

UNIVERSITY OF TWENTE.

**Exploring The Role of Awe and Guilt in Shaping
Sustainable Product Purchase Intentions:
A Construal Level Theory Perspective**

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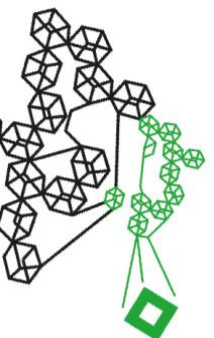
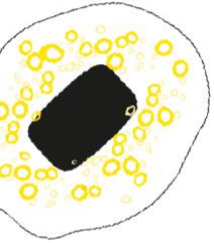
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Abstract

The rise in green advertising reflects growing consumer concern for environmental issues, with companies increasingly adopting sustainable marketing practices. However, predicting what drives consumers to buy eco-friendly products remains challenging. Effective communication is crucial for promoting sustainable consumption, and leveraging the power of emotion in advertising can be a powerful tool. One approach to understanding consumer reactions is temporal distance, which examines how people think about things that are near or far in time. For example, a product benefit seen tomorrow is perceived differently than one seen in a year. While researchers have studied this concept in social marketing, few have investigated its role in green advertising, particularly when combined with emotional appeals. This research investigates the combined and main effects of emotion (awe vs. guilt) and temporal distance (present vs. future) on purchase intention and attitude towards green product advertisements. Furthermore, this study examines the roles of Perceived Consumer Effectiveness (PCE) and perceived greenwashing in this relationship. A 2 (guilt vs. awe) by 2 (future vs. present) between-subject experimental design was used in an online experiment ($N = 161$) with advertisements for swimwear and body care products. Results showed no significant effects of the combination of emotion and temporal distance on attitude towards the advertisement and purchase intentions, nor the moderating effect of PCE and the mediating effect of greenwashing. However, emotion significantly influenced greenwashing perceptions, with awe leading to higher greenwashing concerns than guilt. These findings highlight the complexities of emotional appeals in advertising and highlight the need for tailored strategies and further exploration of emotion and temporal interactions.

Keywords: Temporal Distance, Awe, Guilt, The Construal Level Theory, Green Advertising, Construal Levels, Digital Marketing Strategies

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1. Introduction

With growing consumer concern for the environment, green advertising has emerged as an essential strategy for companies aiming to promote their environmentally friendly products and practices. This shift is driven by increasing consumer demand for sustainability and environmental responsibility, as consumers have become more educated on environmental issues (Naderi & Steenburg, 2018; Peto et al., 2023).

Although consumers are becoming more environmentally conscious, businesses are finding it difficult to predict what stimulates consumers to buy eco-friendly products (Moser, 2015). Furthermore, the fear of being called out for greenwashing, the misleading of consumers regarding the environmental benefits of a product or practice, has caused companies to severely cut back on sustainability-related communications (South Pole, 2024). This further complicates the efforts to effectively convey sustainability initiatives.

Consequently, social marketing practitioners and researchers are increasingly exploring different types of persuasive messages to encourage eco-friendly behaviours. Understanding how to provide sustainability information to consumers effectively is crucial for promoting more sustainable consumption (Segev et al., 2015).

Persuasive green advertising has garnered a significant interest among scholars. For example, message framing has been a common technique used in social marketing, which motivates audiences to interpret and react to messages based on how they are composed (Davis, 1995). Studies have often examined how environmental messages are framed. For instance, an advertisement for a reusable water bottle might frame the message either by emphasizing the benefits (gain frame), such as “save money and reduce plastic waste” or by highlighting the drawbacks of not using it (loss frame), like “spend more money and contribute to pollution”.

However, recent studies have found that these message frames have an even more persuasive effect when paired with their matching level of abstractness. For example, consider the difference between framing an environmental message for immediate action (concrete) versus long-term benefits (abstract). For example, "Use our plastic-free reusable bottle today to reduce harmful chemicals in your water and protect your family's health" (concrete), which focuses on a specific detail, versus "Use our plastic-free reusable bottle to contribute to a healthier planet for future generations" that is less detailed and focuses on a broader picture (abstract). Studies have found that matching the level of abstractness of message frames in an advertisement will lead to more positive consumer attitudes and pro-environmental behaviours (Chang et al., 2015; Chen, 2016; Kim et al., 2023; White et al., 2011).

Central to this concept of abstractness lies the Construal Level Theory (CLT), which explains how the level of abstraction at which a person processes information affects their perception and reaction to it (Chang et al., 2015; Trope & Liberman, 2010). When focusing on a broader picture, information is processed in a more abstract way (which leads to a high construal level), while a more detailed and specific event is processed in a more concrete way (which leads to a lower construal level). An important aspect of CLT is temporal distance, which refers to how far in time a certain event is. Temporal distance affects how people think about events: distant future events are processed more abstractly, whereas near future events are thought of in more concrete terms, as demonstrated by the earlier bottle advertisement example. Some scholars have investigated the role of temporal distance as a persuasive strategy in green advertising (Baek & Yoon, 2017; Chang et al., 2015), which have been extensively used to highlight environmental benefits or consequences in the present or the future (White et al., 2011).

Furthermore, in the research of temporal distance, many scholars have found that emotions can evoke different type of mindsets, specifically in terms of construal levels. For example, shame has been found to evoke a more abstract mindset, while guilt evokes a more local mindset (Han et al., 2014). Awe, an emotion characterized by a sense of wonder and amazement, has also been found to evoke a more abstract mindset. This occurs because awe is often felt by experiencing something vast, like the views of beautiful mountains, which prompts broader, more abstract thinking. For instance, an awe-inducing advertisement might show the vastness of mountains and forests, prompting consumers to think about the overall impact of their actions on the planet's future.

Just as in the case of message framing, aligning the level of detail in a message (abstract vs. concrete) to the type of mindset elicited by an emotion can lead to more positive outcomes (Baek & Yoon, 2017; Han et al., 2014; Kim et al., 2023; Pounders et al., 2019). For instance, combining a guilt-inducing message with a more concrete frame by focusing on the near future can be more effective. Despite the growing body of research on temporal distance, there remains a gap in understanding how these concepts interact with emotions in green advertising. Emotions such as guilt and awe are powerful drivers of consumer behaviour (Baek & Yoon, 2017; Pounders et al., 2019; Septianto et al., 2023; Yan et al., 2023), yet their interaction with temporal distance in digital marketing remains underexplored. This study aims to fill this gap by exploring the combination of temporal distance and two differently valenced emotions – awe and guilt - and how it affects consumer responses to green advertisements.

Guilt often drives individuals to abstain from wrongdoing and make the right decisions (Lewis et al., 1989). In the context of green advertising, guilt can be a tool used to encourage pro-environmental behaviour. Previous studies have shown that guilt-induced messages can enhance consumer intentions to engage in environmentally friendly actions (Baek & Yoon,

2017; Pounders et al., 2019). However, the effectiveness of these messages may depend on their temporal framing. Guilt has been found to be associated with low-level construals, which focus on specific, immediate details (Han et al., 2014). Therefore, guilt advertisements framed in the present (e.g., “Act now to reduce waste”) may be more effective than those framed for the future.

On the other hand, awe is a positively valenced emotion characterized by a sense of wonder and amazement (Keltner & Haidt, 2003). It often arises in response to vast, extraordinary experiences. In marketing, awe has been shown to enhance consumer attitudes toward products, particularly when the message aligns with a broader, more abstract perspective (Yan et al., 2023). Thus, awe-inducing advertisements framed for the distant future (e.g., “Imagine a world where clean energy powers everything—your choice today helps build that future”) may be more effective in promoting green products than those with a present focus.

While consumer demand for environmentally friendly products has grown significantly, this positive trend has been accompanied by an increase in businesses making misleading green claims (Publications Office of the European Union, 2023). This phenomenon is called greenwashing, which involves misleading consumers regarding the environmental benefits of a product or practice, which can erode consumer trust and damage brand reputation (Dutta-Powell et al., 2024). The role of greenwashing has not yet been explored in relation to temporal distance and emotions within green advertising. Understanding the impact of greenwashing is essential for developing authentic and effective green advertising strategies. This study will examine whether perception of greenwashing in advertisement will influence the relationship between temporal framing, emotions, and consumer responses.

This research further examines whether individuals' beliefs that they can contribute to solving environmental issues influence how emotions and temporal distance affect consumer

behaviour. Perceived consumer effectiveness (PCE) refers to the extent to which consumers believe their actions can make a positive impact on the environment (Berger & Corbin, 1992). High PCE may enhance the effectiveness of green advertising as consumers are confident in their ability to contribute to sustainability efforts. In contrast, low PCE may diminish the impact of green messages, as consumers might feel their individual actions are insignificant.

This study's exploration of the interaction between temporal distance and emotions in green advertising not only contributes to the theoretical understanding of CLT but also has significant practical implications. Encouraging green consumption is essential to move towards a more sustainable planet and meeting one of the key sustainable development goals. Therefore, it is crucial to identify factors that motivate consumers to opt for sustainable products. For marketers, understanding these dynamics can lead to the development of more effective advertising campaigns. Aligning emotions with the appropriate temporal frames can enhance message persuasiveness and drive consumer engagement. For instance, using guilt in present-framed messages or awe in future-framed messages could potentially lead to better consumer attitudes and higher purchase intentions.

Examining the effects of greenwashing and PCE of the intersection of temporal distance and emotions has further academic contributions in understanding consumer behaviour, as these concepts have not been extensively researched in this context. The following research questions have been formed: *“How do awe (vs. guilt) inducing and future (vs. present) focused advertisements influence the purchase intention and attitude towards the advertisement of a sustainable product?”*

Additionally, the following sub-research questions have been formulated: *“How do emotions (awe vs. guilt) influence purchase intention and attitude towards the*

advertisement?” and “How does temporal distance (present vs. future) influence purchase intention and attitude towards the advertisement?”

Furthermore, the following sub-questions were asked to address other factors: *“How does perceived consumer effectiveness impact the relationship between temporal distance (present vs. future) and emotion (guilt vs. awe) on purchase intention and attitude towards advertisement?”* and *“How does the perceptions of greenwashing mediate the relationship between temporal distance (present vs. future) and emotion (guilt vs. awe) on purchase intention and attitude towards advertisement?”*.

To address these research questions, a 2 (guilt vs. awe) by 2 (future vs. present) between-subject experimental design was employed using a survey. This approach investigated the relationship between emotions (guilt vs. awe) and temporal distance (future vs. present) on consumers' purchase intentions and attitudes towards advertisements for green products, as well as the role of perceived consumer effectiveness and greenwashing perception.

The thesis is structured as follows: Chapter 2 delves into the theoretical background of the main mechanisms in this study. Chapter 3 details the methodology and presents the pre-tests and their results. Chapter 4 showcases the results of the main survey. Chapter 5 concludes the thesis with a discussion that addresses the implications and limitations of this study.

2. Theoretical Framework

2.1. The Construal Level Theory

The construal level theory (CLT) explains how psychological distance – the perceived separation between the self and other objects or instances – influences people's thought processes and decision-making. Psychological distance refers to how far something feels from an individual's direct experience, whether in terms of time, space, social connections, or hypothetical scenarios. According to CLT, the further away an object or event is perceived to be, the more abstract the thought or mental representations will be. When individuals perceive an event or object as psychologically distant, they interpret it in a more abstract and less detailed manner. This is referred to as a high-level construal. In contrast, events or objects that are perceived as psychologically close are interpreted in a more concrete and detailed manner, known as a low-level construal. In high-level construals, the focus is on the broader context and overarching themes, whereas in low-level construals, the emphasis is on specific details and immediate aspects (Trope & Liberman, 2012). CLT has been a point of interest in green advertising, as they often highlight the environmental benefits of consequences toward the present (e.g., 'Build a sustainable future' by Nestle) or the future (e.g., 'Say no to plastic today' by Clean Up Australia) (Berger & Corbin, 1992).

Psychological distance has several dimensions: temporal, spatial, social, and hypothetical. To date, much of the research on CLT has predominantly focused on temporal distance (Chang et al., 2015). In temporal distance, high-level construals are associated with events that are perceived to occur in the distant future, while low-construals represent events that are closer to the present (Trope & Liberman, 2010).

Temporal distance has been a focal point of many scholars studying online consumer behaviour. Different temporal distances have been shown to increase consumer attitudes and purchase intentions in a variety of contexts. For instance, Chang et al. (2015) found a

congruency effect between low (vs. high) construal level and loss (vs. gain) message framing in green advertisements, which positively influenced ad attitude, brand attitude and purchase intention. A message that focused on a positive gain for the future produced more positive consumers' attitudes and increased purchase intention, and similarly with a negative loss message framed in the present. In another study of temporal distance, consumers were more likely to buy high-involvement products (which generally have high value, which makes consumers spend more time to make the right purchase decision) in the distant future while preferring to buy low-involvement products in the near future (Liu et al., 2020).

Despite the increasing prevalence of green advertising, few studies (except Chang et al., 2015; Pounders et al., 2019) have explored the impact of temporal distance in green advertising on consumers' attitudes and purchase intentions. Instead, in the context of green advertising, current scholars have frequently focused on message frames, such as gain vs. loss or self-benefit vs other-benefit, or desirability-feasibility appeals (Baek & Yoon, 2017; Ekebas-Turedi et al., 2021; Kim et al., 2023; Segev et al., 2015; White et al., 2011). Even though most of the research on temporal distance has been in combination with other factors (e.g., message framing), it can be hypothesized that the type of temporal distance alone may impact consumer behaviours.

Gu and Wu (2019) have found purchase intention to be a reliable measure to predict actual purchase behaviour. Therefore, this study will use purchase intention as a predictor for purchase behaviour, as well as attitude towards the advertisement as a measurement for evaluating the effectiveness of an advertisement.

2.2. Emotions and Temporal Distance

Previous studies have shown a connection between emotions and how people construe emotion, further influencing subsequent decisions (Han et al., 2014; Pounders et al., 2019).

For instance, Agrawal et al. (2013) discovered that due to agency appraisals associated with different emotions, customers were more resistant to new information when they were feeling pride in comparison to gratitude. Han et al. (2014) show that guilt and shame change the level at which individuals interpret future information, which appears from the differences in appraisal tendencies associated with each emotion. When asked to write about a guilty experience, individuals displayed low-level construals, while shameful experiences induced high-level construals. Guilt, in this case, is evoked by appraisals that are closer to the event ("I should not have done that") and therefore subsequent information may be construed at a level that is consistent with the appraisal, while shame is caused by general self-appraisals and individuals experiencing shame might construe information more generally and abstractly, without focusing on details of the situation (Han et al., 2014).

At the centre of this phenomenon lies the Appraisal Tendency Framework (ATF), introduced by Lerner and Keltner (2000, 2001), which serves as the basis for predicting the effect of specific emotions on consumer decision-making (Han et al., 2007). According to ATF, each emotion has cognitive properties that affect subsequent judgments. This occurs through "appraisal tendencies", which are cognitive predispositions that appraise future events in line with appraisal patterns associated with specific emotions. This framework outlines how emotions with the same valence can have similar or opposite effects depending on various factors.

A match between different effects in advertising has been a focus of interest in research. Another study of guilt and shame found that guilt-primed individuals had higher intent to conserve water upon seeing a gain-framed water conservation ad, while shame-primed individuals had the same effect with a loss-framed water conservation ad (Baek & Yoon, 2017). In the context of construal levels, Chang et al. (2015) showed congruency effects between loss frame (vs. gain frame) and low (vs. high) construal results in more favourable

effects on consumers' attitudes and purchase intentions, while White et al. (2011) found these effects to lead to improved processing fluency and enhanced recycling intentions.

To date, research on temporal frame and emotions has primarily focused on emotions such as pride, gratitude, guilt, shame and awe (Agrawal et al., 2013; Han et al., 2014; Kim et al., 2023; Pounders et al., 2019). Additionally, both guilt and awe have been found to increase pro-environmental behaviours (Baek & Yoon, 2017; Yan et al., 2023; Yang et al., 2018). However, the research on both guilt and awe in green advertising is scarce and their effect on consumer behaviour, especially in the context of green advertising, are not well documented. Therefore, this study aims to fill this gap and examine the effects of guilt and awe on consumer behaviours. Additionally, awe and guilt are higher-order (discrete) emotions which are brought on by cognitive appraisals of specific situations (Poels & Dewitte, 2019). In contrast, lower-order emotions, such as arousal or pleasure, are more difficult to research as they are "spontaneous and largely uncontrollable emotional reactions" (Poels & Dewitte, 2019, p. 83), therefore, they were not considered for this study.

2.3. Guilt and Present Frame

Guilt is an unpleasant emotion that motivates individuals to make appropriate decisions and abstain from wrongdoing. Guilt is named a self-conscious emotion, as it requires one to focus on oneself, activate self-representation and elicit self-evaluation (Lewis et al., 1989; Tangney & Dearing, 2002; Tracy & Robins, 2004). Guilt might arise when a person considers an event personally relevant but incongruent with their self-identity goals, attributing the cause of an event to an internal factor and placing the blame on the self. Guilt is experienced by internal, unstable, and concrete attributions ("I didn't try hard enough") (Tracy & Robins, 2004).

According to CLT, the same event or action can be construed at different levels based on whether a person focuses on a global or local perspective of it (Trope & Liberman, 2010). CLT further explains that global appraisals lead to high-level construals, while local appraisals lead to low-level construals (Liberman et al., 2003; Semin & Fiedler, 1988). Han et al. (2014) found that guilt, as opposed to shame, induced lower construal levels. Furthermore, in the context of ATF, guilt is experienced by behaviour appraisals that are close and specific to an event (e.g. "I shouldn't have done it") which, in line with CLT, results in information being construed at a lower level.

Prior work has focused on guilt in green contexts, such as when primed before a gain-framed (vs. loss-framed) green public service announcement, participants had more intentions to recycle and save water (Baek & Yoon, 2017). Pounders et al. (2019) found that, when exposed to a guilt appeal, conveying health risks within a proximal frame resulted in a more favourable attitude towards the message. Although the research on the use of guilt in green advertising is scarce, Ekebas-Turedi et al. (2021) found guilt green appeals to be more effective in promoting purchase intention in comparison to proud appeals.

It can be argued that when guilt and temporal frame are congruent, that is, guilt is experienced together with a more local or closer perspective, it will produce more favourable consumer attitudes and greater behavioural intent, in contrast to guilt appeal being experienced with a global perspective.

H1: A present framed message will elicit greater purchase intention and attitude toward the advertisement for green products than a future framed message for individuals exposed to a guilt inducing advertisement

2.4. Awe and Future Frame

Awe is described as a positively valenced emotion of amazement and wonder that results from encountering something vast in architecture (Keltner & Haidt, 2003). Awe can be elicited by various stimuli, such as natural wonders, panoramic views, or human creations, such as art. It has been shown to have two central features: vastness and the need for accommodation. Vastness refers to when an individual experiences something bigger than the self. It can involve something larger in size or social size, such as authority, fame, or prestige. In the instance of accommodation, mental structures are adjusted in the presence of a new experience that cannot be assimilated. However, no matter how the experience of awe is elicited, a common theme unifying these experiences are the perceptions of vastness that substantially expand the person's usual frame of reference in a certain dimension or domain (Shiota et al., 2007).

Awe has been shown to have unique effects on consumer decisions (Allen, 2018). Yan et al. (2023) found that awe, when congruent with the values of consumers, can enhance their sustainable behavioural intentions. Awe in this instance was congruent with the value of self-transcendence. In another study of awe, Septianto et al. (2023) found awe to lead consumers to choose a product higher in desirability (vs. feasibility) attributes through the appraisal of the small self, as well as increased the persuasiveness of advertisements. Furthermore, awe-eliciting video advertisement elicited more favourable attitudes to a product that was advertised in the distant future. Awe has also been found to lead to enhanced pro-environmental behaviours. Connectedness to nature and willingness to engage in ecological behaviours was reported to be higher when individuals were exposed to awe-inducing video, showing grand natural sceneries (Yang et al., 2018).

Septianto et al. (2023) found awe to elicit an abstract mindset and show more positive attitudes toward a product when associated with a distant (vs. near) future. Particularly, the

relationship between a more abstract mindset and awe is activated by the appraisal of the small self, which leads individuals to step back and view things from a psychologically distant perspective (Piff et al., 2015). Guo et al. (2018) have also found awe advertisements to increase purchase intentions and make products more memorable.

This leads to the assumption that when awe is experienced together with a future perspective, the message or advertisement will lead to greater consumer attitudes as opposed to a present-framed message.

H2: Future framed message will elicit greater purchase intention and attitude towards the advertisement for green products than present framed message for individuals exposed to an awe inducing advertisement.

2.5. Perceived Consumer Effectiveness (PCE)

PCE is the degree to which the consumer believes that the efforts of an individual can make a difference (Ellen et al., 1991; Kinnear et al., 1974; Straughan & Roberts, 1999). Research shows that PCE influences the behaviour and attitudes of consumers towards the environment, however, the level of consumers' PCE can differ. Those who do not believe that they can contribute to the solution of the environmental issue tend to have a low PCE. Those consumers tend to think that only larger establishments, such as businesses or governments, can help with environmental issues. In turn, people with high PCE scores believe that their individual efforts can influence environmental problems (Berger & Corbin, 1992). Ekebas-Turedi et al. (2021) argue that when people believe that their individual effort can make a difference (high PCE), they can be a better match with other-benefit (focusing on altruism and overall good) messages, which focus on the benefit that the green product provides. On the other hand, when consumers do not believe that they can make a difference (low PCE),

they can better see the self-benefit that the green product provides and receive the message more positively. They confirmed this relationship in their study, making the congruity between PCE and message frame more effective in increasing the purchase intention of a green product. Wiebe et al. (2017) found that individuals with higher PCE had more positive attitude, behavioural intention and behaviour towards a message that was framed proximally (vs. distally) across four domains of psychological distance: temporal, spatial, hypothetical, and social.

Consumers' PCE could possibly enhance the interaction effect between construal levels and emotion. It could be argued that the higher the level of PCE, as in, the more personal and closer the issue might be to the individual, the more a message might be construed at a lower level. In line with CLT, local appraisals lead to lower construal levels. Thus, a higher level of PCE might enhance the interaction effect between guilt and present frame. On the other hand, a low level of PCE indicates that individuals may not believe that their effort will have any benefit, and only larger establishments can help with environmental issues, leading to more global appraisal tendencies. Global and more abstract appraisals lead to higher construal levels. Therefore, it can be argued that higher PCE will enhance the interaction effect between the awe (vs. guilt) and future (vs. present) frame.

H3: PCE will enhance the relationship between awe (guilt) and the future (present) frame on purchase intention and attitude towards the advertisement.

2.6. Perceived Greenwashing

With a growing demand for environmentally friendly products among consumers, corporations are using more green claims in their advertising (Kwon et al., 2023). However, with the increase in green marketing, green claims are often used for non-environmentally

friendly products, such as plastic bottles, cars, and airline flights (Schmuck et al., 2018). In other words, this phenomenon is known as greenwashing. According to Lyon & Montgomery (2015), there is no right definition of greenwashing due to its complex nature. However, generally, greenwashing refers to "making claims about the environmental practice of a company, or the environmental sustainability of a product or service, which are either unable to be substantiated or are actively misleading" (Dutta-Powell et al., 2024, p.3). There are various classifications of greenwashing. For example, De Freitas Netto et al. (2020) have identified two major classifications of greenwashing: firm-level and product/service level greenwashing. Firm-level greenwashing refers to misleading environmental practices of an organization, while product/service level refers to misleading environmental claims regarding products or services offered by the company (Delmas & Burbano, 2011). Furthermore, it can be further classified into claim or executional greenwashing. On the other hand, Dutta-Powell et al. (2024) identify two common types of greenwashing: misrepresenting core business and promoting individual responsibility. Similar to the firm-level greenwashing, misrepresenting core business refers to making claims regarding their organization, while distracting the consumers from the environmental impact of the organisation's operations. A common example of this is the promotion of net zero emission goals, especially among oil and gas companies. Aronczyk et al. (2024) have identified multiple greenwashing claims within Canadian oil sand producers' "Pathways Alliance" public communication. Their messaging often excludes important information and falls short of the requirements for a net-zero plan.

Promoting individual responsibility refers to the encouragement of individuals to take steps towards the reduction of climate change, instead of an organization's actions. Oil companies have also been shown to be using this type of greenwashing. The term "carbon footprint" was first used by British Petroleum in the early 2000s as a way to shift the responsibility for the climate change onto the consumer (Munoz, 2023).

How consumers react to environmental claims in advertising and their alignment with a company's real action or corporate social responsibility is referred to as greenwashing perception (Nyilasy et al., 2014). Perceptions of greenwashing have been shown to lead to negative evaluations of ads and brands. Nyilasy et al. (2014) found that green advertising can interfere with consumers' organic evaluations of companies. No advertising strategy led to higher brand attitudes and purchase intentions compared to when a company promoted its environmental achievements. This can be explained by consumers forming negative attributions regarding the actual motives of the company, in other words, they observe the company's greenwashing. Many green benefits claimed by companies cannot be easily verified by the consumers, which leads to consumers losing trust and confidence in green advertising and general scepticism towards all green products (Chen & Chang, 2013; De Jong et al., 2018).

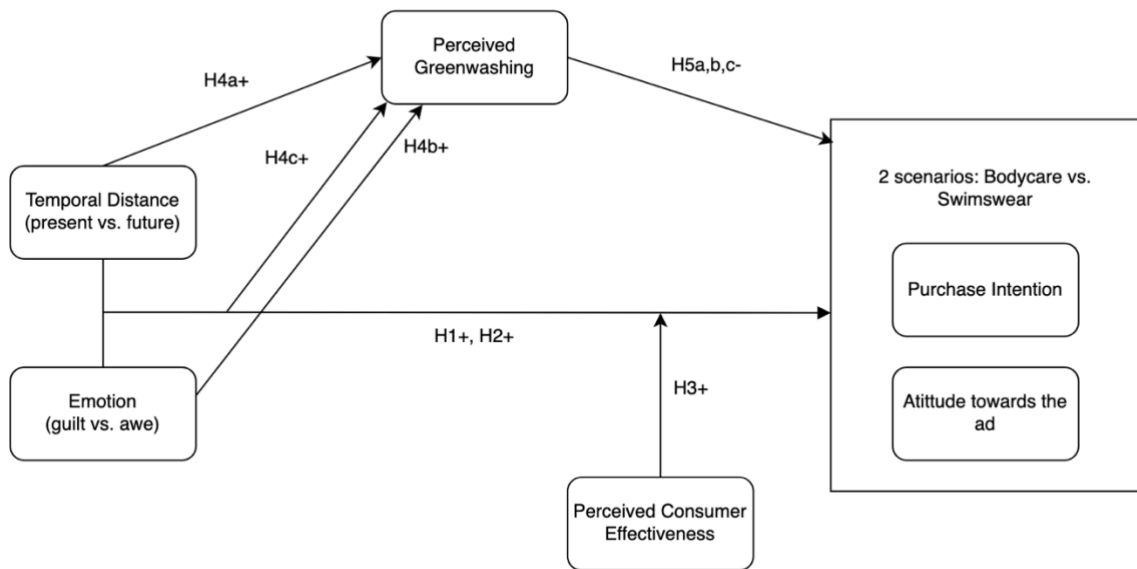
Therefore, it can be hypothesized that the perception of greenwashing in an advertisement will negatively mediate the relationship between temporal distance, emotion, and consumer attitudes. Additionally, if temporal distance and emotion are misaligned (e.g., awe with a present frame or guilt with a future frame), consumers may feel confused, leading to a loss of trust and a stronger perception of greenwashing.

H4a, H4b, H4c: *The effects of (a) emotion, (b) temporal distance, and (c) the misalignment between the two lead to higher greenwashing perceptions.*

H5a, H5b, H5c: *The effect of (a) emotion, (b) temporal distance and (c) the combined effect of both towards purchase intention and attitude towards the advertisement is negatively mediated by the perception of greenwashing.*

Figure 1

The conceptual model



3. Methodology

3.1. Research Design

The goal of this study is to examine the relationship between emotions and temporal distance on consumers' purchase intention and attitude towards the advertisement for green products. PCE was incorporated as a moderating variable, while greenwashing as a mediating variable. To accomplish the study's objectives, a 2 (emotion: guilt vs. awe) by 2 (temporal distance: future vs. present) between-subject experimental design was implemented, in which awe (vs. guilt) inducing and future (vs. present) framed advertisements are shown via an online survey. As a result, the study consisted of four conditions, as detailed in Table 1. The pre-test of this study (detailed in Chapter 3.2.) revealed the need for two types of product categories, therefore this study was conducted using two scenarios: bodycare and swimwear product category.

Table 1

Research design

	Guilt	Awe
Present	Guilt + Present	Awe + Present
Future	Guilt + Future	Awe +Future

3.2. Pre-Test

A pre-test was conducted to select the appropriate stimuli material for the main experiment. The goal of this pre-test was to choose the appropriate awe and guilt-inducing images and slogans to use in the background of the advertisement. Additionally, the pre-test aimed to determine the most suitable product category for these advertisements and address any other potentially overlooked considerations.

The pre-test involved a focus group of five participants who were assigned tasks to be completed in the visual work platform "Mural". Individually, the participants were given six tasks. Initially, they were presented with eleven images of awe-inducing nature views, such as mountains, oceans, and starry night skies. Participants were then asked to rank them on a scale ranging from "I did not feel sense of awe, wonder or amazement" to "I felt a strong sense of awe, wonder or amazement".

Subsequently, the participants were presented with five different products and were asked to rate their suitability for use in advertisement featuring the previously highest ranked awe-induced image. The final individual task involved assembling the advertisement and selecting an appropriate slogan from options such as "Impact you can see in the future" or "Awaken to tomorrow's wonders". The same tasks were then repeated for advertisements intended to evoke feelings of guilt. Detailed task descriptions and their results are provided in Appendix B.

Once the advertisements were assembled, they were put next to each other, and participants were asked to vote for the ones that they found the most realistic. This was followed by a group discussion after the main study's purpose was revealed. Due to inconsistent product category preferences between the two conditions based on voting results, participants were asked to suggest improvements and identify the most appropriate product category for both conditions.

While the two most voted advertisements in awe condition showcased an electric vehicle against a mountain background, the discussion led to the conclusion this product was unsuitable for both conditions. Participants noted that an electric vehicle "does not connect to the plastic in the sea" and that "since a car is a long-term investment, it does not make sense to pair it with things framed for today". The conclusion was that the product for both

conditions should be a low-cost investment that can easily contribute to environmental sustainability.

The group further agreed that the product should be made from recycled materials, leading to a choice between recycled swimwear and body care products. Finally, these two products were then selected as the final product categories.

The final images were chosen based on the highest rankings on the guilt and awe scales. For the guilt condition, slogan "Be part of the solution today/for the future" was selected, while "The impact you can see today/in the future" was selected for awe condition.

3.3. Stimuli Material

To provide participants with a realistic and near real-world experience, the advertisements are designed as Instagram posts, featuring a headline and a background image. The advertisements showcase a fictitious body care and swimwear brand. A brief description of the product and its environmental benefits is provided in the caption accompanying the post.


Given the green advertising context of this study, the background image of the advertisement depicts natural scenes. For the awe condition, it showcases awe-inducing landscapes, particularly a view of mountains and a body of water. In contrast, the guilt condition includes views of human-caused plastic pollution of the environment, particularly the ocean.

The product description is written in a way to enhance the emotional impact of guilt and awe. According to Tracy & Robins (2004), guilt is induced by reflecting on self-representation, and individuals must see that they failed to live up to their ideal. For that reason, in the guilt condition, the description emphasizes the impact of individual choices on environmental pollution, while in the awe condition, the description highlights the significance of preserving natural beauty.

The advertisements were developed in Adobe InDesign and Adobe Illustrator. The final advertisements are presented in Figures 2-5. The advertisements were run through a pre-test with manipulation checks through Qualtrics with 36 participants separately for the advertisement and the accompanying description. The results showed that both emotion and temporal distance checks worked.

Figure 2

Final advertisement: Future and Guilt condition



BE A PART OF THE SOLUTION FOR THE FUTURE

DISCOVER THE WORLD OF WAVE
NATURE CONSCIOUS BODY CARE

- 100% RECYCLED OCEAN PLASTIC PACKAGING
- NATURALLY DERIVED INGREDIENTS

wave bodycare

wave bodycare

Before you add another plastic-packaged product to your cart, remember: every purchase counts.

Choose nature conscious body care with packaging made from 100% recycled ocean plastic.

By choosing our products, you contribute to the cleaning of oceans and a greener future for our home.

Your choices shape our future. Recognize your environmental impact, break the cycle of plastic waste, and embark on your nature journey with Wave - where sustainability meets beauty!

♡ 🔍 📌

Figure 3

Final advertisement: Awe and Future condition



W wave.bodycare ...

W wave.bodycare

Immerse yourself in the beauty of nature with our eco-conscious body care line. Our innovative packaging is made fully from recycled ocean plastic.

By choosing our products, you contribute to the cleaning of oceans and a greener future where generations to come can admire the untouched wonders of nature.

Your choices help shape our future.

Begin your nature journey with Wave, where sustainability meets beauty!



Figure 4

Final advertisement: Guilt and Present condition



W wave.bodycare ...

W wave.bodycare

Before you add another plastic-packaged product to your cart, remember: every purchase counts.

Choose nature conscious body care with packaging made from 100% recycled ocean plastic.

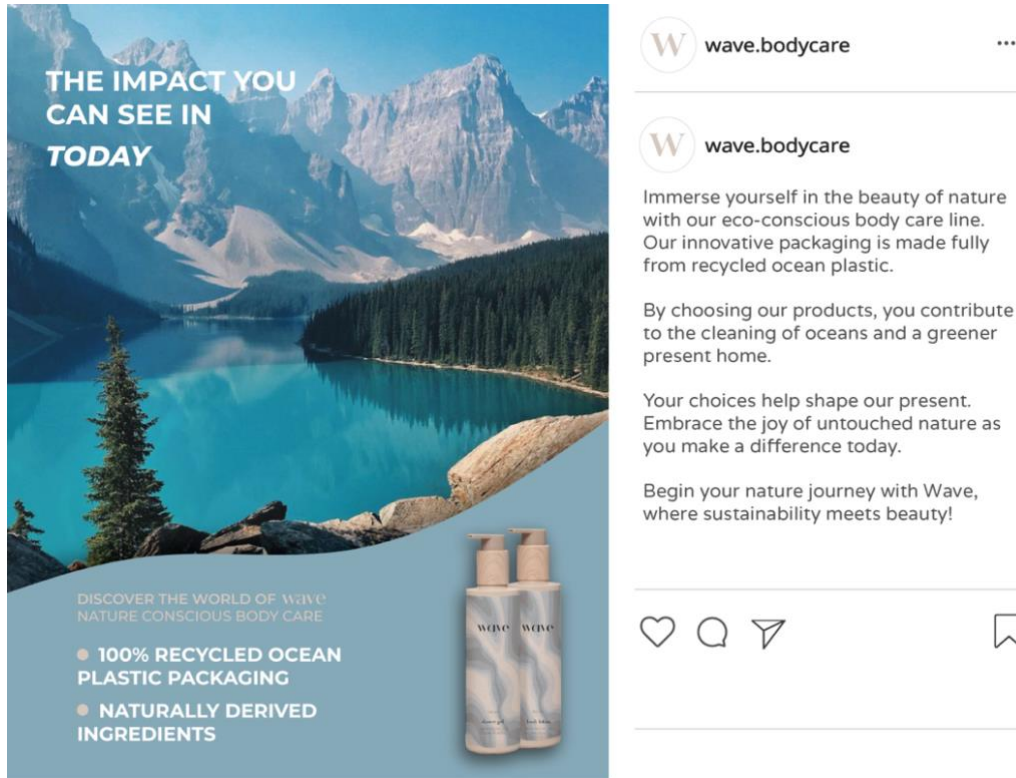
By choosing our products today, you immediately contribute to the cleaning of oceans and a greener home.

Your choices shape our present home. Recognize your environmental impact, break the cycle of plastic waste, and embark on your nature journey today with Wave - where sustainability meets beauty!



Figure 5

Final advertisement: Awe and Present condition



3.3.1. Manipulation

Consistent with previous research, the temporal frame is introduced through the headline with words 'today' versus 'future' (Chandran & Menon, 2004; Pounders et al., 2019), while the description of the product interchanges “now”, "today" versus "tomorrow" and "future".

Inducing emotion of participants with ostensibly unrelated tasks, such as a recall task or an irrelevant advertising exposure has been commonly used in the literature (Agrawal & Duhachek, 2010; Baek & Yoon, 2017; Rudd et al., 2012; Sheikh & Janoff-Bulman, 2010). However, in real-life advertising situations, it may be more relevant to design advertisements that elicit emotion independently, without the need for prior materials. Such experiences can be explained by integral emotions, which arise from a task currently being experienced

(Achar et al., 2016), as opposed to incidental emotions, which arise from prior, unrelated experiences. For that reason, the manipulation for both emotions is done through the background image and product description in the advertisement.

3.4. Procedure

Prior to the start of the main study, the ethical approval was obtained from the Ethics Committee at the University of Twente (Request Nr: 240180). The primary data collection method for this study was an online questionnaire designed in Qualtrics. Before data collection, the participants were provided with a brief description of the study without disclosing the main objective of the study. They were informed that the study aimed to examine different green advertisements. Afterwards, they were asked to provide consent to participate in the study.

At the beginning of the questionnaire, participants were asked demographic questions, such as their age and gender. That was followed by the main part of the study, where participants were randomly assigned to one of the four conditions. In each condition, the participants were shown two advertisements for each product category in their respective condition. After viewing each advertisement, they were asked to answer questions regarding the attitude towards the advertisement (with two scales) and purchase intention. Among these questions the temporal distance and emotional manipulations are also checked. The questionnaire concluded with questions on PCE and greenwashing.

Participants were acquired through convenience sampling. The survey was distributed via three different methods. Firstly, it was shared on platforms that offer researchers the opportunity to share their studies and recruit participants while also helping others with their research (e.g. SurveySwap or SurveyCircle). Secondly, the questionnaire was a part of the University Twente subject pool "SONA". Lastly, the survey was also shared within researchers' own network and social media platforms. At last, a snowball effect was created

within the researchers' network, as many participants shared the survey further within their networks.

3.5. Participants

No specific participation requirements were set for this study. The only exception was that the participants must be at least 18 years old for consent purposes.

The initial sample consisted of 178 participants, out of which three were under 18 years old, and 14 did not reach the end of the survey. Consequently, the final number of valid responses was narrowed down to 161.

The mean age of the respondents was 25.57 years old ($SD = 6.26$). The majority of the respondents were female (61.5%), while 36% were male. Additionally, 1.2% identified as non-binary or third gender, and 1.2% preferred not to disclose their gender. An ANOVA was conducted to determine if there were significant differences in the mean age of participants across the four experimental conditions. The analysis showed that the age distributions did not significantly differ between conditions, $F(3, 159) = 1.575, p = .198$. Therefore, age was not controlled for in the main analysis.

A Chi-Square test was performed to examine gender distributions across the experimental conditions. The test revealed that between the four conditions, there was not a significant difference in gender distribution $\chi^2(9, N = 161) = 10.396, p = .319$. However, when comparing the two different emotion conditions, significant differences were observed in gender distribution. Specifically, significantly fewer males participated in the guilt conditions than expected, while significantly fewer females participated in the awe conditions than expected, $\chi^2(3, N = 161) = 7.982, p = .046$. To account for the significant difference in gender observed in Chi-Square test results, gender was controlled for in the main analysis.

Table 2*Gender descriptives*

		Present	Future	Total
Guilt	Female	30	29	59
	Male	12	11	23
	Other	0	1	1
Awe	Female	18	22	40
	Male	18	17	35
	Other	2	1	3
<i>Total</i>		80	81	

3.6. Measures

Various scales have been adopted from previous research studies to measure the constructs in this study. Reliability analysis using Cronbach's Alpha was conducted for each measurement to measure the internal consistency of the items in the group.

3.6.1. Purchase Intention (Dependent Variable)

Purchase intention is measured with three five-point Likert-type scale adapted from Lepkowska-White et al. (2003) and two additional items that assess the likelihood of a person buying a product featured in an advertisement. The items range from 1= "Strongly disagree" to 5 = "Strongly agree". The items of the scale can be seen in Table 3. In both product conditions, the items formed a highly reliable scale.

Table 3*Purchase Intention measurement*

Construct	Item
Purchase Intention	1. If I were looking for this type of product my likelihood of purchasing the product in the ad would be high

2. If I were to buy this type of product, the probability that I would consider buying the product in the ad would be high
 3. If I had to buy this type of product, my willingness to buy the product in the ad would be high
 4. I would probably choose this product over similar, less sustainable products
 5. I would recommend this product to my friends and family
- Reliability score: Bodycare: $\alpha = .911$; Swimwear: $\alpha = .943$

3.6.2. Attitude Towards the Advertisement (Dependent Variable)

Attitude toward the advertisement is measured using two different scales in order to capture various dimensions of the advertisement's impact. The first scale (Attitude Scale 1) has three items on a 7-point semantic differential scale. The items range from (1 = "Strongly disagree" to 7 = "Strongly agree") (Kaushal & Kumar, 2016). Two more statements "I like the slogan of this advertisement" and "I like the visuals of this advertisement" are added to this scale. In both product conditions, the items formed a reliable scale.

The second scale (Attitude Scale 2) consists of four items on a 7-point bi-polar adjective scale (Bruner, 2009). Both scales can be seen in Table 4.

Table 4

Attitude towards the advertisement measurements

Construct	Item
Attitude towards the advertisement (Attitude Scale 1)	<ol style="list-style-type: none"> 1. I like this advertisement 2. My attitude towards this advertisement is positive 3. I find the advertisement visually appealing 4. I like the slogan of this advertisement <p>Reliability score: Bodycare: $\alpha = .886$; Swimwear: $\alpha = .876$</p>
Attitude towards the advertisement (Attitude Scale 2)	<p>How would you rate the advertisement?</p> <ol style="list-style-type: none"> 1. Not Likeable/ Likeable 2. Not Interesting/ Interesting

3. Not appealing / Appealing

Reliability score: Bodycare: $\alpha = .892$ and Swimwear: $\alpha = .909$

3.6.3. *Perceived Consumer Effectiveness (Independent Variable)*

Perceived consumer effectiveness is measured with a 7-point, five-item Likert scale. The items range from (1 = "Strongly disagree" to 7 = "Strongly agree") (Kim & Choi, 2005). Item 4 had to be reversed. The items formed a reliable scale. The items can be seen in Table 5.

Table 5

PCE measurement

Construct	Item
PCE	1. Each person's behaviour can have a positive effect on society by signing consumer a petition in support of promoting the environment
	2. I feel that I can help solve natural resource problem by conserving water and energy
	3. I can protect the environment by buying products that are friendly to the environment
	4. There is not much that I can do about the environment
	5. I feel capable of helping solve environmental problems
Reliability score	$\alpha = .719$

3.6.4. *Perceived Greenwashing (Dependent Variable)*

The perceived greenwashing is measured with a 7-point, five-item Likert scale. The items range from (1 = "Strongly disagree" to 7 = "Strongly agree") (Chen & Chang, 2013). The items formed a reliable scale and can be seen in Table 6.

Table 6*Perceived Greenwashing measurement*

Construct	Item
Perceived Greenwashing	<ol style="list-style-type: none"> 1. These products mislead with words in its environmental claims 2. These products mislead with visuals in its environmental features 3. These products possess a green claim that is vague 4. These products overstate or exaggerate their green functionality 5. These products leave out or mask important information, making the green claim sound better than it is 6. These products possess a green claim that is seemingly unprovable <p>Reliability score: $\alpha = .879$</p>

3.7. Manipulation Checks

Manipulations of awe, guilt and temporal distance were measured with 7-point semantic differential scales. The times are seen in Table 7. All items formed reliable scales.

Table 7*Manipulation measurements*

Construct	Item
Awe	<p>This ad made me feel:</p> <ol style="list-style-type: none"> 1. Not at all in awe / In awe 2. Not in amazement / in amazement <p>Bodycare: $\alpha = .823$; Swimwear: $\alpha = .872$</p>
Guilt	<p>This ad made me feel:</p> <ol style="list-style-type: none"> 1. Not remorseful / Remorseful 2. Not guilty/ guilty <p>Reliability score: Bodycare: $\alpha = .809$; Swimwear: $\alpha = .858$</p>

Temporal Distance

The ad you viewed focused on the impact of your choices:

1. Now/Later,
2. Today/Sometime over a year,
3. Near/distant future (Chandran & Menon, 2004).

Reliability score: Bodycare: $\alpha = .878$; Swimwear: $\alpha = .917$

3.8. Data Analysis Plan

The collected data was analysed using SPSS software. At the start of the analysis, the manipulation checks were conducted to assess whether the manipulations of emotions and temporal distance worked as intended. These checks were conducted with independent samples t-test.

A multivariate ANOVA was employed to test Hypotheses 1, 2 and 4. This analysis assesses the interaction effects of multiple independent variables on the dependent variables.

Furthermore, moderation analysis and mediation analysis were conducted for hypotheses H3 and H5, respectively. The moderation analysis was conducted with Andrew Hayes' PROCESS tool macro model 3, while the mediation analysis was conducted with macro model 4.

4. Results

In this chapter, the results are organized into two main parts: the results of bodycare category scenario and the results of swimwear category scenario. Each section will present results of the analysis on how the experimental conditions influenced key dependent variables, such as purchase intentions, attitudes, and perceptions of greenwashing, within the respective product categories.

4.1. Results of Bodycare Category

4.1.1. Descriptive Statistics of Purchase Intention, Attitude Scale 1, Attitude Scale 2 and Greenwashing Perception

Table 8 shows the descriptive statistics of the dependent variables purchase Intention, attitude scale 1, attitude scale 2 and perceived greenwashing between different conditions. Overall, the mean values of the dependent variables do not show substantial differences across the various conditions. A more detailed analysis in subsequent sections will examine the effects of these conditions on the dependent variables to determine if any significant differences exist.

Table 8

Descriptive statistics of dependent variables

	Purchase Intention		Attitude Scale 1		Attitude Scale 2		Perceived Greenwashing	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conditions								
Awe & Future	4.43	1.31	5.06	1.35	5.02	1.47	4.44	1.03
Awe & Present	4.16	1.44	4.78	1.53	4.76	1.52	4.62	1.07
Guilt & Future	4.40	1.28	4.51	1.33	4.82	1.10	3.99	1.12
Guilt & Present	4.60	1.43	4.49	1.41	4.69	1.27	4.35	1.21
Totals	4.40	1.36	4.70	1.41	4.82	1.35	4.35	1.12

4.1.2. Results of Manipulation Checks

Before the main and interaction effects are analysed, manipulation checks of emotion (awe and guilt) and temporal distance manipulations are performed. The manipulation checks are analysed using independent samples t-test. The results of the test can be seen in Table 9.

Table 9

Results of manipulation checks in bodycare category

Manipulation	t(160)	Sig.
Guilt	4.391	<.001
Awe	-1.544	.124
Temporal Distance	-6.76	<.001

For the manipulations to be considered successful, the targeted emotion and temporal distance should be reported at a significantly higher level in its corresponding condition than in the other condition. For example, the awe score should be significantly higher in the awe condition compared to the guilt condition. The manipulations for guilt and temporal distance were successful, however the manipulations for awe were not successful. The descriptive statistics of awe and guilt scores can be seen in Appendix C. The hypothesis testing will continue as intended, and the possible implications of the unsuccessful manipulation will be reflected in the discussion part of this paper.

4.1.3. Hypotheses Testing

To address H1, H2, and H4, a multivariate measures analysis of variance (MANOVA) is performed.

4.1.3.1. Main Effect of Emotion on Dependent Variables

The MANOVA findings showed a significant effect of emotion on the combined dependent variables, Wilks' Lambda = .886, $F(4, 154) = 6.071, p < .001$.

However, no significant main effect was found of emotion on purchase intention ($F(1,160) = .935, p = .335$) and attitude scale 2 ($F(1,160) = .316, p = .575$). A marginally significant effect was found on attitude scale 1 ($F(1,160) = 3.519, p = .063$), where it scored higher in awe conditions ($M = 4.92, SD = 1.44$) than guilt ($M = 4.5, SD = 1.37$). Furthermore, emotion significantly impacts perceptions of greenwashing ($F(1,160) = .5067, p = .044$). Greenwashing perceptions were higher in awe conditions ($M = 4.53, SD = 1.05$) than guilt ($M = 4.17, SD = 1.17$). This leads to accept H4a.

4.1.3.2. Main Effect of Temporal Distance on Dependent Variables

MANOVA revealed no significant effect of temporal distance (Wilks' Lambda = .979) on the dependent variables.

No significant main effects of temporal distance on purchase intention ($F(1, 160) = .018, p = .894$), attitude scale 1 ($F(1, 160) = .433, p = .512$) and attitude scale 2 ($F(1, 160) = .841, p = .360$) were found.

Temporal distance has no significant impact on perceptions of greenwashing ($F(1, 160) = 2.401, p = .123$), thus H4b is rejected.

4.1.3.3. Interaction Effect of Emotion and Temporal Distance on Dependent Variables

The interaction of emotion and temporal distance (Wilks' Lambda = .987) did not lead to significant effect on the combined dependent variables.

The effects of emotion and temporal distance on purchase intention ($F(1, 160) = 1.222, p = .271$), attitude scale 1 ($F(1, 160) = .364, p = .547$) and attitude scale 2 ($F(1, 160) = .084, p = .772$) were also not significant. Thus, H1 and H2 can be rejected.

The combined effect of emotion and temporal distance ($F(1, 160) = .267, p = .606$) also does not significantly affect greenwashing perceptions, leading to reject H4c.

These analyses were also run with then run with gender as a fixed factor in MANOVA to run control for gender. Even though gender has a significant influence on Attitude Scale 1 ($F(1, 159) = 7.921, p = .006$) and Attitude Scale 2 ($F(1, 159) = 14.177, p < .001$), it has no influence on the significance of the main effects.

4.1.4. The Moderating Effect of PCE

A moderation analysis is performed to explore the role of PCE on relationship between emotion, temporal distance and the dependent variables - purchase intention and attitude towards the advertisement (H3). The moderation analysis was conducted via Andrew Hayes' PROCESS tool macro model 3.

The analysis revealed no significant moderation of PCE on the purchase intention and both attitude towards the advertisement scales. The results of the moderation can be seen in Table 10. Therefore, H3 can be rejected.

Table 10

Results of the Moderation Analysis of PCE

Dependent Variable	Predictors	<i>b</i>	<i>S.E.</i>	<i>t</i>	<i>Sig.</i>
Attitude Scale 1	PCE	.3583	.1962	1.8260	.0698
	PCE * Temporal Distance * Emotion	-.2358	.4464	-.5282	.5981
Attitude Scale 2	PCE	.2692	.1878	1.4330	.1539
	PCE * Temporal Distance * Emotion	-.2400	.4273	-.5617	.5752
Purchase Intention	PCE	.4373	.1958	2.2339	.0269
	PCE * Temporal Distance * Emotion	-.2433	.4453	-.5465	.5885

Note: Controlling for gender in the moderation analysis did not affect the results

4.1.5. Mediation of Greenwashing

Mediation analysis was executed to test hypothesis H4 and H5 with PROCESS macro model 4. Hypothesis 4 proposed that emotion, temporal distance and misalignment between them will lead to higher greenwashing, while hypothesis 5 proposed that greenwashing negatively impacts the relationship between the emotion, temporal distance and their interplay on purchase intention and attitude towards the advertisement.

As found in the analysis of H1 and H2, there was no significant effect found of temporal distance and the combination of emotion and temporal distance on the greenwashing perception, which led to H4b and H4c being rejected. However, emotion was found to significantly influence greenwashing. Therefore, for the analysis of Hypothesis 5, the focus was on the influence of emotion (H5a) in the mediation model.

The mediation analysis showed significant direct effects. Greenwashing significantly impacts purchase intention, attitude scale 1 and attitude scale 2. Furthermore, consistent with the earlier MANOVA results, emotion also significantly impacts greenwashing ($\beta = .3557, p = .0436$), with higher perceptions of greenwashing being reported in awe conditions ($M = 4.53, SD = 1.05$) than guilt conditions ($M = 4.17, SD = 1.17$).

Table 11

Direct Effects of Mediation Analysis

Relationship	β	F	Sig.
Greenwashing → Purchase Intention	-.2768	-2.8051	.0057
Greenwashing → Attitude Scale 1	-.2303	-2.3488	.0201
Greenwashing → Attitude Scale 2	-.3045	-3.3932	.0009
Emotion → Greenwashing	.3557	2.03	.0436

However, the indirect effects of greenwashing perception were not significant, therefore greenwashing was not found to significantly mediate the effect of emotion on purchase intention, attitude scale 1 and scale 2. The results of this mediation analysis led to the rejection of hypothesis 5a. The mediation model of greenwashing can be seen in Figure 6.

Table 12

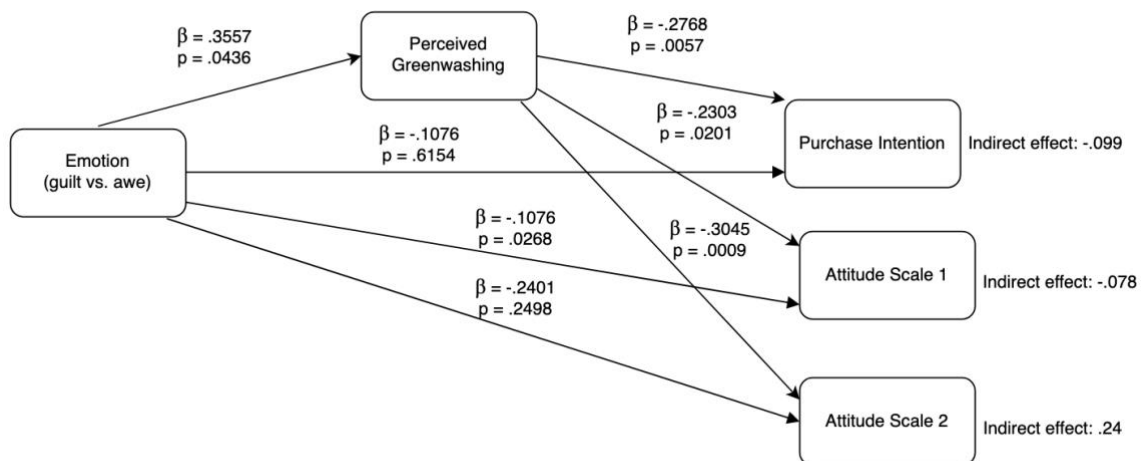
Indirect effects of Greenwashing on Dependent Variables

Dependent Variable	Effect	Lower bound CI	Upper bound CI
Purchase Intention	-.0840	-.2275	.0150
Attitude Scale 1	-.0699	-.2057	.0235
Attitude Scale 2	-.0924	-.2464	.0114

Note: Controlling for gender in the mediation analysis did not affect the results.

Figure 6

Mediation Model of Greenwashing



Note: Mediation analysis was done separately for each dependent variable.

4.2. Results of Swimwear Category

The following result section will present the findings specific to the swimwear category.

4.2.1. Descriptive Statistics of Purchase Intention, Attitude Scale 1, Attitude Scale 2 and Greenwashing Perception

Table 13 shows the descriptive statistics of the dependent variables purchase intention, attitude scale 1, attitude scale 2 and perceived greenwashing between different conditions. Similarly to bodycare category, there do not appear to be big differences in mean values between different conditions for the dependent variables.

Table 13

Descriptive statistics of the dependent variables

	Purchase Intention		Attitude Scale 1		Attitude Scale 2		Perceived Greenwashing	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conditions								
Awe & Future	3.77	1.48	4.28	1.43	4.18	1.47	4.18	1.47
Awe & Present	3.67	1.69	4.09	1.50	3.90	1.65	3.90	1.65
Guilt & Future	3.91	1.48	4.01	1.27	4.10	1.44	4.10	1.44
Guilt & Present	4.00	1.48	4.14	1.25	3.99	1.31	3.99	1.31
Totals	3.85	1.53	4.14	1.35	4.05	1.45	4.35	1.12

4.2.2. Results of Manipulation Checks

Before the main and interaction effects are analysed, manipulation checks of emotion (awe and guilt) and temporal distance manipulations are performed. The manipulation checks are analysed using independent samples t-test. The results can be seen in Table 14.

Table 14*Results of manipulation checks in swimwear category*

Manipulation	t(159)	Sig.
Guilt	2.886	.004
Awe	-.247	.805
Temporal Distance	-6.66	<.001

Similar to the swimwear category, the manipulations for guilt and temporal distance were successful, however the manipulations for awe were not successful. The hypothesis testing will continue as intended, and the possible implications of the unsuccessful manipulation will be reflected in the discussion part of this paper.

4.2.3. Hypothesis Testing

To test hypotheses H1, H2 and H4, a multivariate measures analysis of variance (MANOVA) is performed.

4.2.3.1. Main Effect of Emotion on Dependent Variables

The MANOVA findings showed marginally significant effect of emotion on the combined dependent variables, Wilks' Lambda = .949, $F(4, 154) = 2.087, p = .085$.

No significant main effect was found of emotion on purchase intention ($F(1, 160) = .939, p = .334$), attitude scale 1 ($F(1, 160) = .257, p = .613$) and attitude scale 2 ($F(1, 160) = .001, p = .973$). Same as in bodycare category, emotion significantly impacts perceptions of greenwashing ($F(1, 160) = .5067, p = .044$). Furthermore, greenwashing perceptions were higher in awe conditions ($M = 4.53, SD = 1.05$) than guilt ($M = 4.17, SD = 1.17$). Thus, H4a is accepted.

4.2.3.2. Main Effect of Temporal Distance on Dependent Variables

MANOVA revealed no significant effect of temporal distance (Wilks' Lambda = .972) on the dependent variables.

No significant main effects of temporal distance on purchase intention ($F(1, 160) = .000, p = .986$), attitude scale 1 ($F(1, 160) = .027, p = .870$) and attitude scale 2 ($F(1, 160) = .707, p = .402$) were found.

Temporal distance has no significant impact on perceptions of greenwashing ($F(1, 160) = 2.401, p = .123$). Thus, H4b is rejected.

4.2.3.3. Interaction Effect of Emotion and Temporal Distance on Dependent Variables

The interaction of emotion and temporal distance (Wilks' Lambda = .991) did not lead to significant effect on the combined dependent variables.

The effects of emotion and temporal distance on purchase intention ($F(1, 160) = .161, p = .689$), attitude scale 1 ($F(1, 160) = .511, p = .476$) and attitude scale 2 ($F(1, 160) = .117, p = .733$) were also not significant. Thus, H1 and H2 can be rejected.

The combined effect of emotion and temporal distance ($F(1, 160) = .267, p = .606$) also does not significantly affect greenwashing perceptions, leading to reject H4c.

These analyses were also run with gender as a fixed factor in MANOVA to run control for gender, which has no influence on the significance of the main effects.

4.2.4. The Moderating Effect of PCE

A moderation analysis is performed to explore the role of PCE on relationship between Emotion, Temporal distance and the dependent variables - Purchase Intention and attitude

towards the advertisement (H3). The moderation analysis was conducted via Andrew Hayes' PROCESS tool macro model 3.

The analysis revealed no significant moderation of PCE on the purchase intention and both attitude towards the advertisement scales. The results of the moderation can be seen in Table 15. Therefore, H3 can be rejected.

Table 15

Results of the Moderation Analysis of PCE

Dependent Variable	Predictors	<i>b</i>	<i>S.E.</i>	<i>t</i>	<i>Sig.</i>
Attitude Scale 1	PCE	.1855	.1932	.9605	.3383
	PCE * Temporal Distance *	-.5046	.4394	-1.1484	.2526
	Emotion				
Attitude Scale 2	PCE	.0853	.2115	.4033	.6873
	PCE * Temporal Distance *	-.7907	.4811	-1.6437	.1023
	Emotion				
Purchase Intention	PCE	.2991	.2214	1.1442	.2543
	PCE * Temporal Distance *	-.6282	.5036	-1.2476	.2141
	Emotion				

Note: Controlling for gender in the moderation analysis did not affect the results

4.2.5. Mediation of Greenwashing

Mediation analysis was executed to test hypothesis H4 and H5 with PROCESS macro model 4. Hypothesis 4 proposed that the effects of emotion, temporal distance and their misalignment lead to higher greenwashing perceptions, while hypothesis 5 proposed that greenwashing negatively impacts the relationship between the emotion, temporal distance and their interplay on purchase intention and attitude towards the advertisement.

As found in the analysis of H1 and H2, there was no significant effect found of temporal distance and the combination of emotion and temporal distance on the greenwashing perception, which led to H4b and H4c being rejected. However, emotion was found to

significantly influence greenwashing. Therefore, for the analysis of Hypothesis 5, the focus was on the influence of emotion (H5a) in the mediation model.

The mediation analysis showed significant direct effects. Greenwashing significantly impacts purchase intention, attitude scale 1 and attitude scale 2. Emotion also significantly impacts greenwashing ($\beta = .3557, p = .0436$).

Table 16

Direct Effects of Mediation Analysis

Relationship	β	F	Sig.
Greenwashing → Purchase Intention	-.2999	-2.7115	.0075
Greenwashing → Attitude Scale 1	-.2970	-3.1510	.0020
Greenwashing → Attitude Scale 2	-.3309	-3.2559	.0014
Emotion → Greenwashing	.3557	2.03	.0436

The indirect effects again show that greenwashing was not found to significantly mediate the effect of emotion on purchase intention, attitude scale 1 and scale 2. The results of this mediation analysis led to the rejection of hypothesis 5a. The model of the mediation can be seen in Figure 7.

Table 17

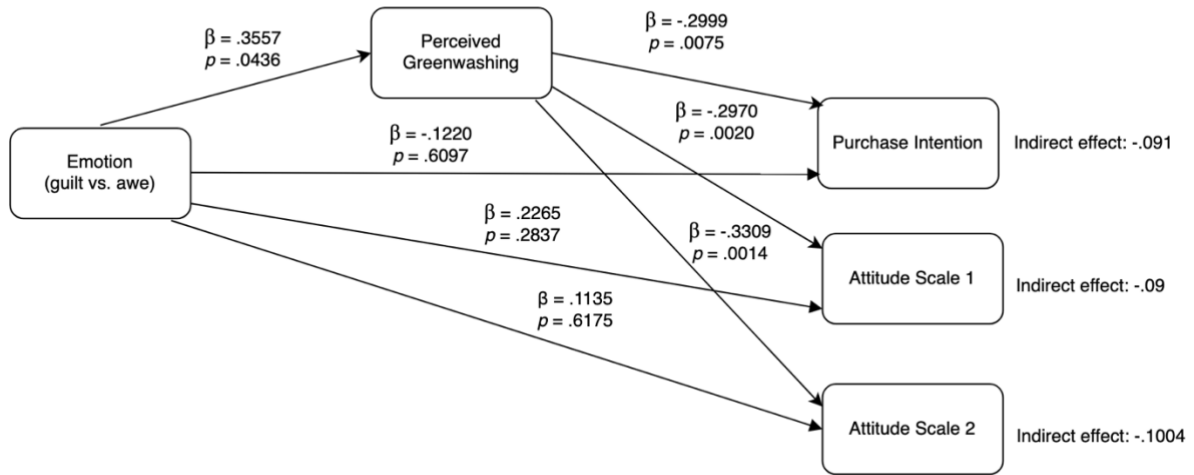
Indirect effects Mediation

Dependent Variable	Effect	Lower bound CI	Upper bound CI
Purchase Intention	-.0910	-.2406	0.205
Attitude Scale 1	-.0901	-.2284	.0188
Attitude Scale 2	-.1004	-.2572	.0152

Note: Controlling for gender in the mediation analysis did not affect the results.

Figure 7

Mediation Model of Emotion, Perceived Greenwashing and Dependent Variables



Note: Mediation analysis was done separately for each dependent variable.

4.3. Overview Results

Table 18

Overview of the hypotheses

Hypothesis	Conclusion
H1: A present framed message will elicit greater purchase intention and attitude toward the advertisement for green products than a future framed message for individuals exposed to a guilt inducing advertisement	Rejected
H2: Future framed message will elicit greater purchase intention and attitude towards the advertisement for green products than present framed message for individuals exposed to an awe inducing advertisement.	Rejected

H3: PCE will enhance the relationship between awe (guilt) and the future (present) frame, and purchase intention and attitude towards the advertisement.	Rejected
H4a, H4b, H4c: The effects of (a) emotion, (b) temporal distance, and (c) the misalignment between the two lead to higher greenwashing perceptions.	Partially accepted
H4a, H4b, H4c: The effect of (a) temporal distance, (b) emotion and (c) the combined effect of both towards purchase intention and attitude towards the advertisement is negatively mediated by the perception of greenwashing.	Rejected

5. Discussion

The current study explored the main and combined effects of emotion (awe vs. guilt) and temporal distance (present vs. future) on purchase intention and attitude towards the advertisement in two different product category scenarios: bodycare and swimwear. This study addresses a gap in the existing literature by investigating the effects of awe and guilt in combination with temporal distance on consumer behaviours. Furthermore, it investigates these effects in the context of green marketing, whereas prior research has often mainly focused on public service announcements or health messaging. Additionally, this study explored the role of perceived greenwashing and PCE in these relationships.

The study found no significant effect of temporal distance and the interaction between temporal distance and emotion on the dependent variables – purchase intention and attitude towards the advertisement. A significant effect was found of emotion on the combined dependent variables in the bodycare product category scenario, while in the swimwear category the effect was marginally significant. However, the effect of emotion on the dependent variables separately was not found to be significant, except for a marginally significant effect on attitude scale 1 in bodycare product category.

In both product category scenarios, PCE did not moderate the relationship between emotion, temporal distance and their combination on the dependent variables.

Similarly, perceived greenwashing was not found to be negatively mediating the relationship between emotion, temporal distance and their combination on the dependent variables in both product categories. However, significant direct effects were found, with emotion significantly positively impacting greenwashing perception. Specifically, greenwashing perception was higher in awe conditions. Furthermore, greenwashing directly negatively impacted the purchase intentions and attitude towards the advertisement in both product categories.

The following sections delve deeper into these findings, exploring their implications and offering potential explanations for the observed results.

5.1.1. Effect of Emotion and Temporal Distance on Purchase Intention and Attitude Towards the Advertisement

Within this study, the main research question asked how the combination of emotion with its corresponding congruent temporal distance would influence consumer attitudes.

Specifically, it was hypothesized that awe induced advertisements together with future framed message, and guilt induced advertisements combined with present framed message would lead to increased purchase intention and attitude towards the advertisement.

Furthermore, a sub-research question examined the separate impacts of temporal distance and emotion on consumer attitudes. However, the analysis of the results showed that the combination of emotion and temporal distance, as well as each variable separately, did not have significant effects on consumer attitudes. Despite that, emotion was found to have a significant effect on the combined dependent variables in the body care product category.

These findings do not align with prior research in this field, for which there could be several possible reasons.

To ensure that the advertisements induced the desired emotions and temporal distance, manipulation checks were introduced. The inducing of guilt worked as intended, however for awe it failed. In the guilt conditions, both awe and guilt scored close (seen in Appendix C), meaning that both emotions were induced in the guilt condition. Although the pre-test of these materials indicated that the manipulations were effective, the small sample size (N=36) might have led to different outcomes compared to the main study with a larger sample. The exact reason for this outcome remains unclear, but several possible explanations can be considered. For example, the guilt advertisements were designed in a way to induce “self-reflection”, by for example, adding description, such as “pause and consider the impact of

your actions”. Awe, on the other hand, is often experienced in response to vast stimuli that connects individuals to something larger than themselves and leads to a “small self” feeling. It can be argued that when individuals recognize the broader context of their actions, such as contributing to saving the planet from pollution, they may experience feelings of awe as they realize the greater significance of their impact on others. This potentially could have led to both awe and guilt being experienced when participants saw the guilt inducing advertisement. While this is one possible explanation, other factors could also be at play. It is possible that the stimuli were not effectively designed to elicit guilt alone, or that the manipulation checks may have influenced participants to experience these emotions more intensely. This finding underscores the complexity of emotions and researching them within advertising contexts.

Nonetheless, emotion was found to have a significant effect on the combined dependent variables in the bodycare product category, however not in the swimwear category. The underlying reason for this discrepancy remains unclear. It is possible that the nature of the bodycare products, which are more intimately related to personal care and well-being, may evoke stronger emotional responses compared to swimwear.

Another reason for lack of significant results could be the methodology. In other studies on emotion (Baek & Yoon, 2017; Han et al., 2014; Kim et al., 2023), participants were primed prior to the main research with seemingly unrelated tasks, such as recall exercises or exposure to irrelevant advertisements, to induce the desired emotions. In contrast, this study intentionally omitted the priming task to create a setting that closely mirrors a real-world experience. Research has shown that adding emotional primes without the participants’ awareness can lead to align more closely with the primed emotions, which may not occur without primes (Zemack-Rugar et al., 2007). However, these primes can also create biases in how the stimuli are perceived (Baran et al., 2016), potentially leading to effects that could not be replicated in real life contexts, such as advertising. If the significant results observed in

previous studies on emotions and temporal distance were influenced by the use of priming, it is possible that these effects were shaped by the specific experimental conditions rather than reflecting natural behavior. This could contribute to the differences observed in this study, which aimed to replicate real-life situations more closely. This suggests the need for further research to explore these effects with and without priming to understand their applicability outside of controlled experimental settings.

Furthermore, the inconsistency with the findings of other studies could be due to the differences in context. For instance, Pounders et al. (2019) investigated the interplay between emotions and temporal frame in the context of health messaging, Kim et al. (2023) investigated awe and guilt with desirability and feasibility appeals in social media green campaigns, while Agrawal & Duhachek (2010) focused on public service announcements (PSAs). In contrast, the context of digital marketing aimed at promoting green products might not evoke the same level of personal relevance or immediacy. PSAs and health messaging might resonate more deeply with individuals since they address personal concerns or issues of immediate relevance. In contrast, product advertisements typically focus on promoting a company's offerings, which may not evoke the same level of personal engagement or sense of contributing to the greater good.

As previously noted, the study aimed to mimic real-life situations as much as possible. However, due to the experimental nature of the study, there were limitations in how accurately a real-life scenario could be replicated. The materials were designed as Instagram advertisements, however due to the experiment environment in Qualtrics, the artificial scenario might have made it difficult for participant to fully engage with the message and possibly contribute to the lack of significant results.

5.1.2. The Moderating Effect of PCE

Furthermore, this study hypothesized that high PCE will positively moderate the relationship between awe (vs. guilt) and future (vs. present) frame and purchase intention and attitude towards the advertisement. The analysis of the results showed no significant impact of PCE on the relationship between emotion, temporal distance and dependent variables.

The lack of moderation effect suggests that PCE does not alter the influence of emotional and temporal framing on purchase intention and attitude in this context. This is not in line with the findings of Wiebe et al. (2017), who found that consumers with higher PCE levels responded more favourably towards a message framed proximally (vs. distally) across all psychological distance domains. Naturally, the possible reason for insignificant moderation could be attributed to the lack of significant main effects of emotion and temporal distance on the dependent variables. It is possible that other contextual factors or variables not accounted for in this study may have influenced the results. Furthermore, the addition of emotional cues in the advertisement might have influenced the effectiveness of PCE in moderating this relationship.

Additionally, one important difference with work by Wiebe et al. (2017) is the context of cause-related marketing appeals. Their advertisements involved donations for specific and relatively immediate purchases, which might have made the temporal framing have a more significant and urgent effect compared to the focus on the environment in this study, which is not perceived as urgent in comparison. In cause-related marketing, the immediacy of the impact (such as a donation directly helping a cause) that an individual can make may create a sense of urgency and a direct connection to consumers' actions, making temporal framing (present vs. future) more impactful. In contrast, environmental issues, although critical, often have long-term implications and may not evoke the same immediate emotional response or urgency. This difference in perceived urgency and direct impact could explain why the

combination of emotion and temporal framing in the current study did not produce significant effects on purchase intention and attitude. Consumers may not perceive their individual actions as having an immediate impact on the environment, reducing the effectiveness of temporal cues in motivating behaviour change.

5.1.3. The Mediating Effect of Greenwashing

The mediating effect of greenwashing on the relationship between emotion, temporal distance and purchase intention and attitude was also investigated in this study. It was hypothesized that emotion, temporal distance and their misalignment will lead to high greenwashing and then further high greenwashing perception negatively mediates the relationship between temporal distance, emotion, purchase intention and attitude towards the advertisement.

While greenwashing was not found to mediate this relationship, direct effects were found to be significant. Greenwashing significantly impacted purchase intention and both scales of attitude towards the advertisement. This significant relationship across both product categories indicates that consumers are sensitive to misleading green claims, which lead to less favourable attitudes towards the advertised products. This is in line with the findings of (Chen & Chang, 2013; De Jong et al., 2018) that found that greenwashing leads to decreased consumer attitudes and trust. These significant direct effects suggest that while greenwashing may not influence the relationship between emotion and temporal framing on dependent variables, it does independently exert a strong influence on consumer perceptions.

Furthermore, temporal distance and the misalignment between temporal distance and emotion were not found to significantly impact greenwashing. However, emotion significantly influenced greenwashing scores. Participants in awe condition reported significantly higher greenwashing scores compared to guilt condition. This is an interesting finding, taking into the account the failed awe manipulation checks. Participants in guilt

conditions reported similar levels of guilt and awe, however did not produce high greenwashing scores compared to awe condition, where participants mostly felt awe. This raises the question about the nature of awe as an emotion and its impact on scepticism and perceived authenticity in green advertising. Awe, often eliciting feelings of grand and vastness, might make consumers more critical of grand claims made by advertisers, which heightens the sensitivity to greenwashing. In contrast, guilt, which focuses on the individual itself, may lead to consumers being more accepting of environmental claims made by advertisements, as they make people think of their personal environmental behaviour. This implies that awe-inspiring advertisements might raise consumer scepticism about the authenticity of green claims, leading to higher greenwashing perceptions. Although the literature has not yet extensively explored these mechanisms, they present a promising avenue for future research.

5.1.4. Product Category Scenarios

This study investigated the research questions in two separate product category scenarios. The results showed that both product categories (bodycare and swimwear) had similar findings.

This lack of significant difference between the two categories suggests that the type of product being advertised (whether bodycare or swimwear) may not play a crucial role in influencing consumer attitudes and purchase intentions in the context of green advertising. This finding suggests that consumers' responses to green advertisements might be more influenced by the content and presentation of the ad itself rather than the specific type of product being promoted.

5.2. Theoretical Implications

This study contributes to the existing literature on the interplay between emotions and construal levels in the context of green digital marketing. The existing literature had often focused on emotions of the same valence in the context of emotional and message framing.

Furthermore, the combination of awe and guilt with temporal distance has not been thoroughly researched and its exploration in digital marketing context is novel. Prior literature has predominantly examined these dynamics within the context of cause-related marketing or public service announcements (PSA) rather than in digital marketing campaigns aimed at product promotion. Additionally, prior literature has not researched the involvement of both PCE and greenwashing on the relationship between temporal distance and emotions.

One of the key theoretical contributions of this study is the insight it provides into the role of emotions in shaping greenwashing perceptions. Specifically, the findings suggest that awe may increase scepticism towards green claims, leading to higher perceptions of greenwashing. On the other hand, guilt did not trigger the same level of greenwashing perceptions.

By exploring these unique combinations, this study fills a gap in the literature and provides new insights into how emotional appeals and temporal framing interact to influence consumer attitudes and behaviours in green marketing contexts.

Drawing on these observations, several implications arise. Firstly, the effectiveness of emotional appeals may be highly context dependent. While both guilt and awe have been found to increase pro-environmental behaviors, they may not translate the same when used in green advertising. For example, previous studies have often found them to be effective in context of PSAs and health messaging. However, the context of advertising and the nature of the product, the target audience, and the specific medium through which the message is

delivered could all influence how emotions and temporal frames interact to affect consumer attitudes. This may also suggest the need to research other emotions in this context.

Secondly, the findings of this study suggest that the interaction between emotion and temporal framing is complex and may not always produce the desired outcomes. This underscores the nuanced nature of these relationships and highlights the importance of considering multiple factors when examining how emotional and temporal cues influence consumer behaviour, especially considering consumer scepticism that may lead to high greenwashing perceptions. The lack of significant relationship might be due to several factors, including the type of product being advertised, the messaging used, and the specific nature of the emotional and temporal cues used in the advertisements.

Thirdly, this study may highlight the consequences of not using priming tasks prior to exposing participants to stimuli in studies of emotion. Studies with significant effects have often used priming tasks in order to achieve the desired emotions when looking at a stimulus. However, that introduces bias and the effects found in experimental conditions may not translate the same into real-world scenarios. This leads to rethink the methodology used in the studies of emotion and it might call for multiple experiments needed with and without priming tasks to really understand the impact of emotional cues, especially when studying emotion with other complex factors, such as temporal distance.

Fourthly, the study highlighted the complexity of achieving desired emotional states without priming tasks and possible spill-over effect of one emotion into another. Unexpectedly, guilt-inducing advertisements were found to invoke similar levels of awe as guilt. This could be due to several factors, such as guilt naturally leading to feelings of awe, inadequately designed stimuli, or the possibility that manipulation checks unintentionally biased participants towards experiencing both emotions. Whatever the cause, this finding

underscores the need for further research in this area, as understanding these interactions is crucial for designing more effective emotional appeals in advertising.

Lastly, the significant direct effects of greenwashing on consumer attitudes and purchase intentions emphasize the critical importance of authenticity in green marketing. The study found that consumers are highly sensitive to misleading green claims, which lead to negative evaluations of ads and brands. Furthermore, this study adds to the dimension of emotion to greenwashing. Specifically, awe was found to cause significantly higher greenwashing scores than guilt. These overall findings align with and contribute further previous research indicating that greenwashing undermines consumer trust and decreases positive attitudes toward advertisements.

5.3. Practical Implications

This study provides several practical insights for marketers.

Firstly, this study highlights the complexity of designing advertisements that effectively elicit the desired emotions. Guilt advertisements were found to elicit as much awe as guilt. It suggests that simply presenting guilt-inducing content may evoke other feelings that were not intended. Researchers and marketers may need to refine their approaches to emotional elicitation, possibly incorporating more immersive or interactive elements to strengthen the emotional impact, or reconsider using emotional cues in advertising altogether.

Secondly, the significant impact of greenwashing on consumer attitudes highlights the importance of authenticity in green marketing. The results show that consumers are very sensitive to misleading or unproven green claims, which lead to negative perceptions and more negative consumer attitudes. This was observed across both product categories, which suggests various industries need to be vigilant about avoiding misleading green claims. Consistency in environmental messaging across all product lines is crucial. Marketers must

ensure that their green claims are genuine and provable, which will improve consumer attitudes and purchase intentions.

Thirdly, the significantly higher greenwashing scores in awe condition highlights the importance of ensuring that awe-based emotional appeals in green marketing are carefully crafted to avoid causing perceptions of greenwashing. The lack of high greenwashing perceptions found in the guilt conditions may suggest that using guilt appeals might lower the chances of consumer scepticism.

Lastly, the differences observed between prior research focusing on cause-related marketing and digital marketing suggests that context plays a significant role in the effectiveness of temporal and emotional framing. Cause marketing, which often involves immediate and tangible impacts, may benefit more from temporal framing that emphasizes urgency and direct contributions. In contrast, digital marketing focusing on environmental causes might benefit from different strategies of their campaigns. This study not only contributes valuable insights to the marketing world, but also has broad implications for green communication as a whole, such as the importance of authenticity and careful crafting of emotional appeals, especially if emotions such as awe may increase consumer scepticism.

5.4. Future Research and Limitations

This study has several limitations that should be acknowledged.

First, the manipulation checks for awe were not successful, which may have impacted the overall results of the study. This indicates a potential overlap in the emotional responses elicited by the guilt advertisements, suggesting the need for improvement in the stimuli materials for future studies. Particularly, guilt advertisements should be crafted in a way that does not also elicit awe. It raises questions about the boundaries between different emotions and how mixed emotional states can affect consumer behaviour. Further studies could delve

into how advertisements can inadvertently trigger multiple emotions and their effects on consumer attitudes and behaviours.

Furthermore, the sample size of the pre-test was relatively small (N=36) and distributed via research distribution platforms such as SurveySwap and SurveyCircle, which might have led to inconsistent results that did not transfer well to the general population. For future studies, it would be advisable to distribute the survey using various methods of sampling.

Second, similarly to the pre-test, the main study was also distributed via research distribution platforms, as well as in the personal network of the researcher, which predominantly consisted of people of similar age and education background. Research distribution platforms often attract higher educated individuals, leading to a skewed sample demographic. In a similar manner, the focus group pre-test consisted of only bachelor and master students. Although the main study did not collect data on the participants' education levels and occupations, it is likely that the main sample does not accurately represent the general population. This raises the question of whether, in the case of the higher education level of the sample, the participants were more aware of greenwashing claims and less responsive to emotional cues in the advertisements. Furthermore, the sample had a skewed gender distribution. More males participated in the research than females, however it did not impact the results. Investigating the influence of education level on relationship between emotions and temporal distance on consumer attitudes could be a valuable direction for future research, as well as increasing the sample size by including more diverse participants and getting an even distribution of genders.

Thirdly, it is possible that the manipulation checks introduced bias, since the participants were asked to rate both their amount of guilt and awe. For future research, participants could be asked to rate various different emotions in order to not introduce bias specifically for the emotions that are being researched.

Additionally, future studies would benefit from conducting multiple experiments with and without priming tasks to investigate whether the effects achieved in experimental conditions can be applied to real-world cases, as well as possibly conducting field experiments outside of survey conditions. Furthermore, it would be worthwhile to explore other emotions than awe and guilt and their effect with combination of temporal distance, especially since guilt advertisements were also found to elicit awe. Emotions such as fear, hope, or pride could provide a broader understanding of how emotional appeals work in environmental contexts. Future research could also examine the emotional and temporal effects in various contexts, including both advertising and green communications. For example, emotion and temporal framing could be explored in corporate social responsibility campaigns, across different media channels (social media, television, print, etc.), or in social marketing to gain insights into effective communication strategies.

In conclusion, while the expected combinations of emotion and temporal distance did not yield significant effects on consumer attitudes in this study, the findings provide valuable insights into the complexities of emotional appeals in advertising. They underscore the need for context-specific approaches and further exploration of the nuanced ways in which emotions influence consumer behaviour. Future research should build on these insights to develop more effective communication strategies that leverage emotional and temporal elements.

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Appendix A

Focus group pre-test tasks and results

Link to the mural:

<https://app.mural.co/t/festforward0029/m/festforward0029/1709641013724/7f4642f3a0e37190464748ae0f5ff196c54ecdc0?sender=u2875308adec378e617261317>

Figure A1

Results of focus group



Appendix B

Main survey

Start of Block: General

Dear participant,

Thank you for taking a part in this survey. This survey aims to investigate advertisements for sustainable products as a part of master thesis for double degree Digital Marketing at the University of Twente.

Please be informed that your participation is voluntary and you may withdraw at any time without any reason. There are no physical, legal or economic risks associated with participating in this study. Your data will remain anonymous to the best of researcher's abilities.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher, please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl

Kind regards,

Laura Maškanceva

MSc Communication Science and Business Administration

University of Twente

PS: Users of the research platform SurveyCircle.com and SurveySwap will receive points for their participation.

Q1: I have read the information stated above, and I agree to participate in this research study

Yes (1)

No (2)

Skip To: End of Survey If I have read the information stated above, and I agree to participate in this research study = No

Page Break

Age_Respondent How old are you?

Gender_Respondent What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)
-

End of Block: General

Start of Block: Description

text

In the next pages, you will be shown two Instagram advertisements.

Please look at the advertisements carefully. You will be asked to answer questions regarding them afterwards.

graphic

Page Break

PI_AF_bc Please rate the following statements:

	Strongly disagree (1)	Moderately disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Moderately agree (6)	Strongly agree (7)
If I were looking for this type of product my likelihood of purchasing the product in the ad would be high (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I were to buy this type of product, the probability that I would consider buying the product in the ad would be high (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I had to buy this type of product, my willingness to buy the product in the ad would be high (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would probably choose this product over similar, less sustainable products (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e products
(4)

I would
recommen
d this
product to
my friends
and family
(5)

att1_AF_bc Please rate the following statements:

	Strongl y disagre e (1)	Moderatel y disagree (2)	Somewh at disagree (3)	Neutr al (4)	Somewh at agree (5)	Moderatel y agree (6)	Strongl y agree (7)
I like this advertiseme nt (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My attitude towards this advertiseme nt is positive (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find the advertiseme nt visually appealing (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the slogan of this advertisemen t (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

att2_AF_body How would you rate the advertisement?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not likeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Likeable
Not interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Not appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appealing
Unconvincing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Convincing

Page Break

graphic

manip_emo_AF_bc Please rate the following statements.

The ad made me feel:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Guilty
Not at all in awe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	In awe
Not remorseful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Remorseful
Not in amazement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	In amazement

manip_tempd_AF_bc The ad you viewed was focused on:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Later
Today	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sometime over a year
Near future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Distant future

Page Break

text In the next page, you will see second advertisement. Please look and read carefully.

Page Break

greenwashing Please rate the following statements:

	Strongly disagree (1)	Moderately disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Moderately agree (6)	Strongly agree (7)
These products mislead with words in its environmental claims (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
These products mislead with visuals in its environmental features (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
These products possess a green claim that is vague (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
These products overstate or exaggerates their green functionality (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
These products leave out or mask important information, making the green claim sound better than it is (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
These products possess a green claim that is seemingly unprovable (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the following statements:

	Strongly disagree (1)	Moderately disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Moderately agree (6)	Strongly agree (7)
<p>Person's behavior can have a positive effect on society by signing consumer a petition in support of promoting the environment (1)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>I feel that I can help solve natural resource problem by conserving water and energy (2)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>I can protect the environment by buying products that are friendly to the environment (3)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>There is not much that I can do about the environment (4)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>I feel capable of helping solve environmental problems (5)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Other constructs

Appendix C

Manipulation check descriptive statistics

Table C1

Descriptive statistics of manipulation checks

		Awe score Bodycare		Guilt Score Bodycare		Awe score Swimwear		Guilt Score Swimwear	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conditions									
	Guilt	3.47	1.41	3.73	1.46	3.23	1.52	3.43	1.54
	Awe	3.82	1.47	2.74	1.42	3.29	1.54	2.74	1.49