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Navigating the Intricacies of
Greenwashing Across Digital Formats:
An Examination of Non-Greenwashing
and Greenwashing Posts in Visual and
Textual Contexts.

Master Thesis

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Peter Jarnebrant

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Abstract

This thesis seeks to bridge a research gap concerning the credibility of greenwashing in digital channels. It does so by exploring lifelike scenarios in the form of visual content—represented through brand awareness posts—and text content—depicted as statement posts. These are both strategies frequently employed in marketing. The goal is to provide a more nuanced understanding of how greenwashed content impacts the dependent variable credibility based on its presentational form. A quantitative survey experiment was employed to acquire the consumer's opinions in line with my formulated hypothesis grounded in the literature review.

The findings grant a beneficial understanding of the complexity surrounding greenwashing. It is evident that the consumer perceives the credibility of posts differently when comparing their exposure to vague green communication both as visuals and text, in opposition to certified and documented green communication. The study showed the potential of complicated biased opinions when controlling for different brands, thus, complicating the interpretation. Holzweiler posts had a significant reduction of credibility for greenwashing, and GANT presented significant results for an increase in credibility when exposed to text (statement) posts, implying the power of persuasion. However, these effects are all marginal compared to the extensive effect of liking the post and previously established brand credibility, the latter closely related to Corporate social responsibility (CSR). This study supports previous studies of how a decrease in credibility is harmful for the brands CSR.

From a managerial perspective, it gives a comprehensive insight into the complexity of greenwashing, facilitating the enhancement of green strategic decision-making for brands to better fit regulatory laws, not risking a loss of reputation. Additionally, it contributes to the awareness of these illegal activities and helps brands understand the power of documented and precise communication, regardless of the media.

Keywords: Greenwashing, Digital channels, Digital posts, Credibility, CSR

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1.0 Introduction to the topic

Corporate social responsibility (CSR) is in simple terms what firms give back to the public, beyond what the law enforces, hence, charity, engagement with societies, and reduction of emissions. However, in modern times this has been a big part of the firm's strategy to improve its reputation (Isaksson, Kiessling & Harvey, 2014). With an accelerating influence aligned with the focus on emissions, child labor, and poor working conditions. The Utilization of CSR gives extensive competitive advantages, and some positive gains are, increasing customer awareness, increasing trust and loyalty, making it easier to differentiate and build a brand image, additionally, attracting investors, reducing costs, motivating employees, and avoiding regulations from governments (Książak, 2016, Nareeman & Hassan, 2013, Martínez, Pérez & Bosque, 2014). Discoveries from marketplace polls and academic research imply that crucial stakeholders such as investors, customers, and employees are very likely to reward firms associated with good corporate behavior and will cast aside the bad actors. In some cases, vigorously boycotting them (Bhattacharya, 2010).

A big part of the firm's CSR is the focus on green evolvment and environmental contributions. The changing environment is a hot topic across world borders, and carbon emissions have been proven repeatedly to threaten the survival of intelligent life. (Parry & Rosenzweig, 2004; Jacob & Winner, 2009). EU's goal to cut greenhouse gas emissions by 55% by 2030 and reach climate neutrality by 2050 implies its importance (2030 target plan, EU). Rapidly increasing regulations as the implementation of CBAM will force the firms to greener alternatives regardless. It might be sufficient to utilize a head start and gain the stakeholder's favor by contributing to the firm's CSR.

However, green alternatives are expensive (More, 2013), and some firms might redeem the investment not yet worth it, considering the cheaper solutions that exist. Nevertheless, in a highly competitive market, with uninterrupted challenges regarding differentiating a firm and its brand, some might push the limits of their communicated contribution to CSR so far it turns into a lie, whether they realize it

or not. In other words, *greenwashing* their communication. In simple terms, they appear to be better than they really are to win the stakeholder's favor.

This is in fact illegal and every actor who communicates its sustainability towards the environment needs to have this certified and documented (The Norwegian consumer council, 2022). Diligently used methods are the extensive usage of the words "sustainability", "green" and "eco" without the product having the necessary certifications from an independent environmental labeler. One example of such a certification is "the swan label". Further, marketing is expressed by pictures, colors, and logos that in some cases are associated with example nature and animal welfare, without explaining the environmental benefits. Additionally, several marketing campaigns claims it is good for the environment when it is only micro benefits to gain (Terrachoice, 2010). All these cases are seen as the phenomenon of greenwashing (The Norwegian consumer council, 2022).

An ongoing debate is the oil company's environmental goal, zero emissions by 2050 (Rustad, 2021). Is it a way to advance, or a brilliant way of greenwashing their decisions? Helge Drange an environmental researcher at the university in Bergen pinpoints their goal of cutting 50 million tons of CO₂-equivalents yearly only constitutes 0,1 percent of the total emission of 50 billion CO₂-equivalents. (Rustad, 2021). For a consumer it can be incredibly hard to see greenwashing, it requires high knowledge of the product category. Therefore, environmental labeling is an easy way of knowing if the product is sustainable (Otto, Strenger, Maier-Nöth & Schmid, 2021). Unfortunately, in today's digital marketing area, with ads, SEO, and blog posts, it enhances the risk of being exposed to greenwashing. A problem might be that the consumer is more likely to accept blind belief in digital channels because they are more focused on price and functions. Studies show that sustainable factors come way down on the list of impotence (Lassen. K., 2022).

Richard G. Peters, (2006) did a study on the determinants of trust and credibility in environmental risk communication, they found that for industry an increase in public perception of concern and care results in a larger increase in perception of

trust and credibility. While citizen groups had an increase in perception of trust and credibility when the public perceptions of knowledge and expertise increased.

1.1 The fashion industry

The fashion industry has a value of over \$1.5 trillion and employs 75 million people. It is a big part of the world's economy and production has doubled over the last decade. Not surprising considering that 98% of the clothes have halved the time interval they are being used (Ikram, 2022). Today fashion is accountable for 10% of the human carbon emission of CO₂, less than 1% of used closed get recycled, and most end up in dumps in developing countries (Bloomberg.com). Approximately 60% of clothing is made in polyester, a material that requires a process with a high number of emissions.

Additionally, it doesn't decompose in the ocean. This is a problem because microplastics are released during washing, a whole 50 billion worth of plastic bottles (Ikram, 2022). There is huge potential for innovation toward a more sustainable future, however, it will most likely contribute to higher prices and less material sold. Some Brands, therefore, try to mislead the consumer to compete and deliver on the preferences that the stakeholders are setting. Sustainability is an increasing attribute among consumers (García-Pozo, Sánchez-Ollero & Marchante-Mera, 2013).

An article written by C. Rudd (2020) showcases how Norwegian clothing brands have conducted misleading marketing based on greenwashing. They are missing important documentation that can verify their cloth is better for the environment. Something that amazes me is that they can change their marketing without getting a fine in lesser cases. The Norwegian consumer authority can only act on this if they keep practicing greenwashing. This could intensify the firm's statements to be bolder up to a potential reveal. However, a reveal might be deemed to be too devastating to the relationship between the stakeholders.

1.2 Greenwashing in digital channels

In today's digital era, consumers are increasingly concerned about the environmental impact of the products and services they choose to support (Lim, Ting, Wong & Mah, 2013; Lin & Huang, 2012). The purpose of this study is to delve into the phenomenon of greenwashing in digital channels, and its credibility. By exploring the motivations, methods, and consequences of greenwashing, we aim to shed light on the complexities surrounding sustainable marketing in the digital landscape.

Through a comprehensive analysis of relevant literature, examination of real-world examples, and empirical research, I seek to uncover the underlying mechanisms of greenwashing in digital channels. By doing so, I aim to contribute to businesses, consumers, and stakeholders with increasing knowledge to make informed decisions and promote genuine sustainability in the marketplace.

1.3 Research question

This thesis seeks to enlighten consumers and firms on the main research question: *To what extent does the use of greenwashed visual posts (picture focused) compared to text posts (statements) in digital channels influence the customer's perception of the credibility of the post, within the fashion industry? Additionally, how does this impact the customer's perception of trust toward the brand's environmental Corporate Social Responsibility (CSR)?*

The research questions are specified for the fashion industry, however, the elements tested apply generally in all categories, cultivating external validity (Lynch, 1983). However, deviation will exist, especially when the population is moved between different cultures and countries. The fashion industry has been selected in a way to ensure realistic life-like scenarios that all participants can recognize themselves in. Clothes are a necessity, and most participants have most likely been exposed to greenwashed communication from brands in this industry before, whether they knew it or not. Further, the research question only tackles direct communication of posts from the brand to the consumer. "Side-steps" or

outsourcing as sponsorships, influencers, and PR will not be accounted for. This type of communication has a substantial influence on customer's behavior towards the brands, however, I need to restrict the thesis to a reasonable study based on my resources and time.

1.4 Contribution to new research

Previous research shows that firms that are caught greenwashing lose credibility and brand equity. A consumer will rather choose a greener option than a non-green option if the attributes are similar. Greenwashing is a phenomenon researched in general but there is a lack when it comes to its effect on digital channels, especially in the fashion industry. The Norwegian consumer council has recently exposed several clothing brands for conducting misleading marketing on their websites. This is just one example of many, making this a highly relevant topic.

This research will help to shine a light on how greenwashing is affecting customers through campaigns done in digital channels. When scrolling on your phone there is an excessive usage of ads, either in Video, picture or a text statement form. A big part of the world is dependent on the fashion industry to make clothes, unfortunately, this industry has a lot of pollution and negativity regarding human rights associated with it. This has caused an increasing focus on buying sustainable clothes, making it even harder for the brands to differentiate in an already competitive market.

To be able to maintain their market shares, and differentiate, they are slowly moving over to more sustainable alternatives, however, some brands are exhausting vague and ambiguous marketing, so they are perceived as "greener". We have even had incidents of brands caught trying to falsify certifications and plain lies. I like to emphasize that the purpose of this research is not to find out how to trick the consumer but to make an informative study that will enlighten consumers and showcase the potential risk vs reward for firms. Additionally, enlighten customers to watch out for misleading information. Hopefully, the study

will contribute to fewer attempts at greenwashing and fewer individuals ending as victims.

2.0 literature review

2.1 Greenwashing

We divide greenwashing into firm-level and product-level, defined as *“Greenwashing is the act of misleading consumers regarding the environmental practices of a company (firm-level greenwashing) or the environmental benefits of a product or service (product-level greenwashing).”* (Delmas, M. A., & Burbano, V. C. 2011)

In an illustrative example of firm-level greenwashing, Elkjøp, a prominent Norwegian electronic store, previously embarked on a campaign titled "GREEN WEEKEND". However, upon closer examination, it became apparent that the campaign's substance had no clear links to sustainability practices. Although Elkjøp clarified in the fine print that their campaign was not connected to Green Friday, it is well-documented that not all consumers scrutinize every detail of a campaign. Therefore, it's reasonable to suggest that some customers may have been misled into associating Elkjøp with sustainable practices (Stave, 2020).

The fact that Elkjøp seemed to acknowledge the possible misconceptions surrounding their campaign, yet chose to proceed with the ambiguous branding, could be seen as an attempt to capitalize on the growing consumer preference for environmentally friendly products (Luchs, Naylor, Irwin & Raghunathan, 2010). This could enhance a firm's reputation without the need of making essential changes in their operations or business practices. This practice serves as a compelling example of firm-level greenwashing.

A striking example of product-level greenwashing can be seen in the case of LG Electronics. The company had reportedly misclassified the energy efficiency of

their refrigerators, further amplified due to a third-party eco-label certification. It was later discovered that the energy usage of ten of their refrigerator models was substantially higher than initially advertised. This instance of misleading information in relation to a product's environmental footprint is a clear demonstration of product-level greenwashing (Delmas & Burbano, 2011).

According to association theory, the higher degree of deception a customer feel is associated with lower organizational credibility, and lower favorable attitudes towards the ad and the brand (Nyilasy, Gangadharbatla, & Paladino, 2014) Greenwashing is still highly unfolded. To understand the reason behind greenwashing we need to consider the drivers that lead firms to conduct positive environmental communication. The framework from Delmas & Burbano's (2011) article, showcases this. Their analysis underlines several key drivers, each contributing to the decision to publicly portray an environmentally friendly image.

Firstly, they suggest that firms may engage in greenwashing to capitalize on the growing consumer demand for sustainable and eco-friendly products and services. By portraying themselves as "green" companies, they aim to attract clusters that values sustainable practices.

Secondly, being perceived as "green" can serve as a strategic tool for companies to distinguish themselves from their competitors. In industries where many firms offer similar products or services, appearing "greener" can be a critical differentiator. As consumers are looking for more environmentally friendly solutions and the competitive market is moving rapidly, it becomes harder to differentiate from competitors, and firms will likely push the boundaries to achieve an advantage in competition, this refers to POD (point of difference), however, it might become POP (point of parity) further down the line (Keller, 2008). In some industries or product categorize this may already be the case. Big companies are also more likely to face high pressure from investors and consumers, incentivizing greenwashing. Unknown firms will therefore have a lower risk of being caught, again, incentivizing greenwashing (Delmas & Burbano, 2011).

Thirdly, firms may resort to greenwashing as a response to regulatory pressures. By projecting an image of environmental responsibility, firms may aim to avoid strict regulations or mitigate the impact of future regulatory changes.

Lastly, the authors suggest that greenwashing might be driven by the desire to appeal to multiple stakeholders, including investors, employees, and the public. Investors might favor firms perceived as environmentally responsible, employees might take pride in working for such firms, and the public image of the company can be enhanced by a 'green' reputation.

These different elements highlight the complex nature of greenwashing as a strategic business practice, revealing it as a comprehensive issue rooted in market dynamics, regulatory environments, and social expectations.

2.1.1 Laws and regulations

Greenwashing in marketing is prohibited. The Federal Trade Commission (FTC), for instance, is in charge of upholding the Green Guides in the USA, which are directions for environmental marketing claims. These standards specify in great depth the statements that may be made and the manner in which they must be upheld. (ftc.gov)

In Europe, there is an environmental mark called the EU Ecolabel that businesses may use as an example of how to meet specific environmental standards. Additionally, other nations have their own environmental certifications or marks that businesses may use to prove that products are environmentally friendly (European Commission).

In Norway greenwashing is administered by The Marketing Act or *Markedsføringsloven* in Norwegian, this is a piece of legislation that governs the advertising of goods and services in Norway and prohibits the practice of "greenwashing." Giving false information about goods or services in marketing is prohibited. This also holds true for statements made on a product or service environmental attributes or environmental effects (Lovdata.no).

The Norwegian Competition Authority (Konkurransetilsynet), The Consumer Authority (Forbrukertilsynet), and The Market Council (Markedsrådet) oversee and upholds the Marketing Act, and have the authority to make businesses modify or stop using deceptive marketing. For instance, if a firm claims that a product is "sustainable" or "environmentally friendly" and this is not documented, they may order the corporation to adjust or eradicate those misleading statements (Lovdata.no).

In addition to the Marketing Act, several Norwegian organizations and certification arrangements have created their own standards and requirements for using sustainability or eco-labels. For instance, the "Swan" ecolabel, an ecolabel that may be applied to items that satisfy specific environmental conditions, is given out by Ecolabelling in Norway (Svanemarket.no).

Therefore, it is crucial for businesses that want to utilize environmental claims in their marketing to make sure that the statements are supported by unbiased, verifiable facts and that they don't give false or misleading information about the environmental qualities of the product or service.

Depending on the degree of the violation of the regulations and the entity enforcing the legislation, different penalties may be imposed on businesses that are found guilty of greenwashing:

1. Ordering the firm to adjust or remove the deceptive marketing: The organizations mentioned above have the authority to issue such an order. The business can also be forced to apologize publicly.

2. Fine: If the business violates the regulations, it may be economically penalized. The penalty may change based on the significance of the violation, the size, and the financial health of the organization.
3. Reputational damage: Greenwashing can result in customer mistrust and reputational damage, which can have major repercussions for the long-term viability of the business.
4. Lawsuits: Customers or other parties who have been harmed by the company's deceptive advertising may file a lawsuit. The business may have to provide compensation or other types of payment as a result.

Therefore, it is crucial that businesses take precautions to ensure that their marketing abides by the laws and that it does not contain inaccurate or deceptive information regarding the environmental characteristics of their goods or services.

(Forbrukertilsynet.no)

Since there is a lack of regulation towards greenwashing NGO activists and media have had a monitorial factor when enlightening consumers and firms. Big companies have the brightest spotlights and have a higher risk of being targeted by NGOs and activists that want to utilize their spotlight, reducing greenwashing to some extent (Lyon & Montgomery, 2015). The Greenwashing poster in Norway is an example of activists uniting to stop greenwashing. This poster is being signed by firms around Norway in a way to make them accountable for their communication (Grønnvaskingsplakaten). Bad actors will therefore have the risk of being publicly exposed in the media, damaging their reputation. Additionally, the growth of digital channels and web 2.0 has enabled access to cheap communications that interacts between and with stakeholders. This gives activists and NGO's an increasingly influential power, however, firms are also utilizing this communication (Fieseler, Fleck & Meckel, 2010).

Unfortunately for the firm, this can in some cases backfire. The McDonald's campaign #McDstories is an example of this. A campaign launched to increase the customer's awareness of the farmer's contribution quickly turned into accusations from the public of food poisoning, bad labor conditions, and animal welfare (Lyon & Montgomery, 2013). Greenwashing is still weakly regulated, and

the firm might consider the ramifications not yet threatening (Delmas & Burbano ,2011). However, Lyon & Montgomery (2013) hypothesized that the expansion of social media is likely to diminish corporate greenwash.

2.1.2 The seven sins of greenwashing

Terrachoice (2010) has made the seven sins of greenwashing to educate on various ways greenwashing may occur. To summarize.

- Firstly, the stakeholders need to be on the lookout for *sins of hidden trade-offs*, narrowing down on unreasonable attributes, when there in fact are attributes that are vastly more important.
- Secondly, *the sins of no proof*, communication that claims to have a certain standard without having the certified documents. It is often used in cases where it can be hard to prove whether their communication is true. An example is claims of a certain presentence of the product being recycled with no proof.
- Thirdly, *sins of vagueness*, poorly defined or too broad definitions that are likely to make the consumer misinterpret what is communicated, all-natural aren't necessarily green.
- Fourthly, *sins of irrelevance*, by claiming to be free of an already illegal substance, the communication is clearly trying to trick the consumer.
- Fifthly, *sins of lesser than two evils*, communication of fuel-efficient sport-utility vehicles are still bad for the environment.
- Sixthly, *sins of fibbing*, being false, for example claiming to be certified when this is not the case.
- Seventhly, *sins of worshipping false labels*, giving the impression of a third-party endorsement, when this is not the case.

All these sins are being used in greenwashing, some more frequently than others and as mentioned it requires in some cases a high level of expertise to locate them. The most commonly used is *sins of vagueness* (Terrachoice, 2010), arguably, since it's made by deceptive vague communication and is hard to locate and prove, it might arguably acts as a way of risk managing the deceptional reputation.

2.1.3 Five firm-level types of greenwashing

Terrachoice`s seven sins are all product-level greenwashing (Delmas & Burbano, 2011). Contreras-Pacheco and Claasen (2017) is illuminating five firm-level types of greenwashing (de Freitas Netto, 2020).

- (1) *Dirty business*, an unsustainable business promoting sustainable practices not representative of the firm or the society.
- (2) *Ad bluster*, diverting the sustainable attention issues, emphasizing achievements that aren`t in line with the main sustainability concern.
- (3) *Political spins*, Influencing the regulatory impact from governments in their favor to obtain sustainability.
- (4) *It`s the law, stupid!*, Proclaiming deeds that are already mandatory by law.
- (5) *Fuzzy reporting*, utilizing sustainability reporters in a one-way communication channel to twist the truth and shine a brighter light on the firm`s CSR.

2.1.4 Credibility regarding greenwashing

The consumer has grown skeptical and might presume that the firm is greenwashing without any verification, even if the statements are true, especially if the communication is ambiguous (Aji & Sutikno, 2015; Silva et al., 2020). This effect has made brands hesitate to promote their good environmentally achievements (Lyon and Maxwell, 2011). The trustfulness of a firm is therefore vastly important to reduce this phenomenon (Adnan et al., 2019). A credible brand is more likely to convince the consumer (Ng et al., 2014), however, as

mentioned, they often have a bigger spotlight and has a higher risk of being revealed.

Qayyum, A, (2022) did a study on how green marketing and greenwashing impact brand equity, based on excessive product packaging. They found that greenwashing negatively affects brand equity and that an increased customer's perception of credibility towards the brand, shrunk the negative effect of greenwashing. However, Javed, U. (2022) found that the higher the perception of greenwashing, the more mistrust a customer developed in the brand's credibility. Arguably, the higher the trust, the less damage the perception of greenwashing will have on brand equity, but it will negatively affect the trust in the future.

when consumers experience green confusion or perceive a higher green risk, their trust in the company's green practices diminishes. Therefore, according to Chen and Chang (2013), it is in a company's best interest to limit greenwashing practices, reduce green consumer confusion, and manage perceived green risk to establish and maintain "green trust".

2.2 ELM

The elaboration likelihood model of persuasion (ELM) is essentially a hypothesis about the potential thought processes that take place when we try to influence someone's attitude through communication. The ELM holds that any one variable can affect attitudes in a variety of ways and can either increase or diminish persuasion through a variety of pathways (Petty and Cacioppo, 1986).

The ELM is fundamentally based on the premise that people can differ in how deeply and comprehensively they consider exposed communication. As a result, a person's level of elaboration or thought on a message or topic might range from low to high. People can think a lot, moderate or little about a message, and the amount of thinking they do greatly influence the degree of persuasiveness (Wagner & Petty, 2011).

We mainly divide the ELM into two paths, the central route, and the peripheral route. Where the central route showcases the path that is carefully thought out, while the peripheral route explains how we are being influenced to make decisions based on heuristics and the opinions of others, also seen as not so carefully thought out (Petty and Cacioppo, 1986). The phenomenon of greenwashing is especially referring to the peripheral route, as greenwashing seeks to deceive its environmental importance for the better, the toolkit often consists of colors, pictures, and text that looks and sounds “green”, however, this is not the case.

If a person decides to go the central route, they are much more likely to see through the deception as they dive into the depths of the information. Thoughtful receivers that pursue the central route will be much more reliant on the power of the arguments of the message, “weak” or ambiguous arguments will most likely generate unfavorable thoughts towards the message, in our case, the brand (Petty, Briñol, 2009; Wagner & Petty, 2011). A rational human would always decide to go the central route, unfortunately, there is not enough time to evaluate every piece of information through the central route. Hence, we need to develop ways of choosing with little to no thought process (Petty and Cacioppo, 1983).

As said, the route the person chooses is very dependent on the amount of thought process he or she puts into it, sometimes both routes are utilized. However, the central route will have a more permanent effect on attitude change (Petty, Barden, et al., 2009; Rucker & Petty, 2006; Wagner & Petty, 2011). It is within reason to therefore claim that convincing someone through the central route will make a more loyal customer. Unfortunately for marketers, a highly competitive market, such as the fashion industry, requires awareness campaigns to mainly target the person’s peripheral route, making the communication more likely to consist of “weak” and ambiguous arguments. (Tang, Jang, & Morrison, 2012).

Under low elaboration conditions, the evaluation established comes from simple associations or assumptions (Rucker & Petty, 2006), this is utilized in the most commonly forms of greenwashing, *sins of vagueness*, and *the sins of no proof* (Terrachoice, 2010).

2.3 Visual communication

To deeper understand the visuals around greenwashing we will dive into the depths of visual research. Researchers have studied how different colors affect us emotionally and behaviorally. There are many studies, and they appear to arrive at some different conclusions. However, some studies bring significant insight, blue is more soothing and relaxing but is also connected with sadness, while green was associated with feelings of peace, freshness, and nature, further, it was often used in environments that highlighted health and well-being (Kaya & Epps 2004). A study done by Elliot & Maier (2014) on a person's willingness to pay, found that warm colors were perceived as more valuable, and increased the willingness to pay. Hence, cold colors such as blue and green were perceived as less valuable. Blue and green are two colors used diligently in greenwashing.

Colors are an important element when it comes to the perception of pictures, the "picture superiority effect" implies that pictures improve the memory of the content the subjects are exposed to when compared to text alone (Nelson Reed & Walling, 1976). However, Paivio (1971) argues that the combination of pictures and text is important to increase the understanding of the perceived content. He says that pictures are more effective to explain the relations between objects and concepts, while the text is better for more abstract ideas.

Visual communication is often the main element in greenwashing, therefore, it is vastly important to be critical of visuals that highlight environmental benefits. Environment labeling is usually a safe way to confirm that the claims are true. Burgia, (2020) adds that visuals and images improve the legitimacy of the company and will likewise improve the greenwashing through sophisticated methods. Additionally, Schmuck, Matthes & Naderer (2018) highlights that

visuals that utilizes nature-evoking imagery capitalize on a persuasion that is stronger than the perceived greenwashing effect. In other words, nature-evoking images increases positive attitude more than what perceived greenwashing reduces it.

2.4 Digital channels

Digital advertisement is a communication sent digitally, often ads, blogs, websites, and social media (SOME), through devices such as tablets, mobiles, PC, and other networked devices that contribute to the advertisement experience (McStay, 2017). In the later years there has been a prominent increase in the usage of social media, in 2011, 57% of Norwegians used it. Today, 9 of 10 Norwegians, or 88% are actively engaging, with an increase of 8% in the last five years (SSB, 2023).

The different stakeholders are actively engaging with each other, establishing relationships outside and inside of the brand's control. They seek opinions, experience, and information about the brand and product (Felix, Rauschnabel, and Hinsch 2017). This gives an incentive for brands to be more willing to use social media channels like Twitter, Instagram, Facebook, and YouTube (Angella, Kim & Ko, 2012). Angella J (2012) did a study on social media marketing (SMM) activity's effect on value, brand, and relationship equities in the luxury fashion market. They were all significant and had a positive effect on the equities. Hence, SMM activities contribute to efficient marketing communication because the major goal of marketing communication is to boost consumer equity drivers, by fostering customer relationships and generating purchase intent. The following are the primary goals of SMM:

- More brand awareness and enhance brand image.
- Lower marketing expenses.
- More traffic to online platforms.
- increased sales.
- User interaction.

(Bazi, Filieri, and Gorton 2020).

Further, social media has been embraced by an increasing number of brands as their primary channel for corporate communication (Kwon & Lee, 2021). It's a reliable source to communicate the brand's CSR, both for defenders and explorers. Defender refers to largely utilizing one-way communication, and explorers to two-way collaboration towards the stakeholders (Felix, Rauschnabel, & Hinsch 2017). Additionally, we divide between conservatism and modernism culture, where conservatism is a more traditional form of marketing, mass producing towards awareness within a predetermined framework, while modernism is a more open and flexible approach to the culture (Felix, Rauschnabel, and Hinsch 2017).

According to Zeng, Huang, and Dou's (2009) research, users' intentions to accept advertising in an online community were raised when they valued and identified with the community. Being part of a digital platform will therefore increase your likeness or understanding of the ads. According to Sashittal, Sriramachandramurthy, and Hodis (2012), college students are not interested in social media ads and believe them to be untrustworthy. The students also pointed out that advertising is frequently oblivious to the students' present needs and interests.

Research done by Rahbar & Wahid (2011) unveiled that eco-label and eco-brand had a positive influence on the customer's trust and purchase behavior, this matches with Ranjan & Kushwaha (2017) studies, their result also indicated that the consumer is not tolerant for an increased price or lowered quality for green products. The perceived greenwashing in digital channels is a factor that infects the happiness of the consumer while surfing, (Szabo & Webster, 2020). Arguably, effecting the credibility and likeness.

2.5 The literature behind the hypothesis

The higher degree of deception felt by the customer results in lower credibility (Nyilasy, Gangadharbatla & Paladino, 2014). So, if the perception of greenwashing finds a rot in the customer's mind, I believe it will negatively affect

the credibility and effect of the ad. Lyon & Montgomery (2013) hypothesized that the expansion of social media is likely to diminish corporate greenwash because of the interaction between all stakeholders.

However, greenwashing is far from gone, but all the opinions and interactions have probably increased the awareness of all stakeholders. The customer has grown skeptical and might presume that greenwashing is happening even in cases where the communicated message is true (Aji & Sutikno, 2015; Silva, 2020). It requires expertise to locate greenwashing and the customer might feel safer being skeptical of everything rather than being tricked. Qayyum, A, (2022) did a study on how green marketing and greenwashing impact brand equity. They found that greenwashing negatively affects brand equity.

However, an increased customer's perception of credibility towards the brand shrunk the negative effect of greenwashing. Supposedly, big brands can more often get away with greenwashing based on the customer's mind. Additionally, Javed, U. (2022) found that the higher the perception of greenwashing, the more mistrust a customer developed in the brand's credibility. All these mentioned factors give me a reason to believe that vague communication will have a negative effect on credibility. Vague communication is most common used in greenwashing (Terrachoice, 2010), thus, communicated greenwashing will consist of vague communication in this study. I believe H1 is reasonable.

H1: *Greenwashing has a negative effect on the credibility influence of digitally communicated posts.*

Chang (2011) Found that blogs, websites, and other information sources had more effect on their positive attitude regarding purchase decisions when they were produced by a typical consumer. An example found by Halveson (2013) on fashion blogs is that it creates a feeling of intimate relationships with the reader. However, all communication in this experiment will be communicated from the firm or brand itself.

Ho (2015) enlighten that the customer is persuaded by the perceived expertise and the explanation style. Arguably, giving the text a more credible value than colors and pictures. In line with this Lee (2006) found that brand credibility increased when published by the firms, if it provided a sensible valuation of the brand. The interaction effect of blogs also positively contributes to credibility if it does not ignore problems and issues that arise (Sweetser & Metzgar, 2007). This will probably impact the vague communication (in this case, greenwashing) negatively.

Unfortunately, the customer is most influenced by the product message (Fu & Chen, 2012), there is often here greenwashing founds it rots by utilizing words such as “eco” and “bio” to be perceived as greener. However, it is often said that a picture equals a thousand words. This is not so far-fetched since pictures are easier to perceive as reality, (Hameleers, Powell, Van Der Meer, & Bos, 2020) arguably, giving them an advantage in vague communication. Lowry, Wilson, & Haig, (2014) demonstrates that logo designs that communicate traits of credibility is being perceived as more credible in the customer`s eyes. It is therefore reasonable to believe that visuals are more effective in vague communication (greenwashing), hence, logic and sensible communication are more credible for texts posts (Statements).

H2a: *Greenwashed communication posts that is visual focused has a higher credibility influence than text focused posts.*

H2b: *Non-greenwashed communication posts that is text focused has higher credibility influence than visual focused posts.*

As mentioned, stakeholders such as investors, customers, and employees are very likely to reward firms associated with good corporate behavior and will cast aside the bad actors (Bhattacharya, 2010). When it comes to greenwashing the truthfulness of the firm is vastly important to reduce skepticism (Adnan et al., 2019) and a credible brand will easier convince the costumers (Ng et al., 2014). Qayyum, A, (2022) found that if a costumer believes it`s a risk of greenwashing it will negatively affect brand equity. However, if the brand already has a high score in credibility, the effect is reduced, but still negative. This has been investigated in

previously studies, therefore, it is reason to believe that H3 is correct and will replicate these results.

H3: *Credibility influences the participants perceived environmental CSR of the brand.*

The underlying assumption here is that the more environmentally conscious a respondent is, the more knowledgeable they are about greenwashing and, consequently, the more skeptical they might be of unverified environmental claims. This was theorized by Lyon and Maxwell (2011), who implies that consumers with a higher level of environmental consciousness are more likely to be critical of greenwashing. They have more knowledge surrounding greenwashing. Choon, Ong, & Tan (2019) found that environmental consciousness and social trust are key predictors of risk perception, giving me reason to believe that they become more skeptical of green advertisement. Additionally, Zhang, Li, Cao & Huang, (2018) exhibits that green concern supports the negative association on green perception and green purchase intentions. Further, credibility has a positive influence on purchase (Wang & Yang, 2010). Justifying that environmental consciousness acts as moderator for greenwashing on credibility.

H4: *Environmental consciousness acts as a moderator for greenwashing, and negatively affects credibility influence of the posts.*

Martín-Consuegra, Faraoni, Díaz & Ranfagni, (2018). Found that brand credibility has a positive influence on brand image and purchase intent, likewise, Wang, & Yang, (2010) enlightens that brand credibility has a positive influence in purchase. Additionally, Goldsmith, Lafferty & Newell (2000) emphasizes the importance of corporate credibility when the consumer reacts to the advertisements. How likable the post is therefore arguably rooted in previous established brand credibility, accordingly, Negad, Samadi, Ashraf & Tolabi (2015) found that brand credibility impact brand attitude. Different brands will have different established credibility in the costumer's mind. Following this and recent theory discussed, the degree of already established brand credibility will affect the perceived greenwashing in the costumer's mind. In line with Nan

(2013), showed that source credibility effected the persuasion positively. The peripheral route is closely related to vague communication, thus, in this case greenwashing. Were the peripheral rout has relations to source credibility. (Zhou, Lu & Wang, 2016).

Building upon these insights, it is hypothesized that established brand credibility acts as a moderator for the effects of Greenwash_Status, Brand_Type and likeness towards the post, on credibility influence of the posts. In other words, the level of established brand credibility will moderate the extent to which these factors impact the perceived credibility of the posts.

H5: *Established Brand Credibility acts as a moderator for Greenwashing_Status (H5a) Brand_Type (H5b) and likeness towards the post (H5c) and has a positive effect on credibility influence of the posts.*

The level of liking for the post also stands to affect the perceived credibility of the communication. It is hypothesized that the more a respondent appreciates a post, the more likely they are to perceive it as credible. This is supported by research from Tseng & Fogg (1999) who found that users positive feelings towards a web page significantly influenced their perceived credibility of the site. We often “judge a book by its cover” and only the visuals can be enough to increase the credibility. Ritchie, Kramer, & Burton (2018) study on faces indicated that the more familiar we are with someone the higher likeness rating we give. This effect is likely to transfer over to the brand (Nisar, Shaheen, & Bhatti, 2017).

Wobbrock, Hsu, Burger, & Magee (2019) establishes that credibility is affected by presentational factors of the site. Indicating that the respondent’s personal preferences will affect the credibility. By examining the role of likability as a potential predictor of credibility, this study aims to provide valuable insights into the factors influencing the perceived credibility of digital communications.

H6: *The more likable the communication is, based on personal references, will have a positive effect on credibility and act as a mediator for the Greenwash_Status (H6a), Visual_Text (H6b) and Brand_Type (H6c).*

Based on the hypothesis created the following framework was built to visualize the hypothesis and how the methodology plans to incorporate them.

Framework:

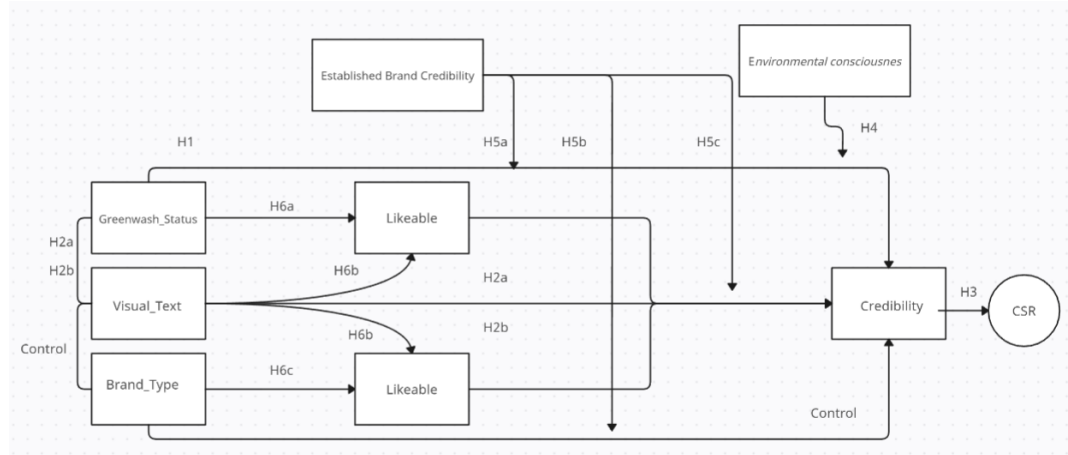


Figure 1 Framework

3.0 Methodology

3.1 Introduction

In this methodology I will describe the research method and the analysis that helps me answer my research questions, and the different hypothesis, regarding the credibility of greenwashing in digital posts from brands. To answer the research question, I have utilized a quantitative approach, with a semi quantitative pre-test. Firstly, I conducted a qualitative approach based on the secondary data from the literature review, with in-depths interviews. This was mainly done as part of a pre-test to increase the quality of the quantitative approach. Secondly, I performed a quantitative analysis in survey format. This gave the opportunity to assemble data from a large number of respondents, additionally, statistically analyze them.

3.2 Chosen brands

I have selected the brands GANT and Holzweiler for my study. One of the main reasons for choosing these brands is their similarity in terms of target market. I do not imply that they are completely analogous, this is neither wanted since I want to be able to check for bias of the brands. Nevertheless, they both cater to individuals who are seeking high-quality, contemporary fashion with a distinct design aesthetic. During the pre-test phase, it became evident that we needed brands that shared certain characteristics to serve as controls for each other. Initially, I considered using HM (Hennes & Mauritz), but it was found to introduce numerous underlying assumptions that could significantly impact the results.

Both GANT and Holzweiler are not fast-fashion brands and prioritize sustainable, long-lasting clothing (Gant.com, Holzweiler.com). In terms of their environmental engagement, the two brands are not vastly different from each other. According to goodonyou.eco a website that rates brands based on their environmental contributions, GANT received a rating of "Not good enough" (2 out of 5) while Holzweiler received a rating of "It's a start" (3 out of 5). This suggests that Holzweiler may have a slightly higher level of credibility when it comes to environmental considerations.

Both GANT and Holzweiler are well-known and well-liked brands, which adds to their suitability for controlling each other in the study. By utilizing these brands as controls, we can better isolate and examine the specific effects of my variables on credibility while controlling for bias and confounding factors (Becker, 2005).

3.3 Description of variables

This study incorporates multiple variables to explore the complex relationship of greenwashing in digital media formats. These variables are categorized as dependent, independent, moderator, mediator, and additional variables.

Type of variable	Variable name	Description	Scale/Type
Dependent	Credibility	Perceived credibility of each post	1-7 likert-scale
Independent	Visual_Text	Type of post: Visual and text	Nominal
Independent	Greenwash_Status	Status of post: Greenwashed or not greenwashed	Nominal
Independent	Brand_Type	Type of brand: Holzweiler or GANT	Nominal
Moderator	Environmental consciousness	Respondent's environmental consciousness	1-7 likert-scale
Mediator	Likeness towards the post	Respondents liking towards each post	1-7 likert-scale
Moderator	Established Brand Credibility	Previous credibility of the brand	1-7 likert-scale
Additional	Sex	Respondent's gender	Male or female
Additional	Age	Respondent's age group	18-30,30-40,40-50,50+
Additional	Higher education	Respondent's level of higher education	0, 1, 2-3, 4-5, 6-7, 7+
Additional	Knowledge of brands	The respondent's familiarity for HW and GANT	HW and GANT, HW, GANT, None

Table 1 Description of variables

Environmental consciousness

The *environmental consciousness* of the respondent will affect credibility if the post is greenwashed. This variable is measured by calculating the total score of 5 questioners on a liker-scale 1-7, commonly used on less concrete concepts (Sullivan & Artino, 2013). The questions (Appendix 1) are based on Park & Na (2013) findings, where *environmental consciousness* consists of the three dimensions public participation, resource conservation and recycling.

3.4 Research design

The 2x2x2 experimental design implies a setup where there are three independent variables, each having two levels. This type of design allows for the examination of each variable's effect on the dependent variable *perceived credibility*, as well as any interaction effects between the variables. *Brand* acts as a control variable to better assess *Post Type* and *Greenwashing*, However, they are all treated as independent variables, and therefore controlling for each other. In some parts of the analysis a 2x2 design with *Brand_Type* as control was necessary.

A 2x2x2 design results in eight possible conditions (posts). This design is a mixed factorial design with greenwashing as a random factor, thus, mixed between-subjects and within-subjects for greenwashing. The design implies that every level of each variable is tested with every level of all the other variables (Montgomery, 2017). This setup permits the examination of not only the effect of each individual variable on the credibility (dependent variable), but also the interaction effects between the variables, providing a comprehensive understanding of the research question.

	Gant	Holzweiler
Visual		
Greenwashed	Gant_Visual_G	HW_Visual_G
Not greenwashed	Gant_Visual_NG	HW_Visual_NG
Text		
Greenwashed	Gant_Text_G	HW_Visual_G
Not greenwashed	Gant_Text_NG	HW_Visual_NG

Table 2 Research design

The moderator can significantly alter the way our independent variables affect our dependent variable (credibility). The mediator will be affected by the independent variable, and further influence the dependent variable (Baron & Kenny, 1986). The literature behind these moderators can be found in the literature review.

Moderator:

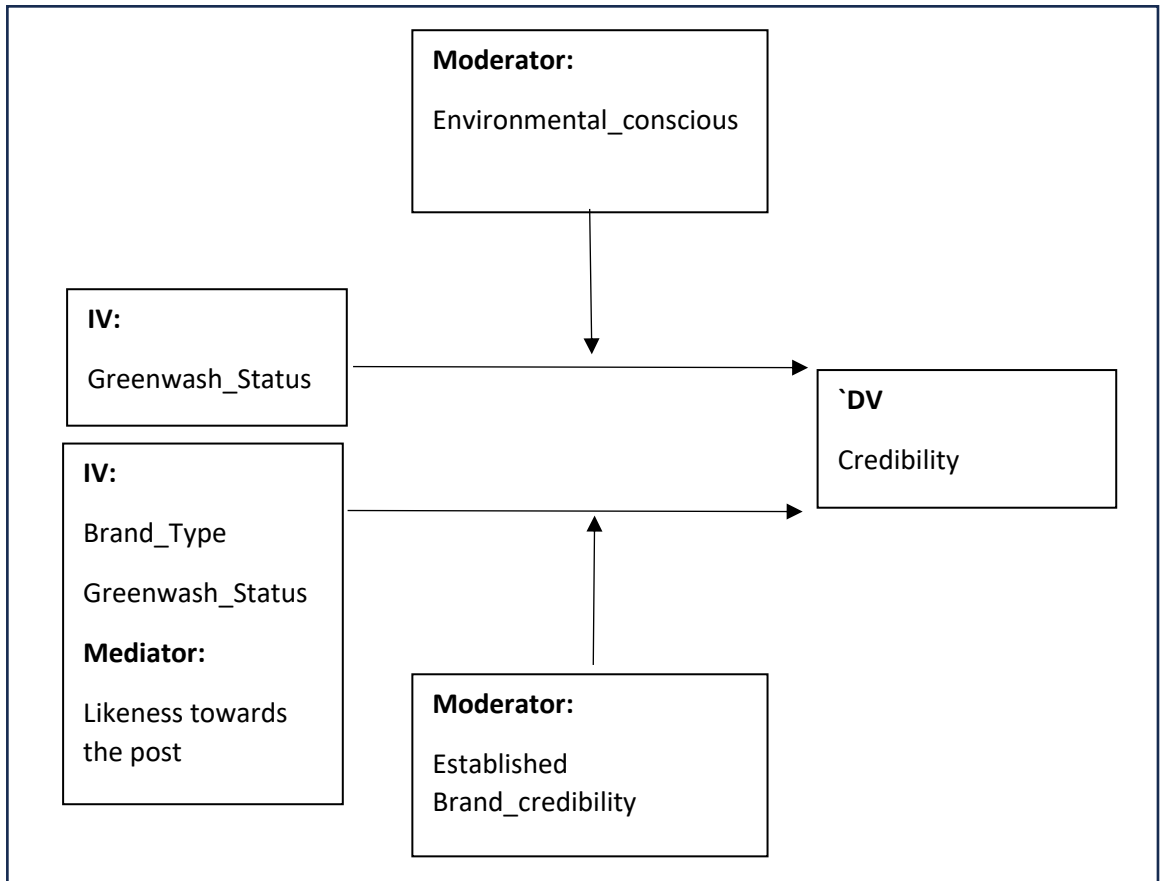


Figure 2 Moderators

Mediator:

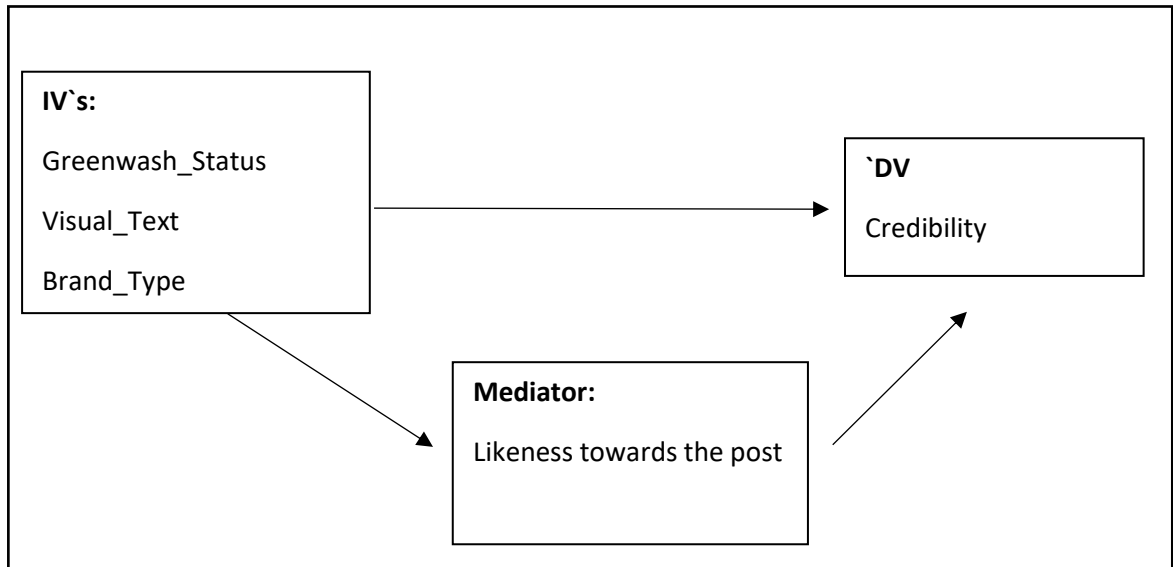


Figure 3 Mediator

3.5 Data collection

3.5.1 Pre-test

The pre-survey was undertaken as an essential quality control measure within the framework of the research's quantitative methodology. A sample of 25 participants, selected through convenience sampling, took part in this preliminary study. This sampling strategy was utilized to enable easy follow-up interactions with the respondents. The pre-survey's design bore resemblance to the anticipated structure of the primary quantitative survey, with additional questions included to evaluate its realism and applicability to real-life situations.

Upon analysis of the pre-survey data, it was observed that the advertising scenarios lacked a certain level of professionalism. Ambiguous terminology was identified, along with elements deemed unnecessary for the study's focus. Furthermore, the brand H&M was excluded from the final research design due to highly skewed and bias participant opinions. Instead, the decision was made to proceed with the brands Holzweiler (HW) and GANT, as these brands provided a more balanced approach for the research context. Assisting in achieving causality between the independent and dependent variables. Increasing the internal validity, a vastly important factor to consider (McShane, Williams & Wagoner, 1992).

3.5.2 In-depths interview

A few chosen participants from the pre-test were invited for an anonymous interview. I choose to invite four participants in different ages, 18-30, 30-40, 40-50 and 50+, additionally, I invited two marketing experts to assist in making a more professional life like experience.

The participants were asked in depth questions surrounding the survey to better understand how they interpreted the different questions, mainly focusing on the questions surrounding what made the post credible. It made it clear that the environment labeling acted as a credible source to exclude greenwashing and making the message more authentic, contributing to establishing causality. Additionally, it was clear that the initial brand HM had a negative reputation that infected the result, HM is also inside the fast-fashion category, differing with my other brands.

In the interviews with the two marketing experts, I was assisted in how to make the copywriting and design of the posts more authentic to a life like scenario. One part was the general design of the picture and fonts, however, they also assisted me in improving the communicated message, encouraging the post to only tackle one issue. Thus, Awareness for a collection or signing up for being a member, not both.

3.5.3 Sample

The survey will be distributed to regular consumers, since clothes is a necessary commodity, the respondents will be everyday people. The sample size is 159 participants and is large enough to be representative for the within subjects effect, however, there is lack of participants in the between subject's conditions (Shaffer, 1981; Traill et al, 2007). Unfortunately, the sampling is conducted by means of convenience, and utilizing the snowball effect (Berndt, A. E, 2020). The survey is spread through social media such as Facebook, LinkedIn, Instagram, messenger and snapchat. This means it is only partly randomized within my network, and

there are boundaries on whom I can reach. However, since no prior knowledge is needed, this will still make the experiment valid. The optimal solution would have been stratified sampling. (Troost, 1986).

3.5.4 Quantitative survey

I chose to conduct a survey to effectively gather a large amount of data from many respondents as my primary source of data. Based on my available resources an experimental survey design was most reasonable and rational. The purpose of the study is to investigate the context regarding visuals and text that is greenwashed, and its effect on credibility in digital posts, within the fashion industry.

The survey will consist of closed questions and questions on a Likert scale constructed from the literature review, pre-test, and the in-depth interviews. The exposed posts come from the two brands, GANT and Holzweiler. Further, there are two forms of posts, one focuses on the visuals (picture), and the other on text message (Statement). All posts have two versions of itself, one version is greenwashed, while the other is not greenwashed, in total there is eight posts in circulation (Appendix 1). The respondent is exposed to one visual and one text post from each brand. where each respondent was exposed to these posts in a random order (Curtis, Alexander, George & Ahluwalia, 2018). This allowed the study to isolate the effects of the independent variables - *Post Type*, *Greenwashing* and *Brand Type* - on the dependent variable - *credibility*, while controlling for each other. Increasing the internal validity.

in total four posts. From the following table the respondents were exposed to either 1 or 2, 3 or 4, 5 or 6, 7 or 8. Example: 1,4,5,8.

Post	Brand	Greenwash	Visual/text
1	HW	Yes	Visual
2	HW	No	Visual
3	Gant	Yes	Visual
4	Gant	No	Visual
5	HW	Yes	Text
6	HW	No	Text

7	Gant	Yes	Text
8	Gant	No	Text

Table 3 The different posts

Furthermore, I concluded from the literature review that the difference between the most normal type of greenwashing is communication that is ambiguous and doesn't have any proof. So, to keep every aspect of the visual post the same, whether it was greenwashed or not, I added two environment certification labels on the visual that was not greenwashed. On the text post (statements), the one that's greenwash only uses words as "eco", "neutral" and "green" to pretend to be green without referring to any proof or certification (Appendix 1).

The study also controlled for possible confounding variables such as respondent's environmental consciousness and established brand credibility. By accounting for these factors, the study was able to more accurately measure the effects of the variables of interest.

3.6 Ethics

When performing this study, the ethical considerations has always been crucial. From the start the participants was made aware that their participation was completely voluntary, and well informed that the study was part of a master thesis. No sensitive information was requested; only opinions, age, and education levels were recorded.

Further, all collected data was treated with severe confidentiality, only shared between me and my supervisor. Additionally, all responses was anonymized and the respondents was assured that all data would be deleted at the end of the study, emphasizing the commitment to data privacy and security.

Although the study appears to have minimal risk, it is essential to discuss the potential misuse of the research findings. The study's intent is to understand how

the use of greenwashed posts in digital channels can influence a customer's perception of post credibility. Hopefully, this will help brands to become more ethical and incorporate more transparency in their marketing strategy. However, it should be mentioned that these findings have the potential to be exploited. If the brands find ways to hide their greenwashing from the consumer by manipulating their perception, and further profit on this misleading. It will harm the legitimate environmental responsibility.

To mitigate the risk of deceptive marketing the findings need to be shared responsibly. By promoting stricter regulations in advertising and educating the consumers of potential threats and identifiers surrounding its strategies. In overall a more transparent market should be elevated.

4.0 Data Analysis

4.1 Introduction

In this part of the thesis the data and analysis gathered will be used to answer my research question. *“To what extent does the use of greenwashed visuals (ads) compared to text (statements) in digital posts influence the customer's perception of the credibility of the post, within the fashion industry? Additionally, how does this impact the customer's perception of trust toward the brands Corporate Social Responsibility (CSR)?”*

I will use a various of different statistical analysis to answer my research question, especially the effect between greenwashed and not greenwashed, visual and text, and the interaction effect between them. This analysis will enable me to see how greenwashing and types of post is affecting the consumers perception.

4.1.1 Data

The Study had 250 respondents in total, however, after cleansing the data set checking for extreme and missing values, the data utilized in this study consists of 159 respondents, a lot of the respondents only answered a few questions, and I decided to remove them. The data was gathered in Qualtrics and exported to SPSS for analysis. Since the study has within-subjects effects, and all participants were only exposed to 4 out of 8 posts. I had to restructure the data, (“data”, “restructure”, “variables into cases”) to a long format. At standard SPSS had one line (horizontal) equals one respondent, however, I restructured the data so eight lines represented one respondent. With eight lines each respondent has one line for each potential case. By doing this I was able to separate between the different posts (greenwashed vs not-greenwashed, visual vs text, HW or Gant) and compute my variables of interest.

4.2 Analysis

The analysis will help me examine the research question and consist of a series of different analysis giving me comprehensive insights of the data. The statistical program of choice was SPSS. Firstly, an overview of the descriptives was initiated to identify the trends and distribution of the dataset (Appendix 2).

Next, to ensure higher validity a test of normality and skewness was executed, this is an assumption of requirement needed for the analysis (Appendix 3). To further raise the validity Cronbach alfa was computed (Appendix 4), this measure helped to assess the internal consistency of the scale items used for measuring, thereby ensuring the reliability and robustness of the results (Tavakol & Dennick, 2011).

Following this, a correlation analysis was carried out to determine if any of the variables had correlated effects on each other (Appendix 5). This helped identify any relationships that might exist between pairs of variables, thereby providing additional insights into the complex interactions within the data (Pallant, 2020).

A Moderator and mediator analysis was then conducted to see the interplay between my variables on credibility (Neubert, 1998) (Appendix 7 & 8). This was kept in mind when I thereafter executed an ANOVA (Appendix 6) and Linear mixed model (Appendix 9). The ANOVA give insights on the between effects by comparing the means of the groups (Field, 2018).

Subsequently, a linear mixed model analysis was performed to investigate the degree to which different variables influenced the credibility (Field, 2018) (Appendix 9). This analysis not only highlighted the individual impact of each variable, but also the collective influence of all considered variables on credibility. Additionally, the mixed model analysis also facilitated the exploration of any potential interaction effects among the independent variables. Through these analytical procedures, a comprehensive understanding of the underlying patterns in the dataset was obtained, providing invaluable insights for addressing the research question. Lastly, four linear mixed models were executed to comprehend the effect of credibility on CSR (Appendix 10).

4.3 Result

4.3.1 Descriptive statistics

The analysis had in total 159 respondents after data cleansing. The respondents were 48% female and 52% male. The age varied between 18 and 50+, 54,4% were between 18-30, 29,5% in the age 50+, and the rest of 15,7% in the age 30-50. Regarding higher education 12,5% reported that they had 0 years of higher education, 4,4% had 1 year, 36,4% had 2-3 years, 36,4% reported 4-5 years and 10% had 6+ years (Appendix 2).

When considering the respondents knowledge of the brands 74% had knowledge to both brands, 0,6% to only HW, 20,1% to only Gant, and 5% had no knowledge of both brands. These groups are very skewed and does not represent all groups optimal, nonetheless, there seems to be a marginally trend of higher credibility towards the brands that is known. The difference in mean values for these groups regarding the likeness towards posts, from different brands, were minimal.

Furthermore, on the brands environmental engagement, the respondents rated HW higher ($M = 3,81$, $Std = 1,332$), then GANT ($M = 3,68$, $Std = 1,130$). The results hints that HW is perceived as more credible than GANT, regardless of whether the post is greenwashed or not. The table below shows the average credibility ratings given by the respondents for each of the eight posts (Appendix 2).

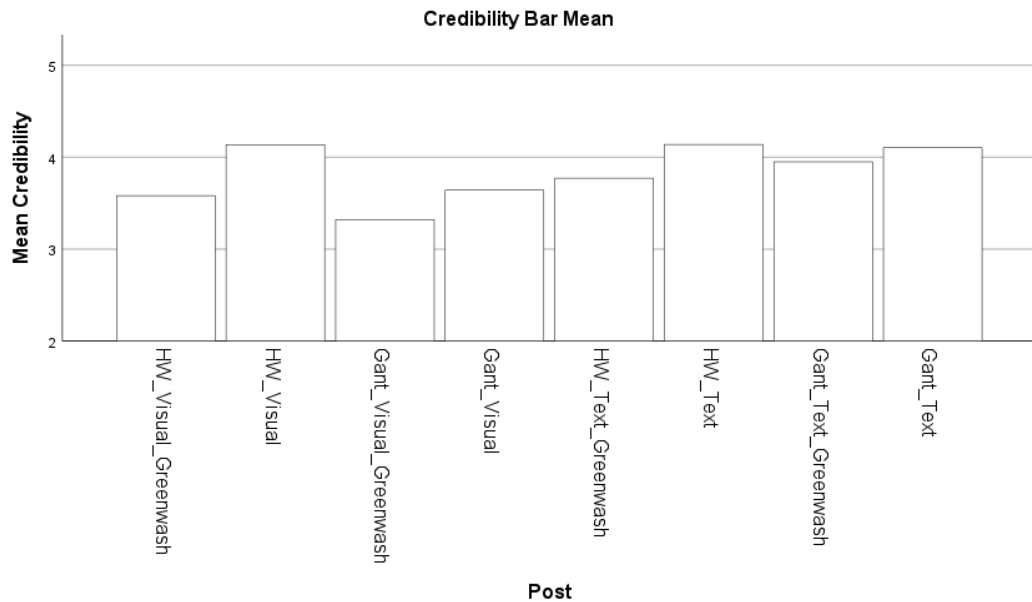


Figure 4 Credibility Bar Mean

We can see a trend that greenwashed posts are less credible. Greenwashed posts combined ($M = 3,66$, $Std = 1,383$), not greenwashed posts combined ($M = 4,01$, $Std = 1,378$). Interpreting the joint visuals ($M = 3,67$, $std = 1,376$), for text ($M = 3,99$, $Std = 1,388$). This suggest that text (statement) posts positively impact credibility. Likewise, on the different brands, HW ($M = 3,91$, $Std = 1,346$), and GANT ($M = 3,75$, $Std = 1,431$). Indication that HW might be a more credible brand then GANT. Additionally, the likeness towards the posts was measured since this is expected to be a mediator, illustrated below (Appendix 2).

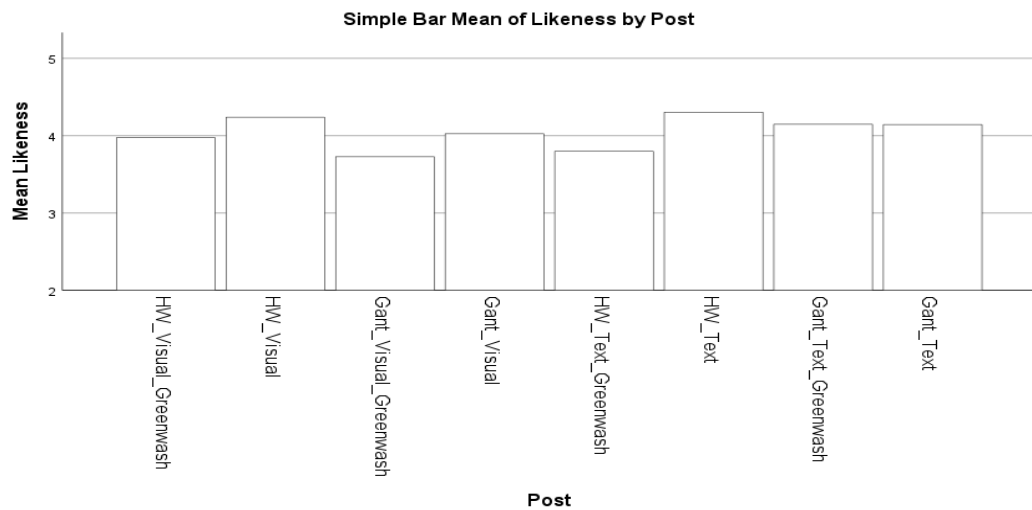


Figure 5 Likeness Bar Mean

Greenwashed posts combined ($M = 3,91$, $Std = 1,362$), not greenwashed posts combined ($M = 4,18$, $Std = 1,274$). Indicating a tendency of the respondents being more favorable towards not greenwashed posts, this trend is also displayed in the bar plot. Interpreting the joint visuals ($M = 3,99$, $Std = 1,386$), and text ($M = 4,10$, $Std = 1,314$). This gives reason to believe that statement posts are more favorable than visuals. However, on the different brands, HW ($M = 4,08$, $Std = 1,274$), and GANT ($M = 4,01$, $Std = 1,424$) are similar, this implies the brand type had little to no effect on the likeness of the post, nonetheless, it is importance to notice that GANT has a higher Standard deviation, hence, it is a bigger spread in the respondent answers. Further analysis is needed to conclude on any effects (Appendix 2).

When asked about how they viewed the Environmental engagement of the brands if the posts were verified a lie (Likert-Scale), it impacted there view drastically. HW ($M = 2,28$, $Std = 1,263$) and GANT ($M = 2,22$, $Std = 1,179$). On the other hand, if they were verified true, it had a positive effect for both HW ($M = 4.76$, $Std = 1,355$) and GANT ($M = 4.69$, $Std = 1,326$), further emphasizes that engaging in greenwashing poses a risk of damaging the reputation of the firm or its corporate social responsibility (CSR) efforts (Appendix 2).

4.3.2 Normality

An important assumption for my analysis is normally distribution of the dependent variable scores (Wang & Lee, 2019). This was examined in order to

not compromise the validity of the study. Considering the Kolmogorov-Smirnov tests all cases had ($P < 0.001$), and skewness values inside the interval ranging from -1 to 1, for all variables. Credibility (- 0.178), Likeness towards the post (- 0.427) and Established brand credibility (- 0.107) are all left skewed, but since the values is between 0.5 and -0,5 they can be considered approximately symmetric (Appendix 3).

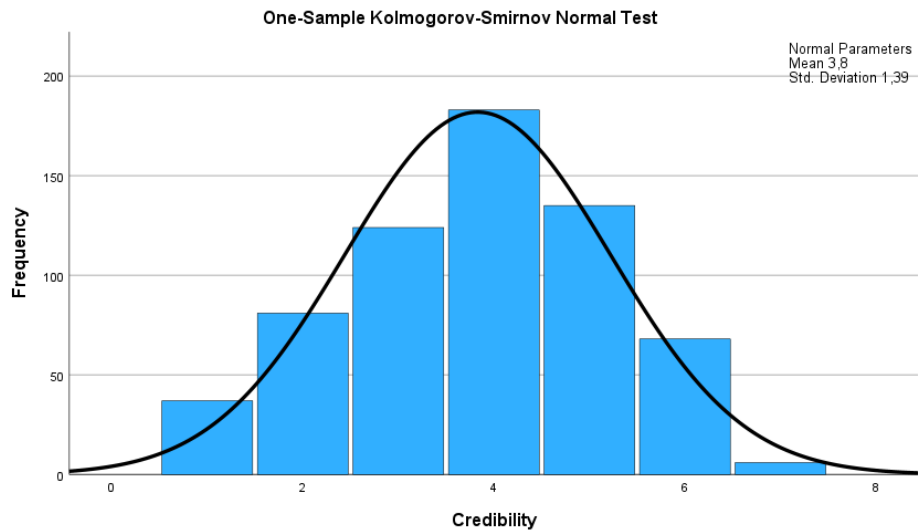


Figure 6 Normality visualization

4.3.3 Reliability analysis

The reliability of *environmental consciousness* was assessed using Cronbach's alpha (Appendix 4). Cronbach's alpha is a commonly used indicator for measuring the internal consistency or reliability of the research (Tavakol & Dennick, 2011). The following scale were included in the analysis.

Environmental Consciousness Scale: This scale comprised 5 items assessing the level of environmental consciousness.

All items were rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Higher values of Cronbach's alpha indicate greater internal consistency and reliability of the scale. The recommended threshold for acceptable reliability is typically set at 0.70 or above (Almborg & Berg, 2009). The results of the reliability analysis indicated the following:

Environmental Consciousness Scale: Cronbach's alpha coefficient for this scale was 0.775, indicating satisfactory internal consistency.

These findings suggest that the scale used in this study exhibit adequate reliability and can be considered suitable for the analyses. Regrettably, credibility, likeness and Established brand credibility are only measured from one questionnaire, nevertheless, this will be discussed further in the limitation part. Since the respondent is asked to assess the environmental engagement of the brands, in the scenarios where the posts are verified true and in the case of exposed as false (Appendix 1). Additionally, the brands are perceived almost likewise on their environmental engagement, with a mean difference of 0.13, I will run a reliability analysis between brands since their both measuring the impact of false and true posts. In the case of false posts Cronbach's alpha coefficient was 0.945 and 0.935 in true cases, vastly satisfying.

4.3.4 Correlation analysis

The correlation analysis was selected to examine the relationship between the variables and to establish if they were correlated (Appendix 5). Correlation measures the strength and direction of a linear relationship between two variables, with values ranging from -1 to +1. A correlation of -1 indicates a perfect negative correlation, while a +1 indicates a perfect positive correlation (Field, 2013). Person's correlation was utilized.

Variables	Person correlation	Significance
Age	<i>-0.079</i>	<i>0.046</i>
Sex	<i>0.002</i>	<i>0.952</i>
Higher Education	<i>-0.130</i>	<i>0.001</i>
Knowledge of Brand	<i>-0.052</i>	<i>0.189</i>
Greenwashing Status	<i>0.126</i>	<i>0.001</i>
Visual vs. Text	<i>0.115</i>	<i>0.004</i>

Brand Type	-0.057	0.153
Likeness Towards Post	0.767	<0.001
Established Brand	0.800	<0.001

Table 4 Correlation on Credibility

The significant pairs are of interest, in all other cases it is suggest that there are no correlations. There is a small positive correlation on credibility for Visual_Text and Greenwash_Status, suggesting that credibility increases as the IV`s increases, based on the categorical variable this intends non-greenwashed and text posts has higher credibility. Further, Age and Higher Education has a minor negative correlation, suggesting that *credibility* drops with age, likewise, the more years of Higher education a respondent has, the lower is the credibility scores. *Likeness towards the post* and *Brand_credibility* has a strong positive correlation with credibility. Implying that likeness and the perceived brand credibility might influence the perceived credibility heavily. It's important to note that correlation does not imply causation. Even though variables may be correlated, it does not necessarily mean that one variable causes a change in the other (Coolidge, 2020).

4.3.5 Mediator and Moderator

4.3.4.1 Mediator

Linear mixed models were utilized in order to determine the mediation effect of “*likeness towards the post*” from the IV`s *Visual_Text*, *Brand_Type* and *Greenwashed_Status* to the DV *credibility* (Appendix 7). When performing the models for *Visual_Text*, path A is non-significant, suggesting that *Visual_Text* has no effect on *Likeness towards the post*, all Sobel-tests (Coetzer & Richmond 2009) when accounting for all levels of *likeness towards the post* showed no significance. However, both variables have a significant effect on *Credibility*. It is therefore reasonable to conclude that *Likeness towards the post* has no mediator effect, but individual strong direct effect, hence, H6b is rejected. Illustrated below.

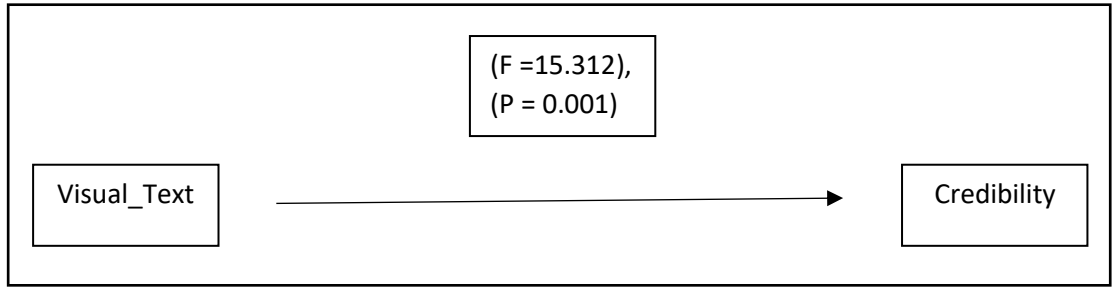


Figure 7 *Visual_Text`'s total effect on credibility.*

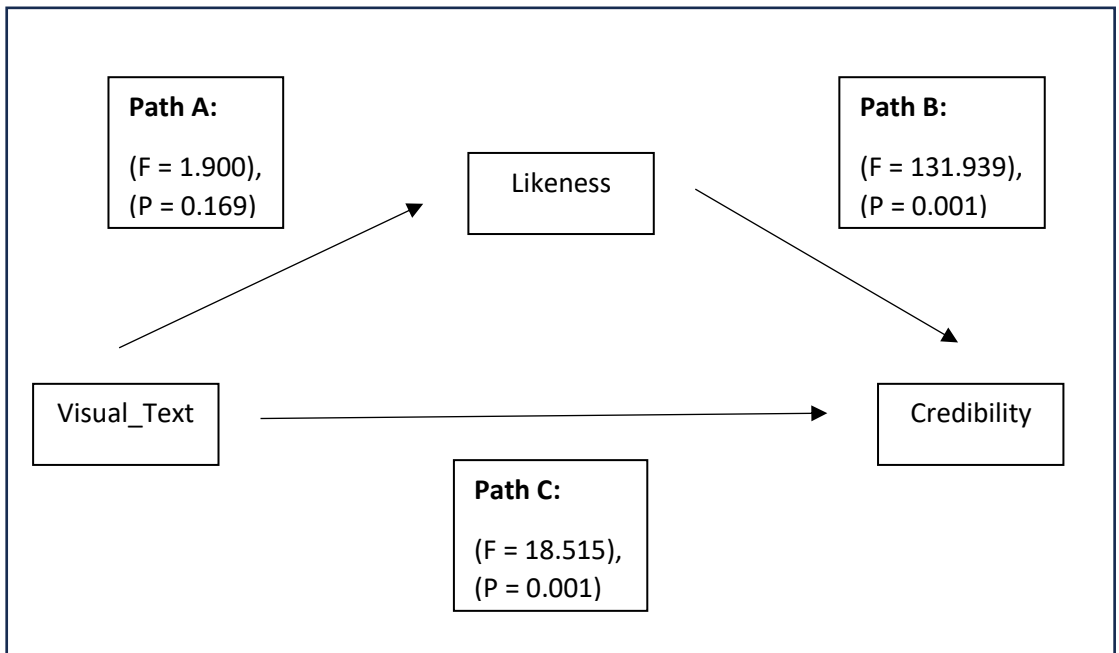


Figure 8 *Likeness as mediator for Visual_Text on credibility.*

Further, *likeness towards the post as a mediator for greenwash_Status on credibility* will be investigated.

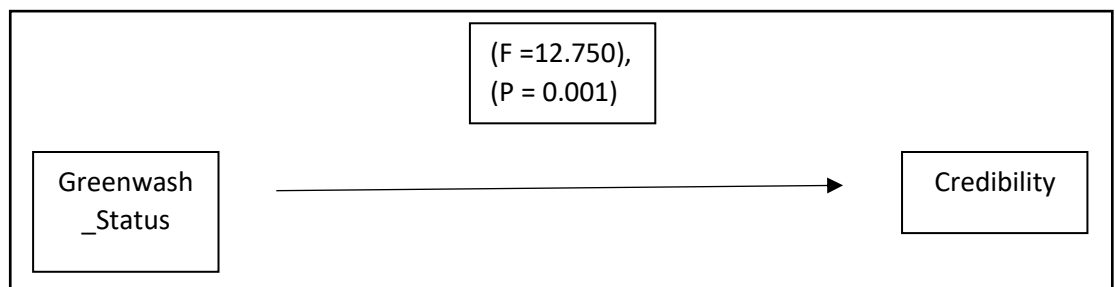


Figure 9 *Greenwash_Status total effect on credibility.*

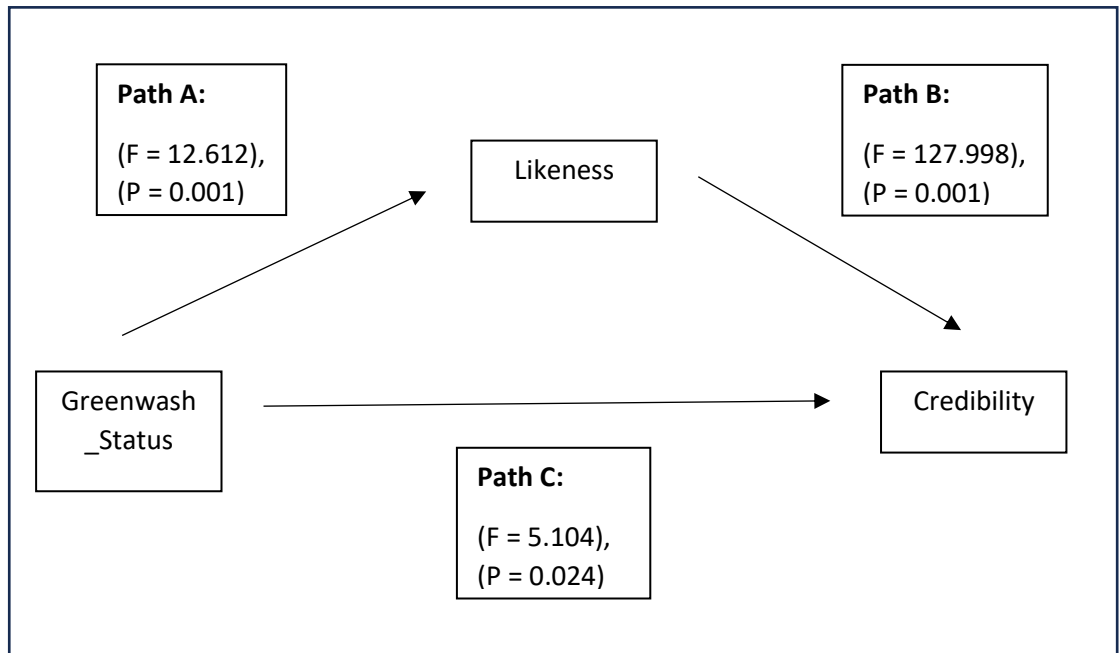


Figure 10 Likeness as a mediator for Greenwash_Status on Credibility.

All effect is significant, indicating an indirect effect thru *likeness towards the post* on *credibility*. Nevertheless, it again shows the dominant effect of *likeness towards the post*. H6a is found true. *Brand_Type* had no significance in all three paths, thus, *likeness towards the post* has no mediation effect on *Credibility*, and H6c is rejected.

4.3.4.2 Moderator

It is possible that *Greenwashing_consciousness* is a moderator influencing the directional effect on *Greenwashing_Status* on *Credibility*. This was tested through a linear mixed model (Appendix 8), with *Credibility* as the DV and *Greenwash_Status* and *Environmental consciousness* as IV. The interaction term had no significance (F = 1.438, P = 0.087) suggesting no moderator effect. Even though my data has no moderator effect I can't exclude the interaction for further research, different measurements and a larger sample size might give different results. There is a possibility for type 1 error (He, Ruan, Connett, Anthonisen, Paré & Sandford, 2002) and if I conducted a 90% confidence interval it is found significant. *Greenwashing* showed significance (F = 4.001, P = 0.046), and *environmental consciousness* no significance (F = 0.948, P = 0.544).

Nevertheless, I reject H4 and exclude *Environmental consciousness* from the study.

Additionally, we will examine the moderator effect *established brand credibility*, based on the effect that *Greenwash_Status*, *Brand_Type* and *Likeness towards the post* has on *Credibility* (Appendix 8). Equally procedure as above was applied. In all cases, except for *likeness towards the post*, the interaction term was not significant, suggesting that *Established brand credibility* has no moderator effect on the other IV's. Thus, I reject H5a and H5b. However, it occurred strong evidence of a dominant effect, with a main effect of ($F = 173.268$, $F = 169.964$ and $F = 178.046$), In all cases ($P < 0.001$). The interaction term *Likeness towards the post* ($F = 38.137$, $P < 0.001$) **Established brand credibility* ($F = 35.789$, $P < 0.001$) gives ($F = 3.360$, $P < 0.001$). Hence, H5c is true.

Likeness towards the post acts as a mediator for *Greenwash_Status*, were, *Established brand credibility* acts as a moderator for *likeness towards the post* on *credibility*.

4.3.6 ANOVA – Between effects

As seen from the mediator analysis, correlation analysis and now in the analysis of variance (ANOVA) (Appendix 6), *Likeness towards the post* and *established brand credibility* has such a strong effect on the credibility it overshadows the other variables. When including them the R-square is 0.972, and adjusted R-square of 0.911. They are therefore excluded.

This indicates that it either acts as a dominant effect or is a cofounded variable. From the theory in the literature review and by observing the effects of *Likeness towards the post* both when included and excluded, the variable is expected to be a mediator and not a cofounded variable, even though in some cases both might be true (Baron & Kenny, 1986) (MacKinnon, Krull & Lockwood, 2000). Nevertheless, it has a strong dominant effect, and is therefore excluded to analyze the other IV's on a deeper level.

Further, a two-way ANOVA was applied for the between effects groups only exposed to greenwashed posts or non-greenwashed posts on the DV *credibility*. The primary goal of ANOVA is to identify if there are any statistically significant differences among the means in the independent groups (Field, 2013). This was conducted to control for *Brand_Type* in both estimated models (for only visuals, and only text). Visual and text is a within effect and is therefore divided. *Brand_Type* for visuals has ($F = 0.281$, $P = 0.599$), for text ($F = 0.266$, $P = 0.609$). The models showed no significance we thus assume there is no difference in the brands. To investigate the effect of greenwashing on text and visual a one-way ANOVA was performed for both groups, for visuals ($F = 0.002$, $P = 0.961$) and text ($F = 0.029$, $P = 866$). Giving evidence that neither *Greenwashing* nor *Brand_Type* had a significant impact on the result. From the descriptives we can see that visual greenwashed (Mean = 3.25, STD = 1.517) non-greenwashed (Mean = 3.27, STD = 1.151) and text greenwashed (Mean = 3.85, STD = 1.424) non-greenwashed (Mean = 3.92, STD = 1.468). Indicating there is almost no impact. This suggest that we should reject both H1, H2a and H2b, yet, this ANOVA has its implications since it consists of only the between-effects, hence, low sample size. The hypothesis will be investigated further in linear mixed models.

4.3.7 Linear Mixed Model

The study employed a linear mixed model as the main analysis when testing the hypothesis (Appendix 9), this is most fitted to my research considering the within effects, subjects is set to ID, repeated measures set to posts, additionally, ID is set as a random effect to examine the variance between subjects. The primary fixed variables that were considered were the post's *greenwashing status*, *visual versus text*, and the *brand type* and their effect on *credibility*. Additionally, other variables were tested for significance. Unfortunately, *likeness towards the post* and *Established brand credibility* overshadows my IV's with their dominant effect. Since *established brand credibility* had no significant moderator effects on any of my IV's it is inserted as covariates to investigate my IV's on a deeper level.

The model shows a significance main effect for Greenwashing ($F = 3.368$, $P = 0.012$), Visual_Text ($F = 5.574$, $P = 0.019$), Brand_Type ($F = 5.009$, $P = 0.026$) and likeness towards the post ($F = 110.216$, $P < 0.001$). This reveals that non-greenwashed posts ($M = 4.01$, $Std = 1.378$) are more credible than greenwashed ($M = 3.66$, $Std = 1.383$) giving support for H1, Text ($M = 3.99$, $Std = 1.388$) are more credible than visuals ($M = 3.67$, $Std = 1.376$). By running the mixed model only considering the interplay for greenwashed posts Visual_Text ($F = 9.184$, $P = 0.003$) I found that text ($M = 3.86$, $Std = 1.430$) is more credible than visuals ($M = 3.45$, $Std = 1.307$) for greenwashed posts, rejecting H2a. Likewise, Running the mixed model for only non-greenwashed posts gave me Visual_Text ($F = 4.108$, $P = 0.044$) showing significance of text ($M = 4.12$, $Std = 1.336$) being more credible than visuals ($M = 3.89$, $P = 1.412$), supporting H2b.

Further, HW ($M = 3.91$, $Std = 1.346$) is more credible than GANT ($M = 3.75$, $Std = 1.431$). As seen in the illustration below the magnitude of the difference is on non-greenwashed posts. This could indicate that respondents have some inherent bias towards one brand over the other that's influencing their responses, especially in non-greenwashed cases. This needs to be reflected. It is worth mentioning that a P-value of 0.026 might be open for type 2 error.

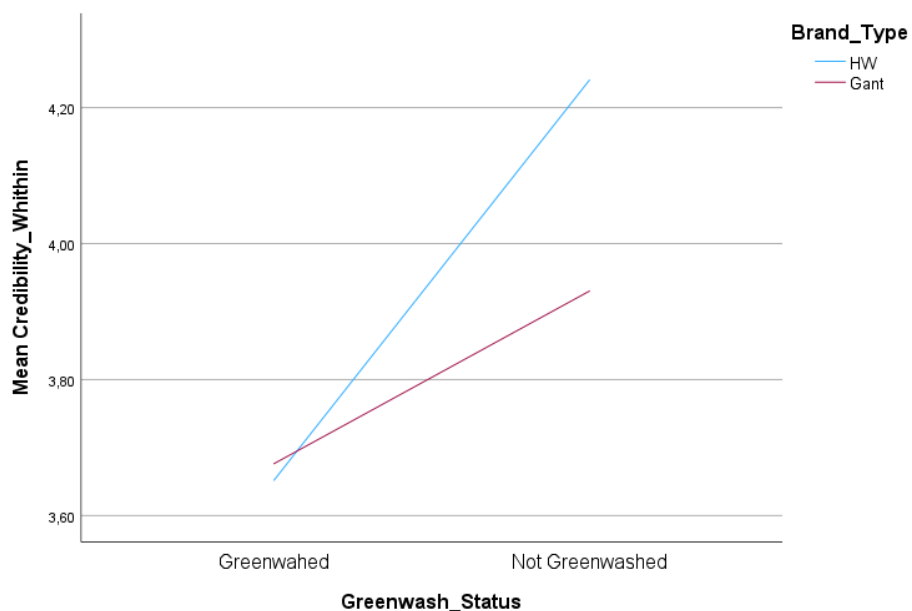


Figure 11 Brand_Type and Greenwash_Status on Credibility.

Running two more mixed models with Subjects as only HW and the other as only GANT will give a deeper understanding of the result. Interpreting HW I found a significance ($P = 0.001$) for *Greenwash_Status*, unfortunately, *Visual_Text* had no significance ($p = 0.335$), has for GANT I found that *Greenwash_Status* ($P = 0.093$) and *Visual_Text* ($P < 0.001$). This complicates the interpretation since HW supports H1 but rejects H2a and H2b, while GANT rejects H1 and H2a but supports H2b. Suggesting a bias for the brands.

The model also considered interaction effects between the variables, however, most of the interaction effects did not yield significant results. There were only two interactions that showed significance, *Likeness towards the post*Visual_Text* ($F = 2.584$, $P = 0.025$) and *Likeness towards the post*Brand_Type* ($F = 2.128$, $P = 0.050$) suggesting a presence of moderation, these relations affect the strength or direction of the relationship on credibility. This implies that when accounting for the other variables it reveals a more complex interaction effect since investigating these variables alone shows no moderation. Below is a visualization of the moderation effect on *credibility* for *likeness towards the post* and *Brand_Type* grouped into 1-2 (low), 3-5 (medium), 6-7 (high) and Visual and text. Showing a weak moderator effect.

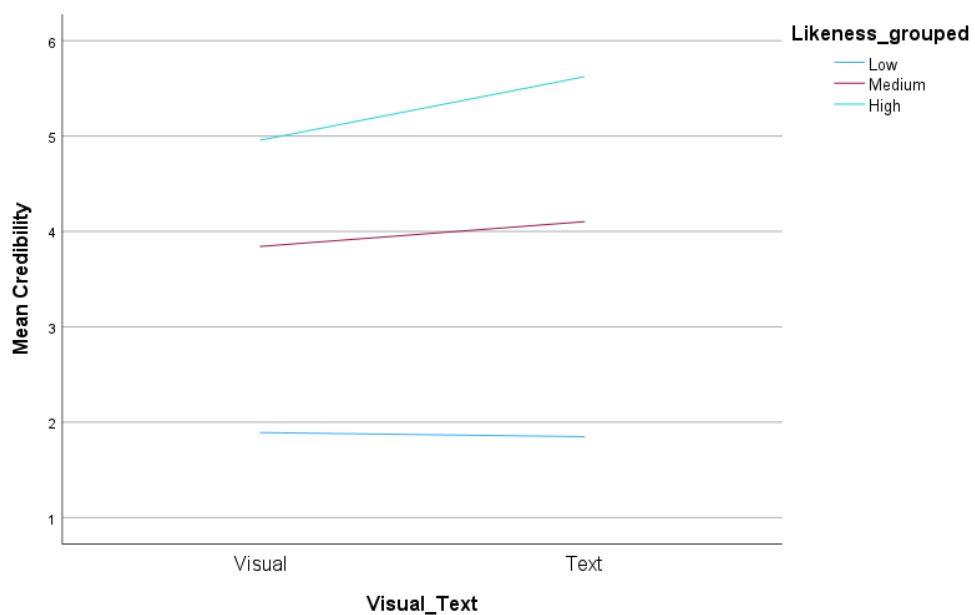


Figure 12 *Likeness_Grouped and Visual_Text for credibility.*

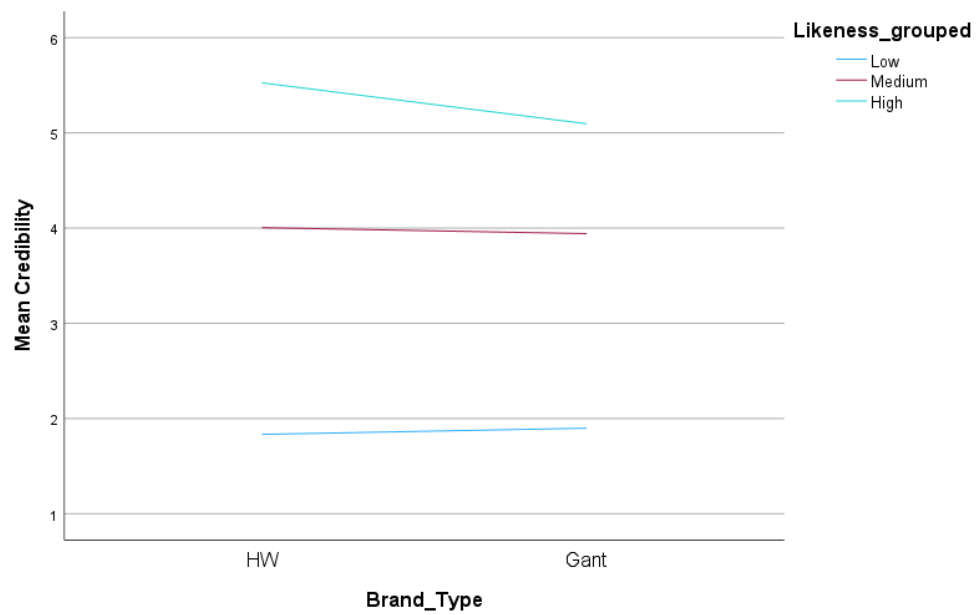


Figure 13 Likeness grouped and Visual_Text on Credibility.

Moreover, this suggests that all other combinations of the factors (*greenwashing_status*, *visual_text*, *brand_type* and *Likeness towards the post*) act independently in shaping brand credibility. In other words, the influence of one variable on credibility doesn't appear to change depending on the level of the other variable.

4.3.8 Credibility's effect on environmental CSR

Firstly, I compute a variable for both HW and GANT representing the change in environmental engagement for the brands. Firstly, the descriptive statistics tell me that HW (M = 0.95, Std = 1.29) and GANT (M = 0.98, Std = 1.36) when the posts were proven true, and HW (M = -1.4889, Std = 1.48) and GANT (M = -1.4899, Std = 1.29) when the posts were proven false. Suggesting a difference of the consumers' attitude in the two scenarios. To better understand their effect I conducted a correlation analysis, this showed me there is a strong correlation between the lie variables, (GANT_Lie - HW_Lie (P < 0.001)) and likewise for the true variables (GANT_True - HW_True (P < 0.001)).

Variables	Correlation coefficient	
Change_HW_Lie vs. Change_HW_True	0.207	Weak, positive*
Change_HW_Lie vs. Change_GANT_True	-0.132	Weak, negative*
Change_HW_Lie vs. Change_GANT_Lie	0.740	Strong, positive*
Change_HW_True vs. Change_GANT_True	0.722	Strong, positive*
Change_HW_True vs. Change_GANT_Lie	0.043	Not significant
Change_GANT_True vs. Change_GANT_Lie	0.139	Weak, positive*

Table 5 Correlation for Change HW Lie, Change HW True, Change Gant Lie and Change Gant True.

To interpret this, I performed 4 linear regression analysis with *Credibility* as the independent variable, and the four “change” variables as the dependent variable (Appendix 10).

Change_GANT_Lie

The constant (-0.984) is significant ($P > 0.001$), which indicates a bade of -0.984 when *Change_GANT_Lie* is 0. *Credibility* (-0.130) is significant ($P > 0.001$). This intends that for each unit increase in credibility, *Change_GANT_Lie* decreases by 0.130, suggesting a negative relationship between credibility and *Change_GANT_Lie*. Supporting H3.

Change_GANT_True

The constant (0.228) is not significant ($P = 0.180$), however, credibility (0.196) is significant ($P > 0.001$). This suggests that for each unit increase in credibility, the

Change_GANT_True increases by 0.196, indicating a positive relationship. Notably, only credibility has a significant effect. supporting H3.

Change_HW_True

The constant (0.661) is significant ($P > 0.001$), credibility (0.078) is not significant ($P > 0.058$). This is just above the threshold and might be open for interoperating of type 1 error, however, It shows no significance, rejecting H3.

Change_HW_Lie

The constant (-0.652) is significant ($P > 0.001$), credibility (-0.217) is significant ($P > 0.001$), suggesting a negative relationship between credibility and Change_GANT_Lie. Supporting H3.

5.0 Discussion

The primary objective of this study was to explore the impacts of greenwashing, the format of posts (visual vs text), and brand types on the perceived credibility of posts in digital channels. The results were complex and offered an intriguing insight into the interplay of these variables. The study was done in order to test the hypothesis established, greenwashing is not that widely researched, but there is extensively researched within specific aspects. Some of the studies do contradict each other to some degree as Lyon & Montgomery (2013) implies that the consumer will easier spot greenwashing in line with social media and the digital era (Lim, Ting, Wong, & Mah, 2013, Lin & Huang, 2012), were, (Terrachoice, 2010) says that the consumer would need to become knowledgeable on the topic in order to spot it. There seems to be a lack of studies regarding greenwashing in digital channels, hence, this study. When browsing on any social platform almost every post in relation to a brand campaign is either a text statement, visual picture, or a video. This study compares text to visual pictures both when greenwashed and not greenwashed. The brands controlling each other was Holzweiler (HW) and GANT.

H1 examined if greenwashing had a negative effect on digital communicated posts. Because of my randomly distributed design I was able to investigate the results both between and within subjects. It is important to recall that the greenwashing tested is vague and ambiguous and is the one subsequently tapped in the 7 sins of greenwashing (Terrachoice, 2010). My analysis when comparing between-effect ANOVA and Mixed model are contradicting each other to some degree. Viewing the between effects tells me that if only exposed to greenwashed or non-greenwashed it is hard to rate them accurate and they are perceived as equals. It is first when the respondents start to compare the greenwashed and non-greenwashed posts the credibility variable variates.

The mixed models show that greenwashing influences credibility negatively, however, this effect is marginal, at least when compared to *likeness towards the post* and *Established brand credibility*. Even when this dominant effect is accounted for, greenwashing only shows a small effect, but significant. Unfortunately, as mentioned in the analysis, there seems to be a bias when looking at the brands individually. Westreich, Edwards, Lesko, Cole & Stuart, (2018) pinpoints that even with perfect internal validity dose not ensure that the casual effect is unbiased. H1 is only found true for HW and not GANT. This inconsistency might be following the skepticism of the customer, were they presume greenwashing even in true cases (Aji & Sutikno, 2015: Silva, 2020), or the fact that GANT had roughly lower scores on the Invidia assessment of environmental engagement cloaked their greenwashing based on expectations in line with Javed (2022).

However, I cannot disregard Greenwashing as a factor, all non-greenwashed posts had a higher credibility rating then its opposite. It is astonishing that greenwashed GANT posts have a lack of difference, indicating the complexity of locating greenwashing.

Moreover, H2 examined visual focused posts and text focused posts. This was found to have a more significant factor than Greenwashing, however, it is being overshadowed by *Likeness towards the post* and *Established Brand Credibility* as well. Text posts had a significant mean value higher than the visual posts, so this was also true for Greenwashed visuals and greenwashed text, contradicting with my hypothesis H2a that greenwashed visual posts were more credible than greenwashed text posts. This could be explained by Ho (2015) who pinpoint that expertise and persuasion style will impact the credibility, this factor is easier to utilize thru text. This gives me reason to believe that the persuasion style and the perceived expertise has a higher and more positive effect on credibility, inverted then what greenwashing mirrors its negative effect. This is indeed what Schmuck, Matthes & Naderer (2018) said about visuals, nature-evoking images increases positive attitude more than what perceived greenwashing reduces it. Arguably, this might be true for text and persuasion. Additionally, text is more likely to engage the central route, increasing credibility. (Zhou, Lu & Wang, 2016).

When examining H2b, we know that text has a higher mean value. When we isolated only non-greenwashed posts, the differences were substantial adequate for the analysis to evident a significant difference. Supporting, H2b that non-greenwashed text post is more credible than non-greenwashed visual posts.

Unfortunately, it complicates the interpretation when controlling for HW and GANT. HW rejects H2b, while GANT supports it. Again, it can indicate that the respondent is skeptical towards GANT and is assuming greenwashing even in true cases (Aji & Sutikno, 2015; Silva, 2020). To interpret this in a more complex way, future research should investigate more brands, controlling for their differences and similarities.

H3 is backed by previous studies and is only retested to see if this relates in my specific case. As previous studies credibility has shown to influence the brands CSR. The respondents were additionally controlled for this by rerating the different brands environmental engagement, both when the post was proven false and true. The Change in perceived environmental engagement for the brand was

computed to see if *Credibility* had any effect on the change. The regressions found a support for H3 in 3 out of four cases. Considering previous studies, it seems safe to conclude that H3 is True.

H4 and H5 is the hypothesis regarding my believed moderator's *environmental consciousness (H4)* and *established brand credibility (H5)*. H4 is believed to acts as a moderator for greenwashing. However, based on the moderator analysis this shows no interaction effect, I cannot say this effect is invalid, however, I fail to prove its significance, hence, it is rejected. Both Lyon and Maxwell (2011) and Choon, Ong, & Tan (2019) theorized that *environmental consciousness* had an effect. This should be tested with a larger sample size or different measurements. Notably, Schmuck, Matthes & Naderer (2018) discovered that environmental consciousness had negative effect on false claims, while ambiguous claims did not improve customers' perception of greenwashing. Sense of vagueness (Terrachoice, 2010), utilized in this study.

H5 is believed to act as a moderator for *Greenwash_Status*, *Brand Type* and *likeness towards the post*, the interaction effect was significant for *likeness towards the post*, giving evidence for H5c to be true. However, it is worth mentioning that because of its overshadowing effect it is excluded for the ANOVA and kept as a covariate in the mixed model, but from the moderator analysis we know that this will impact the effect of greenwashing through H6a's mediation effect.

H6 refers to *Likeness towards the post* and the assumption that it acts as a mediator. From the analysis this was confirmed true for H6a or *Greenwash status*. *Likeness towards the post* is one of the strongest predictors for *credibility* based on the mixed model. I can noticeably say that this variable has a central role, given that it has a large indirect effect on credibility, additionally, an even larger direct effect when considered as a main effect.

I can partly conclude that greenwashed posts are less credible than non-greenwashed posts, in addition, greenwashed and non-greenwashed posts in text format is perceived as more credible than visuals, arguably because of the persuasion. *Brand type* helps control for bias, this is found significant. When greenwashing is taken out of the equation visual, and statements are perceived relatively identical for HW but not for GANT. The analysis supports previous literature regarding greenwashing's impact on CSR. Lastly, the analysis concludes that the interplay between greenwashing and visual/text impact credibility to some extent, but its complexity needs to be investigated more quantitatively to better understand its effect.

Hypothesis		Result
H1	<i>Greenwashing has a negative effect on the credibility influence of digitally communicated posts.</i>	Partly Supported
H2a	<i>Greenwashed communication posts that is visual focused has a higher credibility influence than text focused posts.</i>	Not Supported
H2b	<i>Non-greenwashed communication posts that is text focused has higher credibility influence than visual focused posts.</i>	Partly Supported
H3	<i>Lower perceived credibility influences the participants perceived environmental CSR of the brand.</i>	Supported
H4	<i>Environmental consciousness acts as a moderator for greenwashing, and negatively affects credibility influence of the posts.</i>	Not supported
H5a	<i>Established Brand Credibility acts as a moderator for Greenwashing_Status and has a positive effect on credibility influence of the posts.</i>	Not supported
H5b	<i>Established Brand Credibility acts as a moderator for Brand_Type and has a positive effect on credibility influence of the posts.</i>	Not supported

H5c	<i>Established Brand Credibility acts as a moderator for likeness towards the post and has a positive effect on credibility influence of the posts.</i>	Supported
H6a	<i>The more likable the communication is, based on personal references, will have a positive effect on credibility and act as a mediator for Greenwash_Status.</i>	Supported
H6b	<i>The more likable the communication is, based on personal references, will have a positive effect on credibility and act as a mediator for Visual_Text.</i>	Not supported
H6c	<i>The more likable the communication is, based on personal references, will have a positive effect on credibility and act as a mediator for Brand_Type.</i>	Not Supported

Table 6 Summary of the result

6.0 Managerial relevance

Since greenwashing is a form of deceptive marketing, it can provoke regulatory challenges. Managers should act with caution and be aware of the potential consequences, in this manner, ensuring legal compliance and avoiding any penalties, sanctions, and damage to reputation. In addition, this research aids in expanding our understanding of consumer behavior concerning visuals and text in the context of greenwashing, visuals might be engaging, but factual statements are arguably more credible. This knowledge will help managers render their green communication more credible and demonstrate how their green profile and CSR can benefit the company. This has parallels with the effect of persuasion and following the central route (Zhou, Lu & Wang, 2016).

Customer loyalty is fundamentally important for most companies, being a factor crucial for maintaining enduring customer relationships. Greenwashing

undermines credibility and getting exposed for such practices could be devastating for these relationships. This research will assist the management in devising better-fitted strategies. Furthermore, in terms of brand building strategies, this research will help management optimize the brand and establish it as credible and sustainable.

It will give companies a competitive advantage by detecting ways to differentiate from the competition resorting to greenwashing. The consumer is becoming increasingly more aware of the environmental impact of companies, having a moral green strategy, and effectively communicating it can substantially influence consumer perceptions and decisions. The findings of this research may also provide managers with insights on how to avoid common pitfalls in green marketing and branding. Managers can steer clear of questionable practices and instead focus on the precision of the information.

Moreover, on the influence of risk management, understanding the regulations will enlighten the potential risk and rewards of the claims, hopefully, contributing to making a healthy environment and gaining on truthfulness and factual approaches. Internally in the companies the research could act as a remainder of reorganizing or improve the company policies and training programs. If a company understands the importance of legitimacy in green communication, it can put policies in place that exclude greenwashing and educate employees about the importance of accurate, truthful green communication.

Lastly, the research's findings may encourage companies to take a more proactive role in industry-wide efforts against greenwashing. The fashion industry especial has been notorious for the waste and non-sustainable practices, reflected in consumer habits. Fostering a business environment that values transparency, accountability, and sincere sustainability efforts. Through industry collaboration and self-regulation, businesses can collectively enhance credibility and customer trust, leading to a more sustainable and successful industry.

It is also worth mentioning that the research will help consumers be more aware of the potential misleading information regarding green communication, learn to be critical and expect the company to be able to provide evidence and documentation.

7.0 Limitations and Future Research

The study has some limitation that gives the interpretation some boundaries. Firstly, the study is done on a Norwegian population, and distributed through digital channels. This might have impacted the demographics of the respondents, skewing the population, reducing the amount of variance a perfect sample size would have had, giving the research some selection bias. Since the study is only spread in Norway further study should investigate the potential outcome of different countries. The Study also assumes that the audience is homogenous and does not consider every potential variation in audience characteristics, even though their personal belief of the environmental engagement of the brands and environmental consciousness was recorded. Additionally, the respondent was only exposed to two brands in the fashion industry, this should be expanded to more brands, principally consider brands targeting different segments, fast fashion is not accounted for in this study. Adding to this, different industries might give some different results.

The respondents were likewise only exposed to the most common form of greenwashing, sins of vagueness, new research could test different types of greenwashing, and estimate their differences. Furthermore, research of multiple digital channels could be combined to find the most and least credible platform considering greenwashing.

Since the design was done in a very randomized manner, giving me both between and within effects, as well as many respondents did not complete the survey, the sample size for between effects is under the requirements of what is expected from a survey for the between effects to be representative of the population. To maintain my sample size, I had to consider the respondent that didn't know both

brands, increasing the risk of biased answers from the respondents. To increase responses and completion rate an incentive should have been provided. Notable, even though making greenwashing as a random factor gave me the opportunity to both analyze between and within, it complicated the study extensively. On after thought I would have been better off with a normal 2x2x2 full factorial design.

The survey also accounted for the variable likeness and established brand credibility which overshadowed the other variables in the analysis, even though this showed me the magnificent of these variables, the true effect of greenwashing, post type and type of brand might have been somewhat buried. The variable credibility was measured on a Likert-scale (1.7), this variable should have been measured on a more specific term, derived from different items, followed by a factor analysis. Yoo & Gretzel (2008) notes that credibility is measured through expertise and trustworthiness, Giahanou, Rosso & Crestani (2019) notes the importance of emotional signals, and Lock & Seele (2017) measures credibility through truth, sincerity, appropriateness and understandability. These could have given a more accurate measurement of the respondent's credibility, ensuring the response is not random, as well as increasing the internal validity of the survey by estimating the questions Cronbach alfa.

This study looked at the differences between posts both greenwashed and not greenwashed, but it forth mentioning that both based focused on environmental contribution. New research should indeed consider preforming similar research of visuals and text in digital channels, however, they should investigate the effect of a post version with no relation to environment engagement opposed to greenwashed post.

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Appendix

Appendix 1

Survey

Master spørreskjema

Denne undersøkelsen er en viktig del av en masteroppgave. Svarene er anonymisert, og kun tilgang vil bli gitt til autorisert personell med forskningsgrunnlag. Innleggende er fra ekte markedsføringskampanjer. Alle resultater vil bli permanent forkastet når de ikke lenger er nødvendig, som vil være ved utgangen av året. Ved å samtykke til å delta, gir du tillatelse til å bruke svarene dine i masteroppgaven.

Q1: ÅR Hvor gammel er du? (År)

- 0-18 (1)
 - 18-30 (2)
 - 30-40 (3)
 - 40-50 (4)
 - 50+ (5)
-

Q2: Kjønn Hvilket kjønn er du?

- Mann (1)
 - Kvinne (2)
-

Q3: Utdanning Hvor mange års høyere utdanning har du?

- 1 (1)
 - 2-3 (2)
 - 4-5 (3)
 - 6-7 (4)
 - 0 (5)
-

Q4: Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg føler at påstandene i digitale innlegg fra bedrifter er troverdige. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kjennskap til merket øker troverdigheten (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5: Kjennskap Har du kjennskap til GANT og HOLZWEILER?

- Jeg har kjennskap til begge (1)
 - GANT (2)
 - HOLZWEILER (4)
 - Ingen (5)
-

Q6: Miljø gant og HW 1 Ranger din personlige mening av merkenes miljøengasjement. Fra dårlig (1) til bra (7).

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
HOLZWEILER (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GANT (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(HW Visual greenwash)

Q7: Se på innlegget og svar på de følgende spørsmålene.



Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(HW Visual NOT greenwash)

Q8: Se på innlegget og svar på de følgende spørsmålene.



Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(GANT Visual greenwash)

Q9: Se på innlegget og svar på de følgende spørsmålene.



Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(GANT Visual NOT greenwash)

Q10: Se på innlegget og svar på de følgende spørsmålene.



Gant bilde Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(GANT Text greenwash)

Q11: Les innlegget og svar på de følgende spørsmålene.



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HW tekst grønnvask Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(HW Text NOT greenwash)

Q12: Les innlegget og svar på de følgende spørsmålene.

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HW tekst Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

(GANT Text greenwash)

Q13: Les innlegget og svar på de følgende spørsmålene.



Gant tekst grønnvask Hvor enig er du med utsagnet? (1-7)

	Svært uenig (1)	Uenig (2)	Litt Uenig (3)	Nøytral (4)	Litt Enig (5)	Enig (6)	Veldig Enig (7)
Jeg liker innlegget (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at budskapet er troverdig. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg stoler på kilden til budskapet (Merket). (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(GANT Text NOT greenwash)

Q17: Om de fremviste innleggene hadde blitt bevist sanne, hvordan ville du rangert merkenes miljøengasjement nå? Fra dårlig (1) til bra (7).

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
HOLZWEILER (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GANT (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 2

Descriptives

SEX

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	608	47,6	48,1	48,1
	Female	656	51,4	51,9	100,0
	Total	1264	99,1	100,0	
Missing	System	12	,9		
Total		1276	100,0		

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	696	54,5	54,7	54,7
	30-40	96	7,5	7,5	62,3
	40-50	104	8,2	8,2	70,4
	50+	376	29,5	29,6	100,0
	Total	1272	99,7	100,0	
Missing	System	4	,3		
Total		1276	100,0		

Higher_Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	56	4,4	4,4	4,4
	2-3	464	36,4	36,5	40,9
	4-5	464	36,4	36,5	77,4
	6-7	128	10,0	10,1	87,4
	0	160	12,5	12,6	100,0
	Total	1272	99,7	100,0	
Missing	System	4	,3		
Total		1276	100,0		

Descriptive Statistics

Dependent Variable: Credibility

Greenwash_Status	Visual_Text	Brand_Type	Mean	Std. Deviation	N
Greenwashed	Visual	HW	3,58	1,215	79
		Gant	3,32	1,386	81
		Total	3,45	1,307	160
	Text	HW	3,77	1,395	79
		Gant	3,95	1,465	81
		Total	3,86	1,430	160
	Total	HW	3,68	1,308	158
		Gant	3,64	1,456	162
		Total	3,66	1,383	320
Not Greenwashed	Visual	HW	4,14	1,403	80
		Gant	3,64	1,386	78
		Total	3,89	1,412	158
	Text	HW	4,14	1,298	79
		Gant	4,10	1,382	77
		Total	4,12	1,336	156
	Total	HW	4,14	1,348	159
		Gant	3,87	1,399	155
		Total	4,01	1,378	314
Total	Visual	HW	3,86	1,338	159
		Gant	3,48	1,391	159
		Total	3,67	1,376	318
	Text	HW	3,96	1,356	158
		Gant	4,03	1,423	158
		Total	3,99	1,388	316
	Total	HW	3,91	1,346	317
		Gant	3,75	1,431	317
		Total	3,83	1,390	634

Descriptive Statistics

Dependent Variable: Credibility

Knowledge_Market	Brand_Type	Mean	Std. Deviation	N
Both	HW	3,96	1,412	235
	Gant	3,75	1,471	235
	Total	3,86	1,444	470
GANT	HW	3,77	1,080	64
	Gant	3,86	1,308	64
	Total	3,81	1,195	128
HW	HW	5,50	,707	2
	Gant	3,00	,000	2
	Total	4,25	1,500	4
None	HW	3,50	1,211	16
	Gant	3,44	1,413	16
	Total	3,47	1,295	32
Total	HW	3,91	1,346	317
	Gant	3,75	1,431	317
	Total	3,83	1,390	634

Descriptive Statistics

Dependent Variable: Likeness

Knowledge_Market	Brand_Type	Mean	Std. Deviation	N
Both	HW	4,11	1,294	235
	Gant	3,99	1,420	236
	Total	4,05	1,359	471
GANT	HW	4,02	1,076	64
	Gant	4,06	1,308	64
	Total	4,04	1,193	128
HW	HW	5,00	1,414	2
	Gant	3,00	,000	2
	Total	4,00	1,414	4
None	HW	3,69	1,662	16
	Gant	4,19	1,974	16
	Total	3,94	1,813	32
Total	HW	4,08	1,274	317
	Gant	4,01	1,424	318
	Total	4,04	1,351	635

Appendix 3

Normality

Credibility:

One-Sample Kolmogorov-Smirnov Normal Test Summary

Total N		634
Most Extreme Differences	Absolute	,167
	Positive	,122
	Negative	-,167
Test Statistic		,167
Asymptotic Sig.(2-sided test) ^a		<,001

a. Lilliefors Corrected

Normality Likeness towards the post:

One-Sample Kolmogorov-Smirnov Normal Test Summary

Total N		635
Most Extreme Differences	Absolute	,219
	Positive	,145
	Negative	-,219
Test Statistic		,219
Asymptotic Sig.(2-sided test) ^a		<,001

a. Lilliefors Corrected

Normality Established brand credibility:

One-Sample Kolmogorov-Smirnov Normal Test Summary

Total N		630
Most Extreme Differences	Absolute	,187
	Positive	,153
	Negative	-,187
Test Statistic		,187
Asymptotic Sig.(2-sided test) ^a		<,001

a. Lilliefors Corrected

Normality Environmental consciousness:

**One-Sample Kolmogorov-Smirnov Normal Test
Summary**

Total N		1224
Most Extreme Differences	Absolute	,075
	Positive	,065
	Negative	-,075
Test Statistic		,075
Asymptotic Sig.(2-sided test) ^a		<,001

a. Lilliefors Corrected

Appendix 4

Reliability analysis:

Reliability Statistics

Cronbach's Alpha	N of Items
,775	5

Reliability Statistics

Cronbach's Alpha	N of Items
,945	2

Reliability Statistics

Cronbach's Alpha	N of Items
,935	2

Appendix 5

Correlation analysis:

		Correlations							
		AGE	SEX	Higher_Educational	Knowledge_Market	Credibility	Visual_Text	Brand_Type	Greenwash_Status
AGE	Pearson Correlation	1	,162**	,018	,267**	-,079*	,000	,000	,000
	Sig. (2-tailed)		<,001	,529	<,001	,046	1,000	1,000	1,000
	N	1272	1264	1272	1272	634	1272	1272	1272
SEX	Pearson Correlation	,162**	1	-,116**	,003	,002	,000	,000	,000
	Sig. (2-tailed)	<,001		<,001	,913	,952	1,000	1,000	1,000
	N	1264	1264	1264	1264	630	1264	1264	1264
Higher_Education	Pearson Correlation	,018	-,116**	1	-,046	-,130**	,000	,000	,000
	Sig. (2-tailed)	,529	<,001		,104	<,001	1,000	1,000	1,000
	N	1272	1264	1272	1272	634	1272	1272	1272
Knowledge_Market	Pearson Correlation	,267**	,003	-,046	1	-,052	,000	,000	,000
	Sig. (2-tailed)	<,001	,913	,104		,189	1,000	1,000	1,000
	N	1272	1264	1272	1272	634	1272	1272	1272
Credibility	Pearson Correlation	-,079*	,002	-,130**	-,052	1	,115**	-,057	,126**
	Sig. (2-tailed)	,046	,952	<,001	,189		,004	,153	,001
	N	634	630	634	634	634	634	634	634
Visual_Text	Pearson Correlation	,000	,000	,000	,000	,115**	1	,000	,000
	Sig. (2-tailed)	1,000	1,000	1,000	1,000	,004		1,000	1,000
	N	1272	1264	1272	1272	634	1272	1272	1272
Brand_Type	Pearson Correlation	,000	,000	,000	,000	-,057	,000	1	,000
	Sig. (2-tailed)	1,000	1,000	1,000	1,000	,153	1,000		1,000
	N	1272	1264	1272	1272	634	1272	1272	1272
Greenwash_Status	Pearson Correlation	,000	,000	,000	,000	,126**	,000	,000	1
	Sig. (2-tailed)	1,000	1,000	1,000	1,000	,001	1,000	1,000	
	N	1272	1264	1272	1272	634	1272	1272	1272

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix 6

ANOVA-Between effects

Visual:

Tests of Between-Subjects Effects

Dependent Variable: Credibility

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1,293 ^a	3	,431	,239	,868
Intercept	480,439	1	480,439	266,992	<,001
Greenwashed_Visual	,004	1	,004	,002	,962
Brand_Type	,506	1	,506	,281	,599
Greenwashed_Visual * Brand_Type	,941	1	,941	,523	,474
Error	75,577	42	1,799		
Total	566,000	46			
Corrected Total	76,870	45			

a. R Squared = ,017 (Adjusted R Squared = -,053)

Text:

Tests of Between-Subjects Effects

Dependent Variable: Credibility

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,664 ^a	3	,221	,101	,959
Intercept	683,017	1	683,017	312,518	<,001
Brand_Type	,582	1	,582	,266	,609
Greenwashed_Text	,060	1	,060	,028	,869
Brand_Type * Greenwashed_Text	,060	1	,060	,028	,869
Error	91,792	42	2,186		
Total	789,000	46			
Corrected Total	92,457	45			

a. R Squared = ,007 (Adjusted R Squared = -,064)

One-way Visual:

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Greenwashed	20	3,25	1,517	,339	2,54	3,96	1	7
Not greenwashed	26	3,27	1,151	,226	2,80	3,73	2	6
Total	46	3,26	1,307	,193	2,87	3,65	1	7

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,004	1	,004	,002	,961
Within Groups	76,865	44	1,747		
Total	76,870	45			

One way text:

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Greenwashed	20	3,85	1,424	,319	3,18	4,52	1	7
Not Greenwashed	26	3,92	1,468	,288	3,33	4,52	1	6
Total	46	3,89	1,433	,211	3,47	4,32	1	7

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,060	1	,060	,029	,866
Within Groups	92,396	44	2,100		
Total	92,457	45			

Appendix 7

Mediation analysis

Visual_Text → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	150,355	1991,408	<,001
Visual_Text	1	442,280	15,312	<,001

a. Dependent Variable: Credibility.

Visual_Text → *Likeness of the post*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	152,892	2276,690	<,001
Visual_Text	1	443,966	1,900	,169

a. Dependent Variable: Likeness.

Estimates of Fixed Effects^a

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	4,101	,089	191,973	46,149	<,001	3,926	4,276
[Visual_Text=1]	-,105	,076	443,966	-1,378	,169	-,254	,045
[Visual_Text=2]	0 ^b	0	.	.	.	.	.

a. Dependent Variable: Likeness.

b. This parameter is set to zero because it is redundant.

Visual_Text and Likeness of the post → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	314,373	2154,956	<,001
Visual_Text	1	422,872	18,515	<,001
Likeness	6	428,016	131,939	<,001

a. Dependent Variable: Credibility.

Estimates of Fixed Effects^a

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	5,827	,446	205,598	13,071	<,001	4,948	6,705
[Visual_Text=1]	-,251	,058	422,872	-4,303	<,001	-,366	-,136
[Visual_Text=2]	0 ^b	0	.	.	.	.	.
[Likeness=1]	-4,260	,473	247,524	-8,998	<,001	-5,193	-3,328
[Likeness=2]	-3,551	,458	222,289	-7,752	<,001	-4,454	-2,648
[Likeness=3]	-2,745	,454	212,385	-6,047	<,001	-3,639	-1,850
[Likeness=4]	-1,768	,448	210,380	-3,946	<,001	-2,651	-,885
[Likeness=5]	-1,231	,449	210,220	-2,743	,007	-2,115	-,346
[Likeness=6]	-,405	,451	213,748	-,899	,370	-1,294	,484
[Likeness=7]	0 ^b	0	.	.	.	.	.

a. Dependent Variable: Credibility.

b. This parameter is set to zero because it is redundant.

Greenwash_Status → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	151,797	2056,165	<,001
Greenwash_Status	1	465,305	12,750	<,001

a. Dependent Variable: Credibility.

Greenwash_Status → *Likeness of the post*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	152,915	2316,829	<,001
Greenwash_Status	1	419,727	12,612	<,001

a. Dependent Variable: Likeness.

Estimates of Fixed Effects^a

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	4,209	,094	215,051	44,708	<,001	4,024	4,395
[Greenwash_Status=1]	-,294	,083	419,727	-3,551	<,001	-,456	-,131
[Greenwash_Status=2]	0 ^b	0	.	.	.	.	.

a. Dependent Variable: Likeness.

b. This parameter is set to zero because it is redundant.

Greenwash_Status and Likeness towards the post → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	315,110	2172,591	<,001
Greenwash_Status	1	525,378	5,104	,024
Likeness	6	437,078	127,990	<,001

a. Dependent Variable: Credibility.

Estimates of Fixed Effects^a

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	5,836	,451	218,466	12,946	<,001	4,948	6,725
[Greenwash_Status=1]	-,146	,065	525,378	-2,259	,024	-,273	-,019
[Greenwash_Status=2]	0 ^b	0	.	.	.	.	.
[Likeness=1]	-4,297	,479	255,863	-8,966	<,001	-5,241	-3,353
[Likeness=2]	-3,590	,463	230,698	-7,751	<,001	-4,502	-2,677
[Likeness=3]	-2,767	,459	220,553	-6,026	<,001	-3,672	-1,862
[Likeness=4]	-1,794	,453	218,380	-3,961	<,001	-2,687	-,901
[Likeness=5]	-1,258	,454	219,006	-2,773	,006	-2,152	-,364
[Likeness=6]	-,451	,456	222,517	-,989	,324	-1,350	,448
[Likeness=7]	0 ^b	0	.	.	.	.	.

a. Dependent Variable: Credibility.

b. This parameter is set to zero because it is redundant.

Brand_Type → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	153,928	2002,474	<,001
Brand_Type	1	405,036	1,243	,266

a. Dependent Variable: Credibility.

Brand_Type → *Likeness of the post*:

Estimates of Fixed Effects^a

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	4,043	,094	226,190	42,817	<,001	3,857	4,229
[Brand_Type=1]	,031	,075	345,814	,413	,680	-,116	,177
[Brand_Type=2]	0 ^b	0	.	.	.	.	.

a. Dependent Variable: Likeness.

b. This parameter is set to zero because it is redundant.

Brand_Type and Likeness of the post → *Credibility*:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	314,291	2183,790	<,001
Brand_Type	1	398,590	,280	,597
Likeness	6	436,410	130,357	<,001

a. Dependent Variable: Credibility.

Appendix 8

Moderator analysis

*Greenwash_Status*Environmental consciousness → Credibility*

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	121,767	752,821	<,001
Greenwash_Status	1	384,485	4,001	,046
Envi_Con	27	116,545	,948	,544
Greenwash_Status * Envi_Con	27	166,491	1,438	,087

a. Dependent Variable: Credibility.

*Greenwash_Status*Established brand credibility → Credibility*

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	237,542	5216,367	<,001
Greenwash_Status	1	413,502	,531	,466
Brand_Cred	6	464,081	173,268	<,001
Greenwash_Status * Brand_Cred	6	408,341	1,481	,183

a. Dependent Variable: Credibility.

*Visual_Text*Established brand credibility → Credibility*

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	219,685	5261,207	<,001
Brand_Cred	6	464,283	169,964	<,001
Visual_Text	1	361,779	2,740	,099
Brand_Cred * Visual_Text	6	408,619	,541	,777

a. Dependent Variable: Credibility.

*Brand_Type*Established brand credibility → Credibility*

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	225,301	4700,898	<,001
Brand_Cred	6	441,976	178,046	<,001
Brand_Type	1	364,156	,019	,891
Brand_Cred * Brand_Type	6	359,202	1,095	,365

a. Dependent Variable: Credibility.

Appendix 9

Linear mixed models:

		Model Dimension ^a				
		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables	Number of Subjects
Fixed Effects	Intercept	1		1		
	Greenwash_Status	2		1		
	Likeness	7		6		
	Visual_Text	2		1		
	Brand_Type	2		1		
	Greenwash_Status * Likeness	14		6		
	Greenwash_Status * Visual_Text	4		1		
	Greenwash_Status * Brand_Type	4		1		
	Likeness * Visual_Text	14		5		
	Likeness * Brand_Type	14		6		
	Visual_Text * Brand_Type	4		1		
	Greenwash_Status * Likeness * Visual_Text	26		5		
	Greenwash_Status * Likeness * Brand_Type	27		5		
	Greenwash_Status * Visual_Text * Brand_Type	8		1		
	Likeness * Visual_Text * Brand_Type	27		5		
	Greenwash_Status * Likeness * Visual_Text * Brand_Type	51		5		
	Random Effects	id	159	Variance Components	1	
Repeated Effects	Post	8	Diagonal	8	id	159
Total		374		60		

a. Dependent Variable: Credibility.

Information Criteria^a

-2 Restricted Log Likelihood	1528,3896644
Akaike's Information Criterion (AIC)	1546,3896644
Hurvich and Tsai's Criterion (AICC)	1546,7060089
Bozdogan's Criterion (CAIC)	1594,6413867
Schwarz's Bayesian Criterion (BIC)	1585,6413867

The information criteria are displayed in smaller-is-better form.

a. Dependent Variable: Credibility.

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	345,876	2447,694	<,001
Greenwash_Status	1	449,581	6,368	,012
Likeness	6	423,490	110,216	<,001
Visual_Text	1	414,894	5,574	,019
Brand_Type	1	226,365	5,009	,026
Greenwash_Status * Likeness	5	472,881	1,493	,191
Greenwash_Status * Visual_Text	1	459,868	1,573	,210
Greenwash_Status * Brand_Type	1	458,120	,010	,920
Likeness * Visual_Text	5	469,734	2,584	,025
Likeness * Brand_Type	6	317,458	2,128	,050
Visual_Text * Brand_Type	1	384,106	,926	,336
Greenwash_Status * Likeness * Visual_Text	5	489,910	1,364	,236
Greenwash_Status * Likeness * Brand_Type	5	484,254	,362	,874
Greenwash_Status * Visual_Text * Brand_Type	1	444,799	1,505	,221
Likeness * Visual_Text * Brand_Type	5	446,131	,857	,510
Greenwash_Status * Likeness * Visual_Text * Brand_Type	5	468,930	,854	,512

a. Dependent Variable: Credibility.

Estimates of Covariance Parameters^a

Parameter		Estimate	Std. Error
Repeated Measures	Var: [Post=1,00]	,408	,086
	Var: [Post=2,00]	,342	,074
	Var: [Post=3,00]	,655	,127
	Var: [Post=4,00]	,728	,136
	Var: [Post=5,00]	,808	,152
	Var: [Post=6,00]	,350	,079
	Var: [Post=7,00]	,592	,115
	Var: [Post=8,00]	,533	,105
id	Variance	,206	,042

a. Dependent Variable: Credibility.

Only greenwashed posts:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	142,050	1393,628	<,001
Greenwash_Status	0	.	.	.
Visual_Text	1	202,665	9,184	,003
Brand_Type	1	216,402	,006	,937
Greenwash_Status * Visual_Text	0	.	.	.
Greenwash_Status * Brand_Type	0	.	.	.
Visual_Text * Brand_Type	1	208,878	2,407	,122
Greenwash_Status * Visual_Text * Brand_Type	0	.	.	.

a. Dependent Variable: Credibility.

Only non-greenwashed posts:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	113,290	1534,086	<,001
Greenwash_Status	0	.	.	.
Visual_Text	1	199,643	4,108	,044
Brand_Type	1	206,116	3,830	,052
Greenwash_Status * Visual_Text	0	.	.	.
Greenwash_Status * Brand_Type	0	.	.	.
Visual_Text * Brand_Type	1	199,252	3,857	,051
Greenwash_Status * Visual_Text * Brand_Type	0	.	.	.

a. Dependent Variable: Credibility.

Only HW posts:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	159,220	1842,624	<,001
Greenwash_Status	1	262,092	10,994	,001
Visual_Text	1	154,604	,859	,355
Greenwash_Status * Visual_Text	1	239,263	,282	,596

a. Dependent Variable: Credibility.

Only GANT posts:

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	153,942	1615,610	<,001
Greenwash_Status	1	288,885	2,837	,093
Visual_Text	1	156,025	20,337	<,001
Greenwash_Status * Visual_Text	1	250,560	,088	,767

a. Dependent Variable: Credibility.

Appendix 10

Regression Analysis:

Credibility → *Change_GANT_Lie*

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19,413	1	19,413	11,836	<,001 ^b
	Residual	970,979	592	1,640		
	Total	990,392	593			

a. Dependent Variable: Change_GANT_Lie

b. Predictors: (Constant), Credibility

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,984	,155		-6,346	<,001
	Credibility	-,130	,038	-,140	-3,440	<,001

a. Dependent Variable: Change_GANT_Lie

Credibility → *Change_GANT_True*

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40,275	1	40,275	22,541	<,001 ^b
	Residual	966,635	541	1,787		
	Total	1006,910	542			

a. Dependent Variable: Change_GANT_True

b. Predictors: (Constant), Credibility

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,228	,170		1,344	,180
	Credibility	,196	,041	,200	4,748	<,001

a. Dependent Variable: Change_GANT_True

Credibility → *Change_HW_Lie*

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50,215	1	50,215	23,731	<,001 ^b
	Residual	1134,166	536	2,116		
	Total	1184,381	537			

a. Dependent Variable: Change_HW_Lie

b. Predictors: (Constant), Credibility

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,652	,182		-3,581	<,001
	Credibility	-,217	,045	-,206	-4,871	<,001

a. Dependent Variable: Change_HW_Lie

Credibility → *Change_HW_True*

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,018	1	6,018	3,617	,058 ^b
	Residual	820,252	493	1,664		
	Total	826,271	494			

a. Dependent Variable: Change_HW_True

b. Predictors: (Constant), Credibility

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,661	,168		3,931	<,001
	Credibility	,078	,041	,085	1,902	,058

a. Dependent Variable: Change_HW_True