technique will be used, because people that will receive the survey will forward the survey to others (Goodman, 1961). Additionally, participants will be questioned about their age (18 years or older), consent with conditions, and desire to continue the survey. Participants will additionally be questioned about a few demographic factors, including gender, and educational background. Each question includes 4 to 5 elements that the participants will have to respond to in a 1-5 Likert scale manner, from strongly disagree to strongly agree. For this master thesis, at least more than 150 respondents will be questioned, as this is a minimum standard for a masters-level thesis (Janssen & Verboord, 2022).

3.4 Procedure:

In this survey, participants from both Argentina and The Netherlands will be informed of the survey's purpose with a cover story, before they begin answering. The cover story is the following: The survey consists of "questions on your experiences related to online marketing, regarding perception on targeted advertisements and to study if more description of a product leads to more sales." The cover story will aim to ensure that participants do not know what is really being measured before the survey starts. The information presented to participants will also include the length of the research, the fact that collaboration was optional, and the fact

that all information will be gathered discreetly and utilized strictly for academic reasons. After being fully informed about the steps, participants will respond to a small number of demographic questions with regard to their age, gender and nationality. Furthermore, filler questions will also be provided to hopefully make people believe that the survey is about online marketing as the cover story stated. These questions will be the following: " On a daily basis, which of the following have you stumbled upon? To what extent do you agree or disagree regarding personalized ads? And, when using the internet, we share personal information through social media profiles, online forms, etc. To what extent do you agree with the following statements?" The filler questions that regard online marketing can be found in questions 5, 6 and 7 of the survey that is found in the appendix **B.** These shall be asked before greenwashing detection questions and shall be later deleted from the dataset.

After the filler questions have been answered, three different advertisements will be presented to respondents. The three different ads contain a vague, false and true claim. These advertisements can be observed in the appendix **A** and **B** of this study. The advertisement text will also be manually translated to respondents (Spanish and Dutch). However, the stimuli (claims) are not presented randomly and could potentially introduce an order effect and this could be considered a limitation. An order effect is present when the sequence of the claims to which participants were exposed, influences how they react in different circumstances (Strack, 1992).

After greenwashing detection questions have been answered, respondents will receive questions related to greenwashing perceived knowledge, to measure what they believe they think they know about greenwashing. Greenwashing detection and greenwashing perceived knowledge questions can be observed in section 3.6.1 of the methodology section of the thesis.

Furthermore, a manipulation check question was asked to respondents which can be found in question 11 of the survey. This will be further explained in section 3.6.2 of this chapter. The control question on the other hand, which is found at the end of the survey, will ask respondents in a short answer, what they believe the survey was about. If their answer is marketing or environmental marketing, then the cover story can be considered successful. The control question can be found in question 14 of the survey found in the appendix **B.** However, if the answer is greenwashing or misleading claims, then it could be considered unsuccessful. This is because the respondents will be aware of the purpose of the study and

thus would influence their answers. Respondents that do not answer the control question correctly, will be deleted from the survey.

3.5 Materials:

The materials used for this thesis will be three images previously used by Schmuck et al. (2018). These materials have been validated before by Schmuck et al. (2018) and therefore this thesis will not contain any pre-tests. The true claim condition, that respondents will see in the survey, is the bottle of water displaying a fictional brand "ALSE" and a brief spoken description of the water quality contained inside ("100% Pure Spring Water"). Later, respondents will be allocated to the false claim condition and will see the same advertisement with a different slogan that shows a deceptive assertion ("Drink ALSE bottled water. The world's most environmentally friendly consumer good"). The assertion is untrue, and it is based on a real Nestle campaign tagline that was labelled "a false and deceptive statement" by environmental organizations. Finally, respondents will be allocated to a situation with the ambiguous claim, concerning the bottle's environmental benefits ("Drink ALSE bottled water to help the environment. Together we can save our nature"). These claims are similar to real assertions made in Fiji Water and BirdWatch Ireland's commercial campaigns (Schmuck et al., 2018). These advertisements can be observed in the appendix **A** and **B** of this thesis.

3.6.1 Operationalization

After each advertisement is shown to the respondents, respondents will have to answer questions about greenwashing detection. All questions will be answered with a 1 to 5 Likert scale which goes from strongly disagree to strongly agree. The following five items will be used to measure greenwashing detection: "(1) the product misleads with the use of words regarding its environmental features; (2) the product misleads with visuals or graphics regarding its environmental features; (3) the product is associated with a green claim that is vague or seemingly un-provable; (4) the product overstates or exaggerates what its green functionality actually is; (5) the product leaves out or masks important information, making the green claim sound better than it is." For these statements, the Cronbach's alpha was (α =.843) (Zhang et al., 2018).

Perceived greenwashing knowledge questions will be asked afterwards in order to avoid a spillover effects in questions regarding greenwashing detection. This is because placing them beforehand could cause people to believe that they should be more critical when looking at the different advertisements. The question is as follows; "To what extent do you agree with the following statements?"

Statements related to perceived greenwashing knowledge will be asked and answered with a 1-5 Likert scale, from strongly disagree to strongly agree.

"1. I know that I buy products and packages that are environmentally safe.

2. I know more about recycling than the average person.

3. I know how to select products and packages that reduce the amount of waste ending up in landfills.

4. I understand the environmental phrases and symbols on product packages.

5. I am confident that I know how to sort my recyclables properly.

6. I am very knowledgeable about environmental issues" (Mohr et al., 1998).

For these statements, the Cronbach's alpha was (α = .80) (Naderer & Opree, 2021).

3.6.2 Manipulation check:

Furthermore, a manipulation check question will be asked to check if respondents can tell each claim apart. With each advertisement claim, respondents will have to decide whether these ads are true as a manipulation check question. The manipulation check question can be found in question 11 of the survey found in the appendix **B**. Thorough manipulation checks are an extremely efficient but underutilized instruments for validity control and key drivers for raising the standards of scientific research (Fiedler et al., 2021).

3.7 Validity:

The degree whereby an idea is precisely quantified in a quantitative analysis is known as validity. If the instrument sufficiently addresses every aspect that it ought to, with regard to the variable, it is said to have content validity. In other words, content validity exists when the instrument can cover the whole range associated with the parameter or element that it was intended to evaluate (Heale & Twycross, 2015). Construct validity, on the other hand, is the ability to deduce test results from the concept that is being researched. Construct validity serves to clear up researchers concerns regarding the capacity to make inferences from the particular operations used in investigations to the more general abstract notions when implementing IVs and DVs (Heale & Twycross, 2015; Vargas et al., 2017). Criterion validity is the last measurement of validity which is used to ascertain the extent to which various instruments assess the same variable (Heale & Twycross, 2015). In the case of this thesis study, according to Schmuck et al. (2018), the measurements show sufficient validity. Additionally, manipulation checks and control questions give the research more validity. Thorough manipulation checks are extremely efficient but underutilized instruments for validity control and key drivers for raising the standards of scientific research. Manipulation

checks are crucial for a theoretic hypothesis's logical premise to be valid (Fiedler et al., 2021). In this thesis, respondents received a manipulation check question as well as a control question which improves the survey's validity control. In the case of this study, materials and questions to measure the main concepts of the study come from literature and therefore were already validated. Greenwashing detection measurements were taken from Schmuck et al., (2018). Furthermore, greenwashing perceived knowledge measurements were taken from Zhang et al., (2018).

3.8 Reliability:

A key idea in traditional test theory is to test reliability, which is sometimes presented as a condition that a test must meet before being deemed good enough for usage in practice (Adams, 2005). Reliability serves as an additional quality indicator in quantitative research, which is the degree whereby a research tool consistently produces the same outcomes when applied in the same context repeatedly. An alarm clock that chimes every morning at 7:00 but is actually set for 6:30 is a straightforward illustration of validity and reliability. It is not valid because it's not striking at the time stated, but it is highly reliable because it rings at the same time every day (Adams, 2005). Even though reliability cannot be calculated precisely, it can be estimated using a variety of techniques. The most used test to assess an instrument's internal consistency is Cronbach's alpha. The mean across all correlations in each set of separated halves is calculated in this test. This test allows the use of instruments with statements that include more than two possible answers. The outcome of Cronbach's alpha is a value that ranges from zero to one. A dependability score of 0.7 or above is considered satisfactory (Heale & Twycross, 2015).

In the case of this thesis experiment, perceived greenwashing knowledge showed a Cronbach's alpha of ($\alpha = .80$) (Naderer & Opree, 2021), while greenwashing detection was shown to have a Cronbach's alpha that was of ($\alpha = .843$) (Zhang et al., 2018). Thus, meaning that both measurements are reliable.

After data collection, SPSS will be used to evaluate and analyse the survey's data. The Cronbach's alpha of each scale will be determined by a reliability analysis, and the mean and Standard Deviation will also be calculated. The survey's results will next be analysed using a mixed ANCOVA test and t-tests to decide whether or not H1, H2, and H3 will be rejected.

Chapter 4: Results

The results of the data analyses that were conducted will be presented in this chapter. The data was processed using Excel after being taken from the Qualtrics website. Data cleaning involved eliminating responses that didn't fit the sample's requirements and incomplete responses. After being cleaned, the data was then transferred to SPSS to begin the data analysis.

The sample description will first be covered in section 4.1. The respondents' demographics are discussed in the section that follows. It will go over the respondent's demographic information, including their age, sex, race, and level of education. The required reliability tests shall be demonstrated in section 4.2. Furthermore, the rest of the chapter will deal with analysing each hypothesis that has been previously formulated.

4.1 Sample description:

A complete sample of 225 respondents (aged 18 to 83) took part in this study. The sample was drawn from respondents who selected either Argentinean or Dutch as their nationality and were able to complete the survey.

As previously explained, the control question asked respondents in a short answer, what they believed the survey was about. If their answer was marketing or environmental marketing, then the cover story could be considered successful. However, if the answer was greenwashing or misleading claims, then it could be considered unsuccessful. This is because the respondent would be aware of the purpose of the study and thus would influence the answers. The control question can be found in "question 14" of the survey found in the appendix **B**.

In the case of the control question, 38.7% of participants responded that they believed that the survey was about marketing. Furthermore, 30.7% of participants believed that the survey was about environmental marketing. So, altogether, 68,7% thought it was about marketing. However, 14.2% of participants believed that greenwashing was the topic being studied and 13.3% believed misleading claims were being studied. Additionally, 3.1% of the respondents answered the question with none of the above options. Altogether, 27.5% of respondents did not believe the cover story. Respondents that did not fall for the cover story and answered the control question with "greenwashing", "misleading claims" and "other", were deleted from the data. The complete control question analysis table can be found in the

appendix **C** of the thesis. When deleting these participants, the sample size decreased from 225 to 156 valid respondents which will be used for further analyses. Amongst these, 78 respondents were from The Netherlands and 78 respondents were from Argentina.

With the new sample size (N=156), the participant's mean age in the Netherlands was 27.40, ranging from 18 (Min) to 51 (Max) ages (*SD* = 7.79). The average age in Argentina was 38.88 going from 18 (Min) to 75(Max) ages (*SD* = 16.15). A t-test analysis was conducted to check for significant differences between the two countries. The mean age appeared to be significantly different between the two countries, t (154) =5.66; p= <.001, 95% *CI* [7.46, 15.5]. This shows that the average age of the Argentinian participants was significantly higher than the Dutch participants.

Furthermore, 4 different levels of education were recorded going from 1= Secondary/High school degree, to 4= professional degree (PHD). The most frequently recorded education level was a bachelor's degree with 57.7 % in the Netherlands and 30.8% in Argentina. In the case of Argentina, 11.5% of respondents had finished a PHD, whereas only 3.8% of the Dutch respondents had finished a PHD. A chi-square test was conducted to check significant differences between the two countries regarding education level. The results showed significant differences in the distribution of the level of education between the two countries ($X^2(4) = 27.98$, $p<.001$).

With regards to gender, in the case of Argentina, 42.3 percent of respondents were male, 56.4 percent were female and 1.3 percent identified as non-binary. On the other hand, in the case of The Netherlands, 39.7 percent were male and 60.3 percent of respondents identified as female. The results showed that chi-square was not significant, meaning that there is no significant difference between the distribution of gender between the two countries, as ($X^2(2) = 1.16$, $p=.560$). Full demographic analyses tables can be found in appendix **D**.

4.2. Factor and Reliability Analyses:

The 21 items for questions related to greenwashing detection and greenwashing perceived knowledge, which were Likert-scale based, were entered into an exploratory factor analysis using principal components extraction with direct oblimin rotation based on Eigenvalues (> 1.00), *KMO* = .90, χ^2 (*N =156*, 210) = 2082,06, *p* < .001. Factor loadings of the individual items into the four factors found are presented in Table 4.2.

Image 1 (True): This factor contained five items that were about greenwashing detection and were connected to the image which contained a true claim

Image 2 (False): This factor contained five items that were about greenwashing detection and were connected to the image which contained a false claim

Image 3 (Vague): This factor contained five items that were about greenwashing detection and were connected to the image which contained a vague claim

Greenwashing perceived Knowledge: As observed in the table below, six items that were related to the greenwashing perceived knowledge factor.

Table 4.2. Factor loadings and reliability of Greenwashing detection and Greenwashing perceived knowledge (N=156)

	Component			
	Greenwashing			
	Image 3 (vague)	Image 1 (true)	Perceived knowledge	Image 2 (false)
1. image 1 (true) - …. regarding its environmental features		.84		
2. image 1 (true) - ….graphics regarding its environmental features		.81		
3. image 1 (true) - …. green claim that is vague or seemingly un-provable		.85		
4. image 1 (true) - …. what its green functionality actually is		.87		
5. image 1 (true) -…, making the green claim sound better than it is.		.84		
1. image 2 (false) - …regarding its environmental features				-.86
2. image 2 (false) - ….graphics regarding its environmental features				-.50
3. image 2 (false) - …green claim that is vague or seemingly un-provable				-.84
4. image 2 (false) - …what its green functionality actually is				-.86
5. image 2 (false) - … making the green claim sound better than it is				-.84
1. image 3 (vague) - …regarding its environmental features	.87			

2. image 3 (vague) - … graphics regarding its environmental features	.86			
3. image 3 (vague) - …green claim that is vague or seemingly un-provable	.70			
4. image 3 (vague) - …what its green functionality actually is	.84			
5. image 3 (vague) - … green claim sound better than it is	.73			
1. …that are environmentally safe.			.55	
2. … recycling than the average person.			.70	
3. … amount of waste ending up in landfills.			.80	
4. … symbols on product packages.			.62	
5. … sort my recyclables properly.			.73	
6. … about environmental issues			.78	
Cronbach's α	.90	.91	.79	.89
Eigenvalues	6.8	3.0	2.9	1.6

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

As observed in table 4.2, all items line up with the originally described factors. Furthermore, Image 2 (false) appears to have high factor loadings, but with a negative sign. This simply means that the observable variable has an inverse relationship with the latent factor (DiStefano et al., 2009). The full factors analysis table can be found in the appendix **E** of the thesis.

In order to determine the reliability of questions regarding greenwashing detection and greenwashing perceived knowledge, a reliability analysis was carried out. Reliability serves as an additional quality indicator in quantitative research, which is the degree whereby a research tool consistently produces the same outcomes when applied in the same context repeatedly (Adams, 2005). The table shown above indicates the reliability of each factor with the Cronbach's alpha values. Greenwashing perceived knowledge related questions show a result of the reliability analysis for the six items containing a Cronbach's alpha, $\alpha=.79$. This suggests that the six items measured through the reliability analysis have a high internal consistency, as a reliability of $\alpha= .70$ or higher is regarded as an acceptable value (Taber, 2018). Questions related to greenwashing detection were also analysed for their reliabilities. The first question related to greenwashing detection (true claim), reliability analysis states that its Cronbach's alpha for the five items is $\alpha=.91$. The second question (false claim) shows that the Cronbach's alpha for the five items is $\alpha=.89$ The last claim (vague claim) shows that the Cronbach's alpha for the five items is $\alpha=.90$. All three reliability analyses for each question related to greenwashing detection show that they have a high internal consistency, as a reliability of $\alpha= .70$ or higher is regarded as an acceptable value (Taber, 2018). Therefore according to the values shown in the table, one can state that there is a high internal consistency. Full reliability analyses tables and eigenvalue tables can be found in the appendix **E** of the thesis.

4.3 Greenwashing manipulation check:

Greenwashing manipulation checks were also analysed to check if respondents understood which images were related to a true, false and vague claim when measuring greenwashing detection. In order to be able to compare the means, a paired sample t-test was carried out. The full table can be found in the statistics tables SPSS output section **F** of the appendix. The results can be observed in the following table:

Table 4.3: *Paired sample statistics for greenwashing manipulation check True claim (N=156):*

Condition	M	SD
Image 1 (True)	3.47^a	1.31
Image 2 (False)	2.22^b	1.25
Image 3 (Vague)	2.47^c	1.29

Means with different superscripts differ significantly, *p*<.001

The table above (4.3) shows that there is a difference between all conditions related to greenwashing detection. The table also shows the means compared between all images. Image 1 (true) scored higher (*M*=3.47, *SD*= 1.31) than image 2 (false) (*M*=2.22, *SD*=1.25) and image 3 (vague) (*M*=2.47, *SD*=1.29) on the question related to "To what extent do you believe the following statement? The claim found in the ALSE advertisement is a True claim". Pair 1 = image 1/image2, *t* (155)=10.07, *p*=<.001. Pair 2 =image 1/image 3, *t* (155)=7.58, *p*=<.001. Pair 3= image 2/image 3, *t* (155)=-2.59, *p*=.005. Because the Image true has a higher mean compared to false and vague, respondents were able to clearly tell them apart and state that image 1 (true) was the truest claim, whereas the vague claim was considered to be less true and the false claim was perceived to be the least true. This means that the manipulation check was successful at checking if people could tell the different images apart and thus increasing the validity of the study. Thorough manipulation checks are extremely efficient but underutilized instruments for validity control and key drivers for raising the standards of scientific research (Fiedler et al., 2021).

4.4. Hypotheses:

For hypotheses, H1, H2a, H2b and H3 a mixed ANCOVA was conducted with the type of advertisement claims (true, false and vague) as a repeated measure. As between-subjects variables, the type of country (The Netherlands and Argentina) and levels of greenwashing perceived knowledge were chosen. In order to produce two levels of greenwashing perceived knowledge, a median split was conducted (the median was 3.50) that resulted in a high level and a low level of greenwashing perceived knowledge. Furthermore, an independent sample t-test showed that a high level of greenwashing perceived knowledge (*M*=3.90, *SD*=.40) is significantly higher than low levels of greenwashing perceived knowledge (*M*=2.75, *SD*=.55), *t* (154)=-15.18, *p*=<.001. For the full t-test analysis please see appendix **G.1**.

A confounder is a secondary variable that influences the variables that are under investigation, causing the results to differ from the real connection among the variables under examination (Pourhoseingholi et al., 2012). In this case, age and education were set as covariates in the mixed ANCOVA because these two factors appeared to be significantly different between the two countries and placing them as covariates could minimize the possible confounding effects they can have on the results.

Below, the multivariate test table can be observed. For these analyses please see appendix **G.2**.

Table 4.4: *Multivariate Tests (N=156)*

Effect	F	df	p	η^2
Ads- claims	12.50	2	<,001	.14
Ads-claims * Age	1.24	2	.292	.02
Ads- claims * Education	1.25	2	.289	.02
Ads- claims * Country	2.56	2	.080	.03
Ads-claims * Country * Greenwashing_Perc eived_knowledge_ High_Low	.42	2	.659	.00
Between subjects:				
Country * Greenwashing_Perceiv ed_knowledge_High_ Low	.03	1	.872	.00

4.4.1 Hypothesis 1:

As explained in the theoretical framework, it takes some mental effort to recognize attempts at greenwashing that are both vague and false. Therefore, one can state that vague and false claims are more easily detectable compared to true claims, as these require effort and concentration due to the type of claims that are presented (Schmuck et al., 2018). In this section of the chapter, hypothesis one will be analysed using SPSS to see if it can be either accepted or rejected. **H1**: Vague and false claims in green advertising score higher on consumer's greenwashing detection compared to the true claim. In order to analyse this hypothesis, the first step was to conduct a mixed ANCOVA. Furthermore, for the first main effect, hypothesis 1, the multivariate test turned out to be significant ($F(2,154) = 12.50$, $p <$ .001, $\eta2=.14$). The full multivariate test table can be found in the statistics tables SPSS output section **G** of the appendix.

The multivariate test showed a significant difference between conditions (true, vague and false), and thus justifies the use of a t-test to check where the difference between conditions can be found. In the following table (4.4.1), the results from the paired sample t-test can be observed. The full table can be found in the statistics tables SPSS output section **H** of the appendix.

Table 4.4.1.: *Paired sample statistics for greenwashing detection (N=156):*

Condition	M	SD
Image 1 (True)	2.88^a	1.07
Image 2 (False)	4.01^b	.86
Image 3 (Vague)	3.92^b	.93

Means with different superscripts differ significantly, $p<.001$

The t-test showed that Image 1 (true) scored lower ($M=2.88$, $SD=1.07$) on greenwashing detection compared to image 2 (false) ($M=4.01$, $SD=.86$) and compared to image 3 (vague) ($M=3.92$, $SD=.93$). Pair 1 = image 1/image2, t (155)=-12.62, $p=<.001$. Pair 2 =image 1/image 3, t (155)=-10.80, $p=<.001$. Pair 3= image 2/image 3, t (155)=-1.41, $p=.080$. The table above (4.4.1) shows that there is a significant difference between image 1 (true) and image 2 (false) as well as between image 1 (true) and image 3 (vague). However, there is no significant difference between image 2 (false) and image 3 (vague). The table also shows the means compared between all images. Because the image true has a lower mean compared

to false and vague, it can be stated that vague claims and false claims actually score higher on greenwashing detection compared to the true claim. This test therefore supports hypothesis one, **H1**: Vague and false claims in green advertising score higher on consumer's greenwashing detection compared to true claims. These results show that greenwashing detection of the true claim is significantly lower compared to the vague and false claim. In addition, there is no significant difference between the vague and false claim. However, this non-significant effect appears to be a marginal effect. The results show that hypothesis 1 can be accepted because false and vague claims scored higher on greenwashing detection compared to the true claim.

4.4.2. Hypotheses 2:

As previously explained in the theoretical framework, Dutch consumers generally have a higher level of education, and it can be assumed that consumers with higher education levels are more likely to be more aware of greenwashing and would score higher with regard to perceived greenwashing knowledge and detection (Carrete et al., 2012; Morris et al., 1995). Therefore the following hypothesis was stated:

H2a: Dutch consumers score higher on greenwashing perceived knowledge compared to Argentine consumers.

In order to analyse this hypothesis, the first step was to check if any significance can be found in the between-subjects factor interaction between the two countries and level of greenwashing perceived knowledge (high vs low)**.** This is because it was assumed that higher greenwashing perceived knowledge would lead to a higher score on greenwashing detection. The results from table 4.4 (multivariate tests) show that the interaction effect between the two countries and greenwashing perceived knowledge is not significant ($F(1,155) = .03$, $p = .872$, $\eta2=.00$. The full table can be found in the statistics tables SPSS output section **G.2** which is found in the appendix. These findings show that there were no significant differences in greenwashing perceived knowledge between the two countries, Argentina and the Netherlands, as ($p=.872$). The mean scores can also be observed in appendix **G.2** of this thesis. Therefore hypothesis H2a has to be rejected.

H2b: Dutch consumers score higher on greenwashing detection, compared to Argentine consumers

In order to analyse this hypothesis, the first step was to check if any significance can be found in the interaction effect between the two countries and greenwashing detection (advertisement claims). The results from table 4.4 (multivariate tests) show that the interaction effect between the two countries and greenwashing detection was not significant ($F(2,154) = 2.56$, $p = .080$, η2=.03. It was expected that the Netherlands would score higher compared to Argentinian respondents. These findings, however, show that there were no significant differences in greenwashing detection between the two countries, Argentina and the Netherlands, as ($p=.080$). It is in fact a marginal effect. Therefore hypothesis H2b has to be rejected. The full table can be found in the statistics tables SPSS output section **G.2** of the appendix.

4.4.3. Hypothesis 3:

If one can state that vague and false claims are more easily detectable compared to true claims, as these require effort and concentration due to the claims that are presented and Dutch consumers having a higher level of perceived greenwashing knowledge should have a higher level of greenwashing detection, therefore one can state the following: **H3**: Dutch consumers score higher on greenwashing perceived knowledge and greenwashing detection when presented with advertisements containing false and vague claims, compared to true claim advertisements, than their Argentine counterparts. In order to analyse the third hypothesis, the first step was to conduct a multivariate test (repeated measures). The results can be seen in table 4.4 (multivariate tests). The interaction effect between both countries, the three different claims and greenwashing perceived knowledge (high vs. low), found in the multivariate test turned out not to be significant, as ($F(2,154) = .42$, $p = .659$, η2=.00. This means that the interaction effect is not significant and H3 can be rejected. The full table can be found in the statistics tables SPSS output section **G.2** which is found in the appendix.

Chapter 5: Discussion:

The key findings of this thesis shall be reviewed in this section, together with the limitations, future research suggestions and conclusions.

5.1 Implications of the findings:

The research objective of this study was to investigate the extent to which the perceived greenwashing knowledge of respondents from Argentina and The Netherlands affects greenwashing detection in different types of claims of advertisements. Three different hypotheses were formulated, analysed and tested. A survey was distributed to both Argentinean and Dutch respondents to collect data. These nations were selected based on the UAI scores they had received from Hofstede (Hofstede-Insights, 2021), as well as due to their different average level of education. The survey contained three different advertisements, two of which contained environmental claims, in order to measure greenwashing detection. The SPSS program was later used to examine the survey's data, and a reliability study was carried out to ascertain the Cronbach's alpha for each scale. Additionally measured were the means and standard deviations. Finally, to ascertain whether H1, H2 and H3 may be dismissed, survey data was examined using descriptive statistics, t- tests and multivariate tests.

The first hypothesis to be tested was the following: **Hypothesis 1**: Vague and false claims in green advertising score higher on consumer's greenwashing detection compared to the true claim. The multivariate test turned out to be significant, and thus justified the use of a t-test to check where the difference between conditions can be found. This is why three paired t-test were carried out to check for the difference between each condition. The table found in the results section (4.4.1) showed that there is a significant difference between Image 1 (true and image 2 (false) as well as between image 1 (true) and image 3 (vague). However, no significant difference was found between image 2 (false) and image 3 (vague). Furthermore, because the first condition (image true) had a lower mean compared to false and vague claims, it can be stated that false claims and vague claims actually score higher compared to true claims. This test therefore supported hypothesis one. These results are in line with the findings of Schmuck et al., (2018). As explained in the literature review, when a consumer is presented with a misleading statement, the likelihood that they will exert more mental effort is increased. Because these claims present misinformation, this increases the alertness of the consumer towards it. As a consequence, one can state that vague and false

claims score higher in greenwashing detection compared to true claims, as these require effort and concentration due to the claims that are presented (Schmuck et al., 2018).

The second hypotheses to be tested was the following: **Hypothesis 2a:** Dutch consumers score higher on greenwashing perceived knowledge compared to Argentine consumers and **Hypothesis 2b:** Dutch consumers score higher on greenwashing detection, compared to Argentine consumers. In order to analyse hypothesis 2a, the first step was to check if any significance can be found in the between-subjects factor interaction between the two countries and greenwashing perceived knowledge levels (high vs. low). Results showed that the interaction effect between the two countries and greenwashing perceived knowledge was not significant. This was also the case for Hypothesis H2b. Therefore, both hypotheses 2a and 2b had to be rejected. These results were not in line with Carrete et al. (2012) and Morris et al. (1995) theories. Meaning, Dutch consumers having a higher level of education, would have had to be more aware of greenwashing and would therefore have had to score higher with regard to perceived greenwashing knowledge and detection

The third hypothesis was the following hypothesis **H3**: Dutch consumers score higher on greenwashing perceived knowledge and greenwashing detection when presented with advertisements containing false and vague claims, compared to true claim advertisements, than their Argentine counterparts. The multivariate test turned out not to be significant. This meant that the interaction effect was not significant and H3 was rejected. These results do not go in line with the theory that a higher level of perceived greenwashing knowledge leads to a higher level of greenwashing detection, especially in vague and false claims as these are more easily detectable compared to true claims.

Many factors could explain the outcomes of hypotheses 2 and 3, which illustrated that there were no significant differences in greenwashing detection between the two countries. The first factor could be the degree to which people are alarmed by uncertainty and seek to avoid certain situations is referred to as uncertainty avoidance, the measure is called uncertainty avoidance index, or UAI. People from countries with a high uncertainty avoidance score have a hard time making decisions on purchases which may mislead them (Anne Lee et al., 2007). The Netherlands scored lower in terms of UAI as its country score is 53, compared to Argentina which has a score of 86. Therefore one could state that people in Argentina trust claims found in products less and take more time to purchase these products compared to their Dutch counterparts.

With regards to academic relevance, this thesis has been able to carry out an across countries research as Zhang et al., (2018) and Akturan (2018) had stated in their future research suggestions. This not only helps generalize the study with countries that have similar UAI scores but also helps other researchers to have an idea of what could happen if this study were to be replicated. This thesis also went through different definitions of greenwashing in the literature review and used the most suitable one (claim category). A true claim, a vague claim and a false claim were presented to analyse the extent of greenwashing detection and a cross country study was carried out to understand the extent to which two different countries evaluate these greenwashing claims. Using materials found in Schmuck et al., (2018). This thesis study was able to put their theories into practice using two different countries.

With regard to societal relevance, this thesis was necessary to critically comprehend how greenwashing influences consumer perception and behaviour. This thesis showed that when consumers are faced with making decisions regarding environmental claims, they always need to take a second look at the advertisements to make sure that they are not being misled in their purchasing decisions. This is why this thesis's results could be used to help consumers make more educated purchasing decisions in the hope they will detect greenwashing more easily when purchasing their next water bottle or any product with an environmental claim on it. This research could therefore also be used in both Argentina and The Netherlands to better regulate and control companies when greenwashing is detected and should alert consumers from these countries to make better future decisions when buying any product which tries to mislead them with regards to sustainability. Additionally, this study should encourage companies to take corporate social responsibility more seriously when top-down decisions are made, as these decisions are the ones that matter most.

Strengths of this study:

This study contained several strong points. First, it contained data from different ages and levels of education. This shows cultural and demographic diversity in the data collected, (minimum 60 respondents per country) and their role and influence in greenwashing awareness. Furthermore, respondents answered in a 1-5 Likert scale that ranged from strongly disagree to strongly agree. The result of the reliability analysis for greenwashing perceived knowledge was that Cronbach's alpha for the six items related was $\alpha=.80$. This means that these questions were pertinent and reliable. Furthermore, all three reliability analyses for each question related to greenwashing detection show that they have a high internal consistency, as

a reliability of α= .70 or higher is regarded as an acceptable value (Taber, 2018). In the case of this thesis study, according to Schmuck et al. (2018), the measurements showed sufficient validity. Additionally, manipulation checks and control questions have given the research even more validity. Thorough manipulation checks are extremely efficient but underutilized instruments for validity control and key drivers for raising the standards of scientific research (Fiedler et al., 2021). Furthermore, these authors state that manipulation checks are crucial for a theoretic hypothesis's logical premise to be valid. This study also contributed to academia, as many studies, such as Zhang et al., (2018) and Akturan (2018), suggested in their limitations and future studies suggestions section, that it is necessary to replicate the study across countries because it would help us understand the extent to which two different countries evaluate greenwashing claims. Thus, this thesis used a true claim, a vague claim and a false claim in order to analyse the extent to which Argentina and The Netherlands evaluate greenwashing claims. Another strength found in this thesis is that age and education level were controlled by placing them as covariates in the mixed ANCOVA. This was because these two factors appeared to be significantly different between the two countries and placing them as covariates could minimize the possible confounding effects they could have on the results.

5.2 Limitations and future research:

Like many studies, this one has its own flaws, but those weaknesses also point to some promising directions for further research. The first limitation shown in this thesis, is the quantity of people who had not fallen for the cover story. Altogether, 27.5% of respondents did not believe the cover story. Respondents that did not fall for the cover story and answered the control question with "greenwashing", "misleading claims" and "other", were deleted from the survey. Even though the original sample was 225, once deleting all participants who had answered greenwashing or misleading claims in the control question, only 78 Argentina and 78 Dutch respondents (altogether 156) were used for the analysis. Even though this was a useful sample for the thesis (minimum 150 participants), future research should take this into account and reach out to more respondents, using a better cover story in order to make sure that the number of respondents is higher.

Snowball sampling is another potential limitation. Even though snowball sampling allows us to reach more people compared to conventional sampling, it does not guarantee that it will reach all the different groups within society (Goodman, 1961). Therefore, even though the most frequently observed education level was a bachelor's degree with 45% in the

Netherlands and 24% in Argentina; the sample does not give us any information with regards to people that do not have access to certain resources such as computers, phones and in some cases the internet. Furthermore, a second reason for choosing Argentina and The Netherlands was due to their level of education. The OECD stated that in 2021, 56% of 25 to 34-year-olds in the Netherlands had a tertiary degree, this is higher compared to the OECD average of 47%. On the other hand, in Argentina, only 19% of those 25 to 34 year-olds had a tertiary degree in 2021 (OECD, 2022). Therefore, the average young person found in the Netherlands has a higher education compared to Argentina. However, this was not represented in the sample of the thesis, as respondents from Argentina had, on average, a higher degree of education, which is not strictly correlated to the average level of education of the country's population. This must have also affected the results of this thesis study, as it is not fully representative of the entire population. This is why future research should make sure that other methods are also used to reach respondents from all groups within societies. Thus, the fact that this survey was 100% at random in terms of age and education did not bode well for a more scientific and comparative analysis.

The way that the manipulation check question was formulated is yet another limitation. The manipulation check could have been better formulated in the survey, this is because the way that they had been formulated made it difficult to analyse. Therefore future research should formulate manipulation checks that are easy to analyse. A further limitation is that the stimuli (claims) are not presented randomly and could potentially introduce an order effect. An order effect is present when the sequence of the claims to which participants were exposed, influences how they react in different circumstances (Strack, 1992). Future research could also make sure that the stimuli (claims) are presented randomly in order for there not to be an order effect.

The theory shown in chapter 2 stated that Dutch consumers have a higher level of education, and consumers with higher levels of education are more likely to be more aware of greenwashing and would score higher with regards to perceived greenwashing knowledge and detection (Carrete et al., 2012; Morris et al., 1995). A further limitation of this study was that there were no significant differences in greenwashing perceived knowledge between the two countries, Argentina and the Netherlands, partially due to the factors mentioned before (age and education level). Furthermore, the results for the three conditions (image 1, 2 and 3), show that they could have been more distinctive enough and this is why the study could not find significant results. This could be explained with the UAI. Even though my results did not

fully prove H2 and H3, the theory that consumers who exhibit a higher level of education, score higher with regards to perceived greenwashing knowledge and detection, could yet be proven right. Future studies could study H2 and H3 again, using better materials, more stratified and comparable categories of respondents and use the same (or similar) countries with regard to UAI scores. This is because this thesis study results show that there were no significant differences in greenwashing detection between the two countries, Argentina and the Netherlands.

5.3: Conclusion

In conclusion, The main aim of this research paper is to answer the following question: To what extent does the perceived greenwashing knowledge of respondents from Argentina and The Netherlands, affect greenwashing detection in different types of claims in advertisements?

The results from hypothesis 1 indicate that vague and false claims in green advertising score higher on consumer's greenwashing detection compared to the true claim. These results are in line with the findings of Schmuck et al., (2018). Even though the results show hypothesis 1 was proven right, the same could not be said for hypothesis 2 and 3. Therefore according to the results, the perceived greenwashing knowledge of respondents from Argentina and The Netherlands, did not affect greenwashing detection.

Based on the limitations of this study, it can be concluded that there was not enough support from the results to accept all hypotheses. Only the first hypothesis was accepted. Based on the discussed strengths and weaknesses as well as on the limitations, more research is needed. However, as suggested in the limitations section, future research should make sure that they reach out to more respondents, using a better cover story in order to make sure that the number of respondents is higher. Furthermore, they should also make sure that other methods, apart from snowball sampling, are also used to reach respondents from all groups within societies. Additionally, they could also make sure that the stimuli (claims) are presented randomly in order for there not to be an order effect. Finally, another suggestion would be the use of countries with similar UAI scores as those of Argentina and the Netherlands and re-analyse H2 and H3. According to the theory, if future research would take the previously mentioned limitations into account, hypotheses 2 and 3 could potentially be accepted.

Reference list:

Adams, R. J. (2005). Reliability as a measurement design effect. *Studies in Educational Evaluation*, *31*(2-3), 162-172

Aditya, R. N. (2001). The psychology of deception in marketing: A conceptual framework for research and practice. *Psychology & Marketing*, *18*(7), 735-76

Aji, H. M., & Sutikno, B. (2015). The extended consequence of greenwashing: Perceived consumer skepticism. *International Journal of Business and Information*, *10*(4), 433.

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

Anne Lee, J., Garbarino, E., & Lerman, D. (2007). How cultural differences in uncertainty avoidance affect product perceptions. *International Marketing Review*, *24*(3), 330-349.

Argentina - overview of the education system (EAG 2022) - OECD. (n.d.). Retrieved February 4, 2023, from https://gpseducation.oecd.org/CountryProfile?primaryCountry=ARG&treshold=10&topic=EO.

Axelrod, L. J., & Lehman, D. R. (1993). Responding to environmental concerns: What factors guide individual action?. *Journal of environmental psychology*, *13*(2), 149-159.

Baldas, T. (2009). Claims of 'greenwashing' on the rise. *The National Law Journal*, *31*(40), 6.

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.

Braun, K. A., & Loftus, E. F. (1998). Advertising's misinformation effect. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, *12*(6), 569-591.

Butt, A., Khan, S. N., Zakir, M. M., Rana, W., & Laila, A. (2021). Firms greenwashing

practices and consumers' perception: Role of marketing and non-marketing external

stake holders in firms greenwashing practices. *Indian Journal of Economics and*

Business, *20*(3), 689-706.

Carson, T. L., Wokutch, R. E., & Cox, J. E. (1985). An ethical analysis of deception in

advertising. *Journal of Business Ethics*, *4*, 93-104.

Carlson, L., Grove, S. J., & Kangun, N. (1993). A content analysis of environmental

advertising claims: A matrix method approach. *Journal of advertising*, *22*(3), 27-39.

Clarke, T., & Costall, A. (2008). The emotional connotations of color: A qualitative

investigation. *Color Research & Application: Endorsed by Inter-Society Color*

Council, The Colour Group (Great Britain), Canadian Society for Color, Color

Science Association of Japan, Dutch Society for the Study of Color, The Swedish

Colour Centre Foundation, Colour Society of Australia, Centre Français de la

Couleur, *33*(5), 406-410.

Carrete, L., Castaño, R., Felix, R., Centeno, E., & González, E. (2012). Green consumer

behavior in an emerging economy: confusion, credibility, and compatibility. *Journal*

of consumer marketing, *29*(7), 470-481.

de Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. D. L. (2020).

Concepts and forms of greenwashing: A systematic review. *Environmental Sciences*

Europe, *32*(1), 1-12.

De Mooij, M., & Hofstede, G. (2010). The Hofstede model: Applications to global branding

and advertising strategy and research. *International Journal of advertising*, *29*(1), 85-

110.

DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores:

Considerations for the applied researcher. *Practical assessment, research, and evaluation*, *14*(1), 20.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, *5*(1), 1-4.

Fiedler, K., McCaughey, L., & Prager, J. (2021). Quo vadis, methodology? The key role of manipulation checks for validity control and quality of science. *Perspectives on Psychological Science*, *16*(4), 816-826.

Goodman, L. A. (1961). Snowball sampling. *The annals of mathematical statistics*, 148-170.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67.

Hofstede, G. (2021, June 21). *Country comparison*. Hofstede Insights. Retrieved February 4, 2023, from https://www.hofstede-insights.com/country-comparison/argentina,the-netherlands/

Janssen, S., & Verboord, M. (2022). *Methodological Guidelines Thesis Research* (9th ed.). Department of media and communication Erasmus School of History, Culture and Communication Erasmus University Rotterdam.

Johar, Gita V. (1995). "Consumer Involvement and Deception from Implied Advertising Claims," *Journal of Marketing Research*, 32 (3), 267–79.

Kangun, N., Carlson, L., & Grove, S. J. (1991). Environmental advertising claims: A preliminary investigation. *Journal of public policy & marketing*, *10*(2), 47-58

Manju. (2012). Green Marketing: New Hopes and Challenges: Spectrum

Mishra, P., & Sharma, P. (2014). Green marketing: Challenges and opportunities for business. *BVIMR Management Edge*, *7*(1).

Mohd Suki, N., & Mohd Suki, N. (2015). Consumption values and consumer environmental

concern regarding green products. *International Journal of Sustainable Development & World Ecology*, *22*(3), 269-278.

Mohr, L. A., Eroglu, D., & Ellen, P. S. (1998). The development and testing of a measure of skepticism toward environmental claims in marketers' communications. Journal of Consumer Affairs, 32(1), 30–55. https://doi.org/10.1111/j.1745-6606.1998.tb00399.x

Morris, L. A., Hastak, M., & Mazis, M. B. (1995). Consumer comprehension of environmental advertising and labeling claims. *Journal of Consumer Affairs*, *29*(2), 328-350.

Murrar, S., & Brauer, M. (2018). The SAGE encyclopedia of educational research, measurement, and evaluation. *Mixed model analysis of variance*, 1075-1078.

Naderer, B., & Opree, S. J. (2021). Increasing advertising literacy to unveil disinformation in green advertising. *Environmental Communication*, *15*(7), 923-936.

Netherlands - overview of the education system (EAG 2022) - OECD. (n.d.). Retrieved February 4, 2023, from https://gpseducation.oecd.org/CountryProfile?primaryCountry=NLD&treshold=10&topic=EO

Neuman, W. L. (2006). Social Research Methods: Qualitative and quantitative approaches. Boston, MA et al.

Neuman*, W.* Lawrence. (2014). Social Research Methods *:* qualitative and quantitative approaches (Ed. 7th). *Harlow: Pearson Education Limited*

Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2012). Greenwashing: A consumer perspective. *Economics & Sociology*, *5*(2), 116

Olson, J. C., & Dover, P. A. (1978). Cognitive effects of deceptive advertising. *Journal of Marketing Research*, *15*(1), 29-38.

Parguel, B., Benoît-Moreau, F., & Larceneux, F. (2011). How sustainability ratings might

deter 'greenwashing': A closer look at ethical corporate communication. *Journal of business ethics*, *102*, 15-28.

Parguel, B., Benoit-Moreau, F., & Russell, C. A. (2015). Can evoking nature in advertising mislead consumers? The power of 'executional greenwashing'. *International Journal of Advertising*, *34*(1), 107-134.

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

Peattie, K., & Crane, A. (2005). Green marketing: legend, myth, farce or prophesy?. *Qualitative market research: an international journal*, *8*(4), 357-370.

Pourhoseingholi, M. A., Baghestani, A. R., & Vahedi, M. (2012). How to control confounding effects by statistical analysis. *Gastroenterology and hepatology from bed to bench*, *5*(2), 79

Santos, C., Coelho, A., & Marques, A. (2023). A systematic literature review on greenwashing and its relationship to stakeholders: state of art and future research agenda. *Management Review Quarterly*, 1-25.

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

Seo, J. Y. (2010). *The Role of Color in Environmental Messages and Claims: Green Can be Both Beneficial and Misleading* (Doctoral dissertation, David Eccles School of Business, University of Utah).

Seo, J. Y., & Scammon, D. L. (2017). Do green packages lead to misperceptions? The influence of package colors on consumers' perceptions of brands with environmental claims. *Marketing Letters*, *28*, 357-369.

Strack, F. (1992). "Order effects" in survey research: Activation and information functions of

preceding questions. In *Context effects in social and psychological research* (pp. 23-

34). New York, NY: Springer New York.

Szabo, Szerena, and Jane Webster. (2021). "Perceived greenwashing: the effects of green

marketing on environmental and product perceptions." *Journal of Business Ethics*

171: 719-739.

Schmuck, D., Matthes, J., & Naderer, B. (2018). Misleading consumers with green

advertising? An affect–reason–involvement account of greenwashing effects in

environmental advertising. *Journal of Advertising*, *47*(2), 127-145

Sustainable development goals: United Nations Development Programme. UNDP. (n.d.).

https://www.undp.org/arab-states/sustainable-development-goals/responsible-

consumption-and-production

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research

instruments in science education. *Research in science education*, *48*, 1273-1296

Vargas, P. T., Duff, B. R., & Faber, R. J. (2017). A practical guide to experimental advertising

research. *Journal of Advertising*, *46*(1), 101-114.

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages

of online survey research, online questionnaire authoring software packages, and web

survey services. *Journal of computer-mediated communication*, *10*(3), JCMC1034.

Xue, F., & Muralidharan, S. (2015). A green picture is worth a thousand words?: Effects of

visual and textual environmental appeals in advertising and the moderating role of

product involvement. *Journal of Promotion Management*, *21*(1), 82-106.

Zhang, L., Li, D., Cao, C., & Huang, S. (2018). The influence of greenwashing perception on

green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of Cleaner Production*, *187*, 740-750.

Zimmer, M. R., Stafford, T. F., & Stafford, M. R. (1994). Green issues: dimensions of environmental concern. *Journal of business research*, *30*(1), 63-74

Appendices:

Appendix A:

Image 1: True claim

Image 2: False claim

Image 3: Vague claim

Source: Schmuck et al. (2018)

Appendix B: Thesis survey

Consent form:
Dear participant, thank you very much for participating in this research. This research is conducted for the Media master's programme of the Erasmus University Rotterdam. It consists of a survey with questions on your experiences related to online marketing, regarding perception on targeted advertisements and to study if more description of a product leads to more sales. Please be aware that your participation is completely voluntarily, meaning that you can quit at any time during your participation. Furthermore, your personal information will be kept strictly confidential, and the findings of this survey will be used solely for class purposes. Hence, your anonymity is guaranteed. Completing the survey takes approximately 10 minutes. If you have any questions during or after your participation, please feel free to contact Nicolas van Dam (581613nd@eur.nl).

○ I accept the terms and conditions (1)

Q1 Before entering the survey, we ask to you to complete three questions to determine whether you fit the target group in terms of age and location. First, what is your age?

▼ 18 (1) ... 94 (77)

Q2 What is your country of origin?

○ Argentina (1)

○ Netherlands (2)

○ Other (3) _____

Q3 Thank you for your answers. You fit the target group. Before moving to the topic of privacy concerns, we would like to ask two more questions about your demographic background. What gender do you identify with?

○ Male (1)

○ Female (2)

○ Other (3) _____

Q4 What is the highest educational level that you have followed? This can either be an education that you completed or one that you are or were previously enrolled in.

○ Primary School (1)

○ Secondary school/high school (2)

○ Bachelor's degree (3)

○ Masters degree (4)

○ PHD (5)

○ Other (6) _____

Q5 On a daily basis, which of the following have you stumbled upon?

○ Internet Cookies (2)

○ Social media Advertisement (3)

○ Poster advertisments (4)

○ Email advertisements (5)

Q6 To what extent do you agree or disagree regarding personalized ads?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly Agree (5)
I prefer that ads shown on my device are personalized to my interests (1)	○	○	○	○	○
I find it useful that ads on my device offer discounts based on my interests (2)	○	○	○	○	○
Nobody should use data about my media use because they are private (3)	○	○	○	○	○
I dislike the idea of ads that are adjusted to my media use (4)	○	○	○	○	○
I prefer ads that are adjusted to my preferences (5)	○	○	○	○	○
I dislike the idea that someone monitors my media use (6)	○	○	○	○	○

Q7 When using the internet, we share personal information through social media profiles, online forms etc. To what extent do you agree with the following statements?

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I feel uncomfortable when my personal information is shared without my permission (1)	○	○	○	○	○
I am concerned about misuses of my personal information (2)	○	○	○	○	○
It bothers me to receive too much advertising material of no interest (3)	○	○	○	○	○
I feel fear that my personal information may not be safe while stored (4)	○	○	○	○	○
I believe that my personal information is often misused (5)	○	○	○	○	○
I think companies share my personal information without permission (6)	○	○	○	○	○

100% Pure Spring Water

Q8 Look at the image above (1), based on this image, please answer the following questions

Q8 Please answer the following questions, going from strongly disagree to strongly agree, based on the image shown previously

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The product misleads with the use of words regarding its environmental features (1)	○	○	○	○	○
The product misleads with visuals or graphics regarding its environmental features (2)	○	○	○	○	○
The product is associated with a green claim that is vague or seemingly un-provable (3)	○	○	○	○	○
the product overstates or exaggerates what its green functionality actually is (4)	○	○	○	○	○
The product leaves out or masks important information, making the green claim sound better than it is (5)	○	○	○	○	○

Drink **ALSE** bottled water.
The most environmentally responsible consumer product in the world.

100% Pure Spring Water

ALSE
NATURELLE

Q9 Look at the image above (2) and read the claim carefully, based on this image, please answer the following questions

Q9 Please answer the following questions, going from strongly disagree to strongly agree, based on the image shown previously

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The product misleads with the use of words regarding its environmental features (1)	○	○	○	○	○
The product misleads with visuals or graphics regarding its environmental features (2)	○	○	○	○	○
The product is associated with a green claim that is vague or seemingly un-provable (3)	○	○	○	○	○
the product overstates or exaggerates what its green functionality actually is (4)	○	○	○	○	○
The product leaves out or masks important information, making the green claim sound better than it is (5)	○	○	○	○	○

Q10 Once again, Look at the image above (3) and read the claim carefully, based on this image, please answer the following questions

Drink **ALSE** bottled water to help the environment.
Together we can save our nature.

100% Pure Spring Water

ALSE
NATURELLE

Q10 Please answer the following questions, going from strongly disagree to strongly agree, based on the image shown previously

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The product misleads with the use of words regarding its environmental features (1)	○	○	○	○	○
The product misleads with visuals or graphics regarding its environmental features (2)	○	○	○	○	○
The product is associated with a green claim that is vague or seemingly un-provable (3)	○	○	○	○	○
the product overstates or exaggerates what its green functionality actually is (4)	○	○	○	○	○
The product leaves out or masks important information, making the green claim sound better than it is (5)	○	○	○	○	○

Q11 To what extent do you believe the following statement? The claim found in the ALSE advertisement is a True claim

	Strongly disagree (1)	Somewhat disagree (2)	Neither Agree nor Disagree (3)	Somewhat agree (4)	Strongly agree (5)
Advertisement 1 (1)	○	○	○	○	○
Advertisement 2 (2)	○	○	○	○	○
Advertisement 3 (3)	○	○	○	○	○

Q12 To what extent would you prefer to buy bottle 1/2/3 found in the three different advertisements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither Agree nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Advertisement 1 (1)	○	○	○	○	○
Advertisement 2 (2)	○	○	○	○	○
Advertisement 3 (3)	○	○	○	○	○

Q13 Please answer in a 1-5 Likert scale the following questions:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
1. I know that I buy products and packages that are environmentally safe. (1)	○	○	○	○	○
2. I know more about recycling than the average person. (2)	○	○	○	○	○
3. I know how to select products and packages that reduce the amount of waste ending up in landfills. (3)	○	○	○	○	○
4. I understand the environmental phrases and symbols on product packages. (4)	○	○	○	○	○
5. I am confident that I know how to sort my recyclables properly. (5)	○	○	○	○	○
6. I am very knowledgeable about environmental issues (6)	○	○	○	○	○

Q14 Thank you for answering this survey, one last question. In a short answer, what do you believe this survey was about?

_____

Statistics Tables SPSS Output APA style:

Appendix C :

Control question analysis:

what do you believe this survey was about? (N=225)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Greenwashing	32	14.2	14.2	14.2
	Marekting	87	38.7	38.7	52.9
	Environmental Marketing	69	30.7	30.7	83.6
	Misleading claims	30	13.3	13.3	96.9
	Other	7	3.1	3.1	100.0
	Total	225	100.0	100.0	

Appendix D: Demographics

Demographics (Nationality)

Characteristics table: Nationality (N=156)

Sample Characteristic	Frequency in sample	Percentage of sample
Nationality		
Argentina	78	50
The Netherlands	78	50

Demographics (Age)

Table APA:

Descriptive statistics: Age (*N*= 156)

	N	Min	Max	M	SD
1. Argentina	78	18	75	38.88	16.153
2. Netherlands	78	18	51	27.40	7.787

Frequency: Education level an Gender:

Table
characteristics table: Argentina (N=78)

Sample Characteristic	Frequency in sample	Percentage of sample
Gender		
Male	33	42.3
Female	44	56.4
Non-binary/third gender	1	1.3
Level of education		
Secondary school / high school	14	17.9
Bachelor's degree	24	30.8
Master's degree	16	20.5
PhD	9	11.3
Other	15	19.2

Table
characteristics table: The Netherlands (N=78)

Sample Characteristic	Frequency in sample	Percentage of sample
Gender		
Male	31	39.7
Female	47	60.3
Non-binary/third gender		
Level of education		
Secondary school / high school	7	9.0
Bachelor's degree	45	57.7
Master's degree	23	29.5
PhD	3	3.8
Other		20.6

T-test Age:

Group Statistics

	What is your country of origin?	N	Mean	Std. Deviation	Std. Error Mean
First, what is your age?	Argentina	78	38.88	16.153	1.829
	Netherlands	78	27.40	7.787	.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
First, what is your age?	Equal variances assumed	40.915	<,001	5.658	154	<,001	<,001	11.487	2.030	7.476	15.498
	Equal variances not assumed			5.658	110.954	<,001	<,001	11.487	2.030	7.464	15.510

Chi square Education:

Chi-Square Tests (N=156)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.981[a]	4	<,001
Likelihood Ratio	34.070	4	<,001
Linear-by-Linear Association	9.446	1	.002
N of Valid Cases	156		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 6,00.

Chi square Gender:

Chi-Square Tests (N=156)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.161[a]	2	.560
Likelihood Ratio	1.548	2	.461
Linear-by-Linear Association	.025	1	.874
N of Valid Cases	156		

a. 2 cells (33,3%) have expected count less than 5. The minimum expected count is ,50.

Appendix E

Factor Analysis:

Pattern Matrix [a] (N=156)[a]

	Component			
	1	2	3	4
image 1 (Control) - The product misleads with the use of words regarding its environmental features	.091	.841	.034	-.043
image 1 (control) - The product misleads with visuals or graphics regarding its environmental features	.074	.814	.073	.086
image 1 (control) - The product is associated with a green claim that is vague or seemingly un-provable	.001	.849	-.064	-.060
image 1 (control) - the product overstates or exaggerates what its green functionality actually is	-.010	.866	-.067	-.061
image 1 (control) - The product leaves out or masks important information, making the green claim sound better than it is	.029	.840	-.010	-.027
image 2 (false) - The product misleads with the use of words regarding its environmental features	.031	-.087	-.086	-.859
image 2 (false) - The product misleads with visuals or graphics regarding its environmental features	.303	.132	.033	-.457

image 2 (false) - The product is associated with a green claim that is vague or seemingly un-provable	-.024	.133	-.030	-.836
image 2 (false) - the product overstates or exaggerates what its green functionality actually is	.145	-.036	.031	-.858
image 2 (false) - The product leaves out or masks important information, making the green claim sound better than it is	-.002	.072	.102	-.837
image 3 (vague) - The product misleads with the use of words regarding its environmental features	.869	.115	.007	.092
image 3 (vague) - The product misleads with visuals or graphics regarding its environmental features	.859	.108	.092	.061
image 3 (vague) - The product is associated with a green claim that is vague or seemingly un-provable	.709	-.102	.056	-.336
image 3 (vague) - the product overstates or exaggerates what its green functionality actually is	.837	-.015	-.061	-.061
image 3 (vague) - The product leaves out or masks important information, making the green claim sound better than it is	.727	-.024	-.032	-.212

Item				
1. I know that I buy products and packages that are environmentally safe.	.033	-.274	.551	-.007
2. I know more about recycling than the average person.	.150	.107	.696	.074
3. I know how to select products and packages that reduce the amount of waste ending up in landfills.	.085	.026	.800	.169
4. I understand the environmental phrases and symbols on product packages.	-.218	.347	.618	-.176
5. I am confident that I know how to sort my recyclables properly.	.010	-.025	.729	-.155
6. I am very knowledgeable about environmental issues	-.104	-.033	.783	-.008

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]
a. Rotation converged in 10 iterations.

Reliability Statistics: Greenwashing perceived knowledge

Reliability Statistics

Cronbach's Alpha	N of Items
.796	6

Reliability Statistics:

Greenwashing detection:

Image 1 (control/True claim)

Reliability Statistics	
Cronbach's Alpha	N of Items
.896	5

Reliability Statistics:

Greenwashing detection: Image 2 (false)

Reliability Statistics	
Cronbach's Alpha	N of Items
.867	5

Reliability Statistics:

Greenwashing detection:

Image 3 (vague)

Reliability Statistics	
Cronbach's Alpha	N of Items
.913	5

Total Variance Explained Eigenvalues

Total Variance Explained (N=156)

Compone nt	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %	Total
1	6.803	32.397	32.397	6.803	32.397	32.397	4.822
2	3.019	14.377	46.774	3.019	14.377	46.774	4.502
3	2.865	13.641	60.415	2.865	13.641	60.415	3.124
4	1.636	7.790	68.205	1.636	7.790	68.205	4.897
5	1.019	4.852	73.057				
6	.780	3.714	76.771				
7	.620	2.952	79.724				
8	.549	2.613	82.337				
9	.496	2.360	84.697				
10	.454	2.161	86.858				
11	.410	1.955	88.813				
12	.354	1.686	90.499				
13	.335	1.594	92.092				
14	.295	1.404	93.496				
15	.249	1.187	94.683				
16	.243	1.158	95.841				
17	.232	1.104	96.945				
18	.190	.905	97.850				
19	.179	.850	98.700				
20	.163	.776	99.476				
21	.110	.524	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Appendix F: T-test: Manipulation check True paired Statistics

Paired Samples Statistics (N=156)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Manipulation check it is a True claim - Advertisement 1	3.47	156	1.312	.105
	Manipulation check it is a True claim - Advertisement 2	2.22	156	1.252	.100
Pair 2	Manipulation check it is a True claim - Advertisement 1	3.47	156	1.312	.105
	Manipulation check it is a True claim - Advertisement 3	2.47	156	1.292	.103
Pair 3	Manipulation check it is a True claim - Advertisement 2	2.22	156	1.252	.100
	Manipulation check it is a True claim - Advertisement 3	2.47	156	1.292	.103

Paired Samples Test (N=156)

| | | Paired Differences | | | | | | | | Significance | |
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | One-Sided p | Two-Sided p |
					Lower	Upper				
Pair 1	Manipulation check it is a True claim - Advertisement 1 - Manipulation check it is a True claim - Advertisement 2	1.244	1.542	.123	1.000	1.488	10.070	155	<,001	<,001
Pair 2	Manipulation check it is a True claim - Advertisement 1 - Manipulation check it is a True claim - Advertisement 3	.994	1.636	.131	.735	1.252	7.584	155	<,001	<,001
Pair 3	Manipulation check it is a True claim - Advertisement 2 - Manipulation check it is a True claim - Advertisement 3	-.250	1.205	.097	-.441	-.059	-2.590	155	.005	.011

Appendix G. 1: Greenwashing perceived knowledge levels t-test (High vs Low)

Group Statistics

	Greenwashing perceievd knowledge levels	N	Mean	Std. Deviation	Std. Error Mean
greenwashing_perceived_knowledge_mean	Low	68	2.7500	.55277	.06703
	High	88	3.9034	.39531	.04214

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
greenwashing_perceived_knowledge_mean	Equal variances assumed	9.958	.002	-15.188	154	<,001	<,001	-1.15341	.07594	-1.30343	-1.00339
	Equal variances not assumed			-14.567	116.418	<,001	<,001	-1.15341	.07918	-1.31023	-.99659

73

Appendix G. 2 : Multivariate test

Multivariate Tests [a] (N=156)

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Adcondition	Pillai's Trace	.144	12.493[b]	2.000	149.000	<,001	.144
	Wilks' Lambda	.856	12.493[b]	2.000	149.000	<,001	.144
	Hotelling's Trace	.168	12.493[b]	2.000	149.000	<,001	.144
	Roy's Largest Root	.168	12.493[b]	2.000	149.000	<,001	.144
Adcondition * Age	Pillai's Trace	.016	1.243[b]	2.000	149.000	.292	.016
	Wilks' Lambda	.984	1.243[b]	2.000	149.000	.292	.016
	Hotelling's Trace	.017	1.243[b]	2.000	149.000	.292	.016
	Roy's Largest Root	.017	1.243[b]	2.000	149.000	.292	.016
Adcondition * Education	Pillai's Trace	.017	1.253[b]	2.000	149.000	.289	.017
	Wilks' Lambda	.983	1.253[b]	2.000	149.000	.289	.017
	Hotelling's Trace	.017	1.253[b]	2.000	149.000	.289	.017
	Roy's Largest Root	.017	1.253[b]	2.000	149.000	.289	.017
Adcondition * Country	Pillai's Trace	.033	2.565[b]	2.000	149.000	.080	.033
	Wilks' Lambda	.967	2.565[b]	2.000	149.000	.080	.033

	Hotelling's Trace	.034	2.565[b]	2.000	149.000	.080	.033
	Roy's Largest Root	.034	2.565[b]	2.000	149.000	.080	.033
Adcondition * Greenwashing_Perceived_knowledge_High_Low	Pillai's Trace	.002	.151[b]	2.000	149.000	.860	.002
	Wilks' Lambda	.998	.151[b]	2.000	149.000	.860	.002
	Hotelling's Trace	.002	.151[b]	2.000	149.000	.860	.002
	Roy's Largest Root	.002	.151[b]	2.000	149.000	.860	.002
Adcondition * Country * Greenwashing_Perceived_knowledge_High_Low	Pillai's Trace	.006	.419[b]	2.000	149.000	.659	.006
	Wilks' Lambda	.994	.419[b]	2.000	149.000	.659	.006
	Hotelling's Trace	.006	.419[b]	2.000	149.000	.659	.006
	Roy's Largest Root	.006	.419[b]	2.000	149.000	.659	.006

a. Design: Intercept + Age + Education + Country + Greenwashing_Perceived_knowledge_High_Low + Country * Greenwashing_Perceived_knowledge_High_Low

 Within Subjects Design: Adcondition

b. Exact statistic

Test of between subject effects:

Measure: MEASURE_1

Transformed Variable: Average ^{a} (N=156)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	294.396	1	294.396	207.450	<,001	.580
Age	2.943	1	2.943	2.074	.152	.014
Education	21.314	1	21.314	15.019	<,001	.091
Country	8.745	1	8.745	6.162	.014	.039
Greenwashing_Perceived _knowledge_High_Low	3.131	1	3.131	2.206	.140	.014
Country * Greenwashing_Perceived _knowledge_High_Low	.037	1	.037	.026	.872	.000
Error	212.867	150	1.419			

Extra analyses Multivariate tests:

Ads_claims pariwise comparisons:

Estimates

Measure: MEASURE_1 (N=156)

ads_clai ms	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1	2.877ª	.080	2.718	3.036
2	4.002ª	.065	3.872	4.131
3	3.911ª	.075	3.763	4.059

a. Covariates appearing in the model are evaluated at the following values: First, what is your age? = 33.14, What is the highest educational level that you have followed? = 3.56.

*4. Greenwashing_Perceived_knowledge_High_Low * What is your country of origin? (N=156)*

Measure: MEASURE_1

Greenwashing_Perceived_knowledge_High_Low	What is your country of origin?	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
.00	Argentina	3.656ᵃ	.122	3.414	3.898
	Netherlands	3.371ᵃ	.117	3.140	3.602
1.00	Argentina	3.840ᵃ	.108	3.627	4.053
	Netherlands	3.519ᵃ	.110	3.302	3.736

a. Covariates appearing in the model are evaluated at the following values: First, what is your age? = 33.14, What is the highest educational level that you have followed? = 3.56.

6. *What is your country of origin? * ads claims (N=156)*

Measure: MEASURE_1

What is your country of origin?	ads claims	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Argentina	1	3.113ᵃ	.120	2.876	3.349
	2	4.181ᵃ	.097	3.988	4.373
	3	3.951ᵃ	.111	3.731	4.171
Netherlands	1	2.642ᵃ	.119	2.406	2.877
	2	3.823ᵃ	.097	3.631	4.014
	3	3.871ᵃ	.111	3.652	4.090

a. Covariates appearing in the model are evaluated at the following values: First, what is your age? = 33.14, What is the highest educational level that you have followed? = 3.56.

*7. Greenwashing Perceived knowledge High Low * What is your country of origin? * ads claims (N=156)*

Measure: MEASURE_1

Greenwashing_Perceived_knowledge_High_Low	What is your country of origin?	ads_claims	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
.00	Argentina	1	3.005a	.177	2.656	3.354
		2	4.109a	.144	3.824	4.393
		3	3.854a	.165	3.529	4.180
	Netherlands	1	2.564a	.169	2.230	2.898
		2	3.703a	.138	3.431	3.975
		3	3.846a	.158	3.535	4.158
1.00	Argentina	1	3.220a	.156	2.912	3.528
		2	4.253a	.127	4.003	4.504
		3	4.047a	.145	3.760	4.334
	Netherlands	1	2.719a	.159	2.405	3.033
		2	3.942a	.129	3.687	4.198
		3	3.896a	.148	3.603	4.188

a. Covariates appearing in the model are evaluated at the following values: First, what is your age? = 33.14, What is the highest educational level that you have followed? = 3.56.

Appendix H: Hypothesis 1 T-tests:

Paired Samples Statistics (N=156)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Image1_true_mean	2.8897	156	1.07049	.08571
	Image2_false_mean	4.0128	156	.85811	.06870
Pair 2	Image1_true_mean	2.8897	156	1.07049	.08571
	Image3_vague_mean	3.9205	156	.92776	.07428
Pair 3	Image2_false_mean	4.0128	156	.85811	.06870
	Image3_vague_mean	3.9205	156	.92776	.07428

Paired Samples Test (N=156)

			Paired Differences						Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pair 1	Image1_true_mean - Image2_false_mean	-1.12308	1.11146	.08899	-1.29886	-.94729	-12.621	155	<,001	<,001
Pair 2	Image1_true_mean - Image3_vague_mean	-1.03077	1.19162	.09541	-1.21923	-.84231	-10.804	155	<,001	<,001
Pair 3	Image2_false_mean - Image3_vague_mean	.09231	.81672	.06539	-.03686	.22148	1.412	155	.080	.160