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Thank you, and happy reading!

Executive Summary

Inspired by the continuously evolving changes that are happening within the field of sustainable packaging, this thesis examines the way packaging material and eco-labeling as environmental cues affect consumers' purchase intentions for home care products. We hypothesize that these cues lead to increased purchase intention, mediated by the consumers' perceived environmental friendliness of the product. We further argue that the effect of the environmental cues on perceived environmental friendliness is moderated by the consumers' green product knowledge, while environmental concern moderates the relationship between perceived environmental friendliness and purchase intention.

The results from a between-subject experiment reveal that the use of carton as packaging material both leads to higher perceptions of environmental friendliness, as well as stronger purchase intention, than the use of plastic. The same effect was not found for the presence of an eco-label, contrary to our hypotheses. The relationship between carton as product packaging and purchase intention was fully mediated by perceived environmental friendliness, while no mediation was found between eco-labeling and purchase intention. Partial statistical support was further found for our hypothesis on green product knowledge moderating the effect of the environmental cues on perceived environmental friendliness. We found that this effect depends on the condition of exposure, as a significant difference in perceived environmental friendliness between consumers with high and low knowledge was only found for the condition of carton and eco-labeling combined. Finally, we did find that environmental concern positively moderates the relationship between perceived environmental friendliness and purchase intention.

This thesis is, to the best of our knowledge, the first of its kind to explore the use of environmental cues in this specific context. As such, it provides valuable theoretical and practical implications. The results indicate that not all environmental cues are as effective as first predicted, indicating that brand managers should carefully evaluate what they wish to signal, and which cues they should implement accordingly. The thesis further adds valuable insights on consumer perceptions and the drivers behind them that are useful when developing marketing strategies for product packaging and supporting market communication.

1.0 Introduction

Packaging is a significant part of modern consumption, and has become a well-used marketing tool in categories as diverse as food and beverages (F&B), home and personal care (H&PC), and other fast-moving consumer goods (FMCG) (Steenis et al., 2017; Velasco & Spence, 2019). These categories often strongly rely on packaging elements to maintain product quality, prevent product losses, facilitate transportation and storage, and provide marketplace differentiation (Steenis et al., 2017). The latter can be achieved through the means of packaging elements, and researchers have become interested in assessing how different variables affect consumer responses. In addition, brand managers are becoming aware of the power that packaging has in terms of creating value, communicating product attributes, setting the best product expectations, and ultimately persuading the consumer to purchase one product over another. In short, the conception of product packaging has shifted from simple means of protection, transportation and conservation to first-hand, brand experience devices (Velasco & Spence, 2019).

Many influences have left their marks on the world of packaging and affected its course of development, one of which being the notion of sustainability. Sustainability has been defined by the 1987 Brundtland Report as a concept that promotes a type of development whereby the needs of the present generation will not compromise the ability of future generations to meet their own needs, focusing on economic, environmental and social interdependence. This can be applied to packaging, and the life cycle of packaging from cradle to grave (Martinho et al., 2015). Another commonly accepted definition of sustainable packaging is one defined by Sustainable Packaging Coalition (2011, p. 1), who envision "a world where all packaging is sourced responsibly, designed to be effective and safe throughout its life cycle, meets market criteria for performance and cost, is made entirely using renewable energy, and once used, is recycled efficiently to provide a valuable resource for subsequent generations" (Sustainable Packaging Coalition®, 2011). This new source of influence has found its way to the field of packaging through a marked increase in the general public's awareness of and concern for environmental issues (Pancer et al., 2017). As consumers are becoming increasingly concerned with sustainability and making greener choices, brand managers are attempting to position their products as environmentally friendly options. In order

to do so, they are introducing an increased amount of environmental cues to help them achieve their desired brand image and associations (Moon et al., 2017). The scope is continuously broadening, but certain classifications of cues have been set by previous research, including structural cues (e.g., packaging material, size and shape), visual cues (e.g., eco-labels, brands, color, pictures), information on environmental impact (e.g., numerical and verbal) and sensory cues (e.g., smell and texture) (Herbes, et al., 2020).

Exploring how brand managers can use environmental cues to create a sustainable image that ultimately leads to purchase still offers much room for research, as the scope of the area continues to evolve along with the heightened focus on sustainability. Equally interesting for further exploration is consumer responses to such initiatives and the psychological drivers behind them. Understanding the way in which different combinations of environmental cues affect consumer perceptions of sustainability can be very helpful for brand managers that are trying to build a more environmentally friendly profile. This thesis explores this topic in the context of home care products, and more specifically, the product category of liquid laundry detergents. These terms may be used interchangeably throughout the thesis. While previous research in its majority has focused on this aspect in the domain of food, the category of home care products is interesting to explore for several reasons. Firstly, it is a highly relevant category, as most households now have an elevated focus on hygiene and cleanliness as a result of the COVID-19 pandemic. Greater frequency of cleaning and care has driven sales of home care forward, and is expected to continue to do so in the future (Market Research, 2022; Statista, 2022). Secondly, it is a category that historically has been harmful to the environment, both due to toxins in formulas and solid waste derived from packaging disposal. The former is what the industry has been most sensitive to, in response to which companies have created more environmentally friendly formulas. However, a newfound concern for sustainable packaging within the industry has sprung from increased consumer pressure, resulting in firms implementing more sustainable product packaging (Kim & Park, 2020). Finally, from a mere functional standpoint, the category relies heavily on the messages the packaging sends, seeing as the consumer is only able to evaluate the packaging as opposed to seeing the actual product on the inside (Velasco & Spence, 2018). The use of environmental cues of visual stimuli thus has high value of product packaging at the point of purchase,

and strong potential to alter consumers' purchase intention (Peck & Childers, 2006). It also has great power in conveying symbolic meaning, such as the environmentally friendliness of the product (Mai, 2016).

In light of the aforementioned, this paper explores how visual elements of product packaging in the shape of environmental cues aid companies in creating perceptions of environmental friendliness, as well as whether or not this leads to purchase intention. In addition, this paper delves deeper into the drivers of these consumer responses by investigating how green product knowledge influences perceptions of environmental friendliness, as well as whether or not environmental concern influences purchase likelihood. This can be summarized in the following research question:

How are consumer's purchase intentions for home care products influenced by different environmental cues on product packaging?

The thesis is organized as follows. First, we give an overview of the existing literature relevant for our research question. We then present the associated hypotheses and this study's central conceptual framework. Next, we lay out our research methodology, in which we explain our procedure for testing our hypotheses, followed by our data collection and analyses. We then present our results, as well as their theoretical and practical implications. The thesis concludes with a discussion of the study's limitations, recommendations for future research, and final remarks.

2.0 Literature Review

2.1 Environmental Cues

Consumers often use assistive cues when they cannot reliably assess a product before making a purchase (e.g., taste) or when a product is difficult to assess even after consumption (e.g., sustainability) (Steenis et al., 2017). The product packaging is often used as such an assistive cue as it is designed to generate impressions, and customers often rely on the product's layout when creating associations, beliefs and form judgements (Steenis et al., 2017). This phenomenon is known as the cue utilization theory (CUT), where the consumer evaluates multiple cues on the product before eventually making a purchase decision (Herbes et al., 2020).

The body of literature refers to environmental cues in a number of categories, including structural, graphical and informational cues (Herbes et al., 2020). Structural cues can be related to the structure of the packaging, for example the quality of the material or the reusability of the packaging itself. Graphical cues relate to the graphics or icons displayed on the packaging that evoke environmental friendliness. This could be the use of certain colors, whereas the color green has been known to evoke perceptions of sustainability, or the use of eco-labels. Additionally, informational cues include cues that relate to the information displayed on the packaging (Herbes et al., 2020). Such cues may include carbon footprint labeling, licensing agreements with environmental organizations and pedagogical information aiming at educating consumers about environmental matters (Magnier, L. & Crié, D. 2015; Steenis et al, 2017).

A number of studies have tested the influence of environmental cues on various consumer responses. This type of research can be categorized into three areas, namely general attitudinal models, holistic approaches (focusing on consumer perceptions) and analytical approaches that test the effect of specific cues on product packaging (Steenis et al., 2017). The former often concerns theory of planned behavior (TPB), in which consumer choices are explained from underlying factors such as environmental knowledge along with other TPB factors, like perceived behavioral control and subjective norms. Generally speaking, these studies place the majority of its focus on the consumer's likelihood to engage in purchase, but often neglecting more detailed information as to how specific packaging cues can affect behavior (Steenis et al., 2017). Likewise, a holistic approach typically looks at the holistic effect of product packaging. For example, Orth and Malkewitz (2008) claim that "the overall effect of the package comes not from any individual element but rather from the gestalt of all elements working together as a holistic design" (Orth & Malkewitz, 2008, p. 64). The third category of research follows a more analytical approach in which specific packaging cues are isolated, before their effects on choice or purchase is measured.

Based on the streams of research that exist, we see a potential to contribute to the literature by following in the footsteps of an analytical approach, in which we examine the effects of specific cues on consumer responses. There are a myriad of different environmental cues that could be investigated, but in this study, we have chosen to focus on structural cues (packaging material) and visual cues (eco-labels)

on a laundry detergent. These cues play an important role in signaling environmental orientation to consumers. Specifically, we focus on how these cues influence consumers' perceived environmental friendliness and purchase intention of a home care product.

2.1.1 Structural Cues - Packaging material

Structural cues of product packaging typically refers to material type, shape, size, weight and texture (Steenis, et al., 2017). The type of material often serves as an important role in cueing sustainability, and carton, paper and wood are considered to be the most sustainable packaging material (Petljak 2019; Boesen & Niero, 2019). This is both due to the fact that they can be degraded naturally and do not negatively affect the environment (Petljak et al., 2019). Plastic packaging on the other hand, is generally regarded as highly hazardous, with low levels of recycling and a high level of environmental pollution (Watkins et al., 2019). Over 8,300 tons of plastic have been produced since 1950, with roughly 9 percent being recycled, 12 percent being burned, and an overwhelmingly 79 percent accumulating in landfills or being released into the environment (Watkins et al, 2019). These ominous numbers are reflected in the consumer's negative perceptions of plastic as packaging material, as a wide range of literature report the same consensus amongst consumers (Magnier & Crié 2015; Lindh et al., 2016; Petljak et al., 2019). For instance, Lindh et al., (2016) investigated Swedish customers and their attitudes toward food packaging and environmental concern. In this context, respondents perceived carton packaging to be environmentally advantageous, whereas plastic and metal packaging were not. Furthermore, Petljak et al. (2019) investigated consumer behavior when purchasing food in eco-friendly packaging and discovered that respondents considered wood to be the least harmful to the environment and plastic to be the most harmful (Petljak et al., 2019).

It should be noted there are vast improvements taking place in the category of packaging material. Recent advances in innovation have enabled manufacturers to produce sustainable packaging with a conventional look, that may not in fact signal sustainability with the opposite being the case. For instance, Unilever has implemented MuCell® technology, which enables them to produce packaging material using 15% less plastic (Magnier & Schoomans, 2015). In this case, packaging made from plastic may in fact be more sustainable than it appears to be.

However, not all consumers are in fact able to process or understand structures based on recycled materials, at least not with supporting cues that communicate this. As such, many products with recycled or more environmentally friendly materials suffer from consumer misconceptions (Magnier & Schoomans, 2015).

In light of the existing research, we want to examine what the effect of carton as packaging material has on perceived environmental friendliness in comparison with plastic. Drawing on the streams of research, we predict that carton will be considered as favorable green packaging material in the context of this study. We hypothesize that it will be a strong driver for consumers' perceived environmental friendliness of a home-care product, as compared to plastic:

H1a: The use of carton as packaging material will have a stronger effect on consumers' perceived environmental friendliness of a home care product than the use of plastic.

The use of sustainable packaging material has been shown in a variety of studies to increase purchase intention (Magnier & Schoormans, 2015), consumer choice (Rokka & Uusitalo, 2008), and to be more preferable (Annan, 2018). Among functional drink products, Rokka & Uusitalo (2008) found that recyclable carton packaging was substantially preferred over non-recyclable plastic packaging as an environmental cue. Additionally, Annan (2018) discovered that the more eco-friendly a soap package's material was perceived to be, the greater was the consumer's reported preference for the product. It should be noted that while eco-friendly packaging design may increase purchase intent, it is only one of many aspects that consumers may integrate into their decision-making process (Brouwers, 2018). According to research, consumers do not want the design to come at the expense of the product's price, quality, or safety. (da Costa Saboia & Oliveira, 2021).

Considering the impact that the perception of environmental cues has on attitudes (Boks & Stevels, 2007; Koenig-Lewis et al., 2014; Magnier & Schoormans, 2015), we also expect that the use of carton (vs. plastic) as packaging material will lead to higher purchase intention:

H1b: The use of carton as packaging material will have a stronger effect on purchase intention of a home care product than plastic.

2.1.2 Visual Cues - Eco-labels

An environmental cue in the form of eco-labels can be defined as *"any symbol appearing on product packaging that seeks to inform consumers that a particular product is in some significant way less harmful to the environment than purchase alternatives"* (Tang et al., 2004, p. 87). This focus of signaling the product's environmental orientation is increasingly being used as a marketing tool to cue consumers about sustainable qualities, and lend credibility to environmental claims (Atkinson & Rosenthal, 2014; Pancer et al., 2017). It enables consumers who want to reduce their environmental footprint to differentiate between the levels of sustainability offered by various products and make purchasing decisions accordingly (Urang & Johnsen, 2020).

Previous studies on eco-labels have primarily focused on the number of benefits it offers consumers, but researchers have also pointed out their potential disadvantages (Lee & Lee, 2004; Moon et al., 2017). As consumers are forced to navigate in the ever growing "eco-jungle", eco-labels might present situations of information overload, in which customers with limited cognitive capacity are presented with a range of different labels that signal various attributes. This type of information overload might result in less effective decision making, consumer confusion, and negatively affect word of mouth, emotions, trust and satisfaction (Moon et al., 2017; Walsh & Mitchell 2010). For instance, Moon et al., (2017) investigated the negative outcomes of environmental cues, particularly eco-labels, and discovered that increasing the use of eco-labels in a market creates consumer confusion which had a direct effect on negative WOM, distrust and dissatisfaction. Furthermore, the use of eco-labels is arguably one of the most common cues that can come across as misleading, as part of a company's attempt at greenwashing (Polonsky et al., 1998; Magnier & Crié 2014; Steenis et al., 2017). Greenwashing refers to misleading claims (e.g., being eco-friendly), or a symbol (e.g. eco-label) being used to convey that the package is environmentally more sustainable than alternative packaging (Boz, et al, 2020).

Despite the aforementioned concern about eco-labels, several researchers have also found that eco-labels build trust (Potts & Haward, 2007), knowledge (Taufique et al., (2014) and encourage consumers to buy green (Thørgersen et al., 2010). Pancer et al., (2017) argue that the presence of eco-labels on product packaging has critical implications for consumer responses, as it influences their ability to categorize the

product as environmentally friendly. The effect of eco-labels occurs even when there is no direct link between the product and the label, a phenomenon known as the "halo-effect." (Sörqvist et al., 2015). For example, Schuldt et al., (2012) found that consumers considered fair-trade labeled chocolate to be healthier than non-labelled alternatives. Parkinson (1975) further found that consumers perceived products with labels as more favorable than products without labels.

Most research related to eco-labels and perceived environmental friendliness has been conducted in the category of food products. We would like to exploit this gap in the body of literature, and explore whether or not the same findings are transferrable to the category of home products. We hypothesize that this will be the case, and predict as follows:

H2a: The presence of an eco-label increases consumers' perceptions of a home care product's environmental friendliness.

The primary goal of eco-labels is to convey information about the product, so that consumers can make conscious green purchase decisions (Sharma & Kushwaha, 2019). However, evidence in support of eco-labels having a positive impact on purchase intention has been mixed among researchers. For example, Golan et al. (2001) discovered that consumers' positive attitudes toward labeled products do not always translate into purchases. Furthermore, Sharma & Kushwaha (2019) and Dangi et al., (2020) claim that the effectiveness of eco-labels on purchase intention depends on several other factors, including the consumers' environmental awareness, their income, quality, and the price of eco-labeled products. Based on the aforementioned factors, eco-labels will seldom be the decisive factor. On the other hand, Waris & Hameed (2020) and Cai et al., (2017) found that eco-labels have a positive and significant impact on purchase intentions. Cason & Gangadharan (2002) have also demonstrated that labeled products can increase sales.

Previous researchers have thus been mixed about the relationship between eco-labels and purchase intention, offering room for further explanation that may add to the existing literature. Additionally, limited research has been done to investigate the effect that eco-labels on home care products have on purchase intention. We hypothesize that this presence will positively impact purchase intention, and propose the following hypothesis:

H2b: The presence of an eco-label on a home care product will increase consumers' intention to purchase it.

2.2. Perceived Environmental Friendliness (PEF)

The consumer-driven environmental movement taking place today is due, in part, to greater awareness of environmental issues like climate change, as well as consumers wanting to make a difference with their purchasing decisions (Lanuzzi, 2012). Thus, as consumers become more aware of the environmental impact caused by the products they purchase, environmentally friendly brands are increasingly being favored (Zeng, et al., 2019). Brand managers are consequently looking to benefit from this favoritism by creating an environmentally friendly brand image in the minds of the consumers. Many companies are making changes to both their manner of production and marketing efforts, in order to promote themselves and their products as environmentally friendly, and subsequently increase purchase intention. As such, consumers are both contributing to more environmentally friendly production due to their demand for more sustainable products, and by reacting to existing offers on the market (Johnston et al., 2014).

In consumer psychology, mental categorization is an important factor in the formation of product perceptions. Categories play an important role in inference-making processes for evaluating product characteristics (Pancer et al., 2017). How a product is categorized is important when developing product perceptions and framing certain product cues, such as whether or not a product is environmentally friendly. Much research has been conducted in the domain of product categorization, and a central premise is that consumers have a strong preference towards categorizing products within a single category (Pancer et al., 2017). This is known as the single category inference process, and existing research suggests that consumers tend to use a single category inference strategy when detailed information on relationship between categories is absent. In line with this, environmental cues on product packaging have been found to activate an environmental schema in the minds of consumers. Once this is activated, the consumer may attempt to categorize the product as environmentally friendly, thus creating environmentally friendly product perceptions (Pancer et al., 2017).

The consumer's perception of the environmental friendliness of a product can be hampered by biases and misinterpretations of the packaging elements. For instance, consumer misinterpretations may cause on-label claims to fail to deliver the sustainability message for the brands. This is often due to consumers having misconceptions about sustainability in general, as sustainable packaging is often not well communicated to the consumers (Boz et al., 2020). For instance, consumers may place more emphasis on preconceived notions of what makes a package sustainable, such as recycling. Other aspects, often communicated on labels, are neglected or misinterpreted. For instance, the concept of "bio" may refer to both biodegradable and bio-based results in bioplastics, but is being interpreted by consumers as being biodegradable readily in the environment. In reality, most biodegradable polymers can only decompose under controlled conditions, and some bio-based materials are not in fact biodegradable (Boz et al., 2020; Guillard et al., 2018). Additionally, the degree to which a consumer believes a product to be sustainable can be affected by cue inferring processes based on inadequate information of sustainability. Consumer opinions on what a sustainable package is, do not always align with the actual sustainability of the packaging, as discussed previously. Finally, greenwashing is a phenomenon that may prevent consumers from believing in the environmental friendliness of a product and subsequently buying it. Many brand managers that are attempting to communicate their brands' sustainability efforts to consumers are often misinterpreted, and their efforts result in ambiguous claims causing confusion and consumer backlash. For example, the use of the color green in packaging without any associated environmental cues has been proven by some to have a negative impact on product efficacy perceptions (Boz et al., 2020; Tobler et al., 2011).

In light of the aforementioned research and the increasing use of environmental cues on product packaging we identify a need to better understand the way in which these cues influence product perceptions, and subsequently purchase intention. We are interested to see whether the different environmental cues of product packaging affect the consumer's perceived environmental friendliness of the product. More specifically, we want to examine whether or not this perception mediates the effect of the environmental cues on purchase intention. We summarize this in the following hypothesis:

H3a: The perceived environmental friendliness of a home care product mediates the relationship between environmental cues and purchase intention

Expanding on the aforementioned, it is argued that the belief in the environmentally friendliness of the product and the effectiveness of purchasing environmental products are important drivers for sustainable purchase decisions (Antonetti & Maklan, 2014). The latter, namely perceived consumer effectiveness (PCE) is the extent to which the consumer believes that his/her personal efforts can contribute to the solution of a problem. High PCE is necessary to evoke consumers to translate any existent positive attitudes and product perceptions into actual purchase (Vermeir & Verbeke, 2006). Consequently, the consumer is more inclined to engage in pro-environmental consumption when they believe their decisions will have a positive impact on the environment (Rice, 2006). In line with this, the Shelton group found that "preserving natural resources for future generations" was consistently amongst the top three benefits of buying green products in multiple product categories, driving consumers to engage in pro-environmental behavior (Lanuzzi, p. 134, 2012).

Because consumer judgment is frequently based on incomplete information, perceived environmental friendliness of products, which are acted as a primary signal to many consumers, would positively influence purchase intentions. In many cases, consumers may unconsciously detect these signals and simply purchase a product because they believe the product to be environmentally friendly (Arli, et al., 2018). In this case, perceived environmental friendliness is not merely a mediator, but an independent variable that drives purchase intention. In light of this, we suspect that there is also a direct effect between perceived environmental friendliness and purchase intention. The following hypothesis is thus formulated:

H3b: The perceived environmental friendliness of a home care product has a direct positive effect on purchase intention

2.3. Green Product Knowledge

Wang (2019) and Lim (2020) describes knowledge as information stored in consumers' memory that influences their understanding of a product, preferences

as well as their decision-making process. However, in this paper we will not examine knowledge as a general concept, but in relation to consumers' understanding of environmental cues on product design. This includes whether consumers have knowledge about green product attributes (e.g., eco-labels, packaging material, colors, imagery), so that they can indicate whether a product is environmentally friendly. In view of this, we will be researching green product knowledge, referred to as *"subjective knowledge that is the consumers' understanding of the environmental attributes and environmental impacts of green products"* (Wang et al., p. 2, 2019). In theory, green product knowledge is composed of two concepts, namely familiarity and product knowledge. The former refers to prior sustainable product consumption, while the latter pertains to perceptions based on sustainability labels and product information (Philippe & Ngobo, 1999; Lee et al., 2020).

From a marketing perspective, environmental cues are used to communicate that a product is environmentally friendly. For an effective response, consumers need to have knowledge of them, and understand their meaning (Waris et al., 2021). If not, environmental cues might cause uncertainty, confusion, and reduce the effectiveness of the environmental claims (Testa et al, 2015). For example, Van Amstel et al., (2007) argue that consumers who lack knowledge about eco-labeled products, are less likely to pay attention to them. On the other hand, consumers with green product knowledge find eco-labels as a helpful tool to identify environmentally friendly food and products (Galil et al., 2013). Another survey showed that many consumers are unable to identify sustainable packaging and/or lack insights as to what it should contain (Steenis et al., 2017). In the absence of such knowledge, environmental cues will not contribute to consumers actually believing that a product is environmentally friendly.

Several studies have examined the relationship between green product knowledge, purchase intention and green brand evaluation (Arisal & Atalar, 2016; Lee et al., 2020; Kumar et al., 2021). According to Taufique et al. (2014), consumers with higher levels of knowledge are better able to apply that knowledge in understanding messages. Similar findings were found by Hong et al., (2019) who argue that environmental knowledge can influence consumers' product perception. Drawing on previous research, they argue that green product knowledge is closely related to confidence in green products perceptions. They further argue that the level of

confidence they have in forming these perceptions depends on their degree of knowledge (Hong et al., 2019).

Although the body of literature is acknowledging the influential power green product knowledge has on consumer responses, little research has been done to examine the relationship between green product knowledge, environmental cues and the perceived environmental friendliness of the product. In line with this, we suspect that the presence of environmental cues on a product design does not necessarily imply that consumers perceive the product as environmentally friendly. Instead, we believe that this depends on whether or not consumers have knowledge about environmental cues. For example, the consumer should have knowledge about sustainable packaging materials and eco-labels, which will positively moderate the effect of the environmental cues on the product's perceived environmental friendliness. Therefore, we propose the following hypothesis:

H4: The effect of the environmental cues on perceived environmental friendliness is positively moderated by green product knowledge

2.4 Environmental Concern

Environmental concern has been defined as *"an evaluation of, or an attitude towards facts, one's own behavior, or others' behavior with consequences for the environment"* (Fransson & Gärling, p. 370, 1999). The term is often also referred to as a "worldview", which indicates deeply held beliefs regarding the world in which one lives (Dake, 1991; Brehm et al., 2013). In the literature, environmental concern is often divided into two dimensions: behavioral and cognitive (Stern, 2000). The former refers to an individual's direct involvement in behaviors that benefit the environment, whereas the latter dimension is described as that which focuses on attitudes, values and worldviews (Brehm et al., 2013).

The earth's environment has undergone drastic changes, including depletion of natural resources, loss of agricultural land and damage to the ozone layer (Appannagari, 2017). As the state of the environment continues to worsen, consumers are getting increasingly concerned, stressing the importance of becoming more environmentally friendly (Mainieri et al., 1997; Singh & Bansal, 2012). According to Bamberg (2003), the level of environmental concern among consumers has a significant impact on their behavior towards purchasing more

environmentally friendly products. Schwepker and Cornwell (1991) further found that 84 percent of respondents in a survey expressed concern about environmental issues, and the same number wanted to change their purchasing habits as a result of this concern.

Hartmann & Apablaza- Ibanez (2012) and Polonsky (2011) noted that customers' environmental concerns and pro-environmental beliefs have a strong effect on green purchasing behavior. In their study, Bickart and Ruth (2012) discovered differences in how high and low-concerned customers perceived environmental cues, specifically eco labels on household cleaner products. The authors reported that when environmental concern is high, the presence of an eco- label on a product positively affects attitudes and purchase intentions. This indicates that high-concerned consumers are more likely to notice and search for products with environmental cues that provide affirming information about green credentials. In contrast, the presence or absence of eco-labels on a product, did not affect purchase intentions for low- concerned customers. To emphasize the relationship between the variables more clearly, Prakash & Pathak (2017) confirmed that environmental concern has a significant impact on purchase intention for environmentally friendly packaging design.

Although consumers may believe that a home care product is environmentally friendly, it does not necessarily mean that they will purchase it. In this section, we have discussed that this relationship may depend on other factors, including whether the consumer is concerned about the environment. Therefore, we propose that the relationship between perceived environmental friendliness of a product and purchase intention depends on whether the consumer is concerned about the environment. In other words, environmental concern serves as a moderator, positively influencing the relationship between the two variables. Thus, it can be hypothesized that:

H5: The effect of a consumers' perceived environmental friendliness of a home care product on purchase intention is positively moderated by environmental concern

3.0 Overview of Hypotheses

H1a: The use of carton as packaging material will have a stronger effect on consumers' perceived environmental friendliness of a home care product than the use of plastic.

H1b: The use of carton as packaging material will have a stronger effect on purchase intention of a home care product than plastic.

H2a: The presence of an eco-label increases consumers' perceptions of a home care product's environmental friendliness.

H2b: The presence of an eco-label on a home care product will increase consumers' intention to purchase it.

H3a: The perceived environmental friendliness of a home care product mediates the relationship between environmental cues and purchase intention.

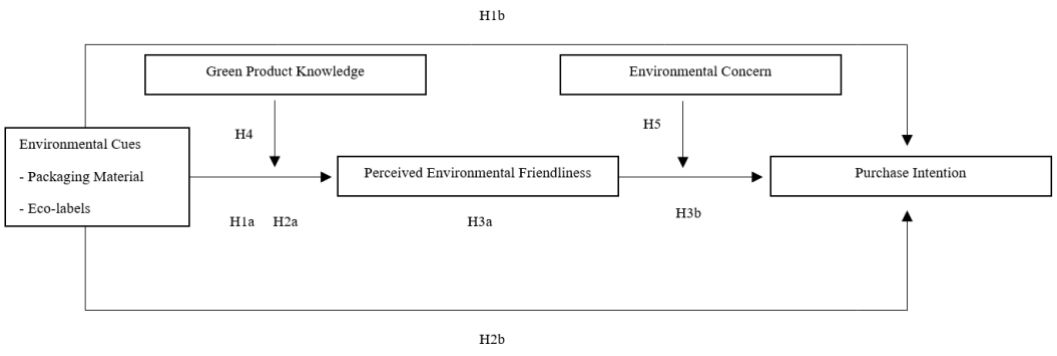
H3b: The perceived environmental friendliness of a home care product has a direct positive effect on purchase intention.

H4: The effect of the environmental cues on perceived environmental friendliness is positively moderated by green product knowledge.

H5: The effect of a consumers' perceived environmental friendliness of a home care product on purchase intention is positively moderated by environmental concern.

3.1 Conceptual Model

Figure 1: Conceptual Model



4.0 Research Methodology

One main study was conducted for the purpose of the present research and the testing of the conceptual framework. In this section, we provide the details of our sampling method, survey design and procedure for data collection. We further describe the questionnaire and scale development, before presenting the analyses for this research.

4.1 Sample and Collection of Data

Due to the nature of this thesis, the target population for the survey were Norwegians that had purchased laundry detergent in the previous six months. Participants who did not satisfy this requirement were eliminated from the questionnaire. Because of time restraints, a non-probability convenience sampling was applied, and we recruited participants through our social networks on Facebook and LinkedIn (Malhotra, 2010). While we acknowledge that the convenience sample is not representative to any definable population, it is an advantageous manner of sampling as it is convenient, fast and inexpensive (Malhotra, 2010). It further worked well with the exploratory nature of our research, as the purpose was to generate insights for the chosen topic (Malhotra, 2010). We further acknowledge that there are disadvantages related to online surveys, such as the lack of control over the environment in which the survey experiment takes place. This has the potential of making the experiment more prone to diminishing external factors (Malhotra, 2010). However, we believe that the advantages of the sampling technique outweigh the disadvantages, and that it worked well for the objective of this thesis.

4.2 Survey Design

We determined that a true experimental survey design was appropriate for our research question, as we wanted to investigate possible causal explanations by manipulating the independent variable "environmental cues" to see if it had any effect on the dependent variables (Gripsrud et al., 2010). The main study consisted of a randomized online between-participant design, where a 2 (no label vs. one label) X 2 (carton vs. plastic) survey was conducted (See Table 1). Each respondent was only allocated to one of the treatment conditions (Malhotra, 2010), after which

the dependent variable (DV) scores were compared between participants. We chose a between-participant design because we believed that exposure to one of the treatments (e.g., laundry detergent made of plastic without an eco-label) could influence how participants responded to other treatments (e.g., laundry detergent made of carton with an eco-label), resulting in unwanted bias (Charness et al., 2012).

Table 1: 2x2 Between-participant design

(1) Plastic with eco-label	(3) Carton without eco-label
(2) Plastic with eco-label	(4) Carton without eco-label

4.3 Experiment Manipulation

The survey-based experiment's stimuli included four products from the Orkla Home & Personal Care brand, Klar. The product is already available in the market under two different packaging materials, namely carton and plastic. While this naturally involves certain differences in the overall design of the two products and subsequently the internal validity, it is not uncommon that one type of validity is traded for another (Malhotra, 2010). In the specific context of this study, such a trade-off is inevitable. It was deemed worthwhile to make this trade-off because using these existing products in the online experiment ensured that the products would be credible, thereby increasing the external validity.

Two different packaging material treatments were thus used in the experiment to identify differences in the perceived environmental friendliness of the product, as well as consumer purchase intention. Two of the four product packages were made from *carton*, while the other two were made from *plastic* in the shape of a bottle. A manipulation check was implemented to control that the respondents did indeed differentiate between the two materials. The study further used two different treatments of eco-labels (No label vs. One label), for each product and its respective packaging material. Thus, two of the product packages had an eco-label included, while two did not. The purpose was again to test the effect of the presence of an eco-label on the perceived environmental friendliness of the product, and consumer purchase intention. For the eco-label, we used the certified Nordic Swan label to

enhance credibility and external validity. This label is typically presented in a green color, but we chose the black and white version as this is the one currently being used by Klar on their laundry detergents. Once again, a manipulation check was conducted to check that the respondents had noticed the eco-label.

Figure 2: Stimuli of laundry detergents

4.4 Questionnaire Development

4.4.1 Procedure

The development of the survey was crucial, as a well-structured questionnaire encourages respondents to complete it and to be conscientious (Burns & Bush, 2008). The questionnaire was in Norwegian, and began with an introduction where we shortly presented the general purpose of the study. To avoid disclosing the true purpose of the experiment and reduce the risk of bias, the participants were told that the questionnaire was about product design. To comply with ethical guidelines, the introduction also included a section in which the participants was ensured that the study was ethically conducted and processed, maintaining confidentiality and their privacy. All data was conducted and treated in accordance with the internal BI guidelines for GDPR. The final part of the introduction included a screening question intended to qualify prospective respondents (Burns & Bush, 2008). As we decided to eliminate participants that had not purchased laundry detergent within

the six last months, the question was set to be “have you purchased laundry detergent during the last six months?”, with the answer alternatives “yes” or “no”.

The section that followed included a transition in which the respondents were informed that they would be shown a product, followed by a series of questions. To achieve a randomized effect, they were randomly assigned to one of four products, to control for order bias (Malhotra, 2010). The accompanying questions measured the variables defined in the conceptual model on a seven-point Likert scale and a Semantic Differential Scale. The final section of the questionnaire included demographics so that we could classify the respondents into different groups for analysis purposes (Burns & Bush, 2008). See Appendix 1 for a full overview of the Questionnaire.

4.4.2 Scale Development

To operationalize the constructs in our research model to concrete and measurable variables (Sargent, 2008), we reviewed previous studies to identify existing measurement scales. The scales suitable for our purpose was adopted, with some modifications to measure the dependent, mediating, and moderator variables: Purchase Intention, Perceived Environmental Friendliness, Green Product Knowledge and Environmental Concern. In this way, we were able to strengthen the validity of this study (Gripsrud et al., 2010). A full overview of the variables can be found in Appendix 1 and Table 2.

To measure “Perceived Environmental Friendliness” participants were asked to evaluate the degree to which they found the product to be environmentally friendly on a 7-point Semantic Differential Scale. The question was adopted from Reid et al., (2010), that originally measured whether respondents conveyed vehicles to be environmentally friendly.

Two items were adapted from Pancer et al., (2017) to measure “Purchase Intention”. The measurement was captured by the respondents likelihood of either purchasing the product or considering purchasing the product. However, the question has a well-known flaw in that the majority of respondents who declare that they will buy a product are "non-intenders," and actual compliance with the stated intention is low (Wright & MacRae, 2007). An option would have been to measure actual

purchase int, but due to time constraints and limited resources, it was not achievable in this study.

The scale for "Green Product Knowledge" was adopted from Kumar et al., (2021), who initially measured "Consumer Knowledge" ($\alpha = 0.90$) related to green products and eco-labels. To make the scale fit the context of our study, we changed the wording of some of the items (e.g., from "I can differentiate eco-labels" to "I can differentiate between green product attributes"). Originally, the scale consisted of five items, but we chose to exclude "Using green products is part of my daily consumption habits", as we found the item to be more related to consumer behavior than green product knowledge. A definition of green product attributes was also included to help the respondents understand the term before answering.

Several methods for measuring "Environmental Concern" have been developed, but only three of them are widely used: the Ecological Attitude Scale (EAS), the Environmental Concern Scale (ECS), and the New Environmental Paradigm Scale (NEP). Maloney & Ward (1973) established EAS as the first ecological behavior measurement. Their questionnaire consists of a scale with 36 items, which received an internal consistency (Cronbach's α) of .92 (Kaiser, 1998). The Environmental Concern Scale was created by Weigel & Weigel (1978), which has acceptable validity and reliability, but is less frequently used than the two other measurement methods (Fransson & Gärling, 2017). The New Environmental Paradigm (NEP), on the other hand, is developed by Dunlap & Van Liere (1978). The measurement has been employed in hundreds of studies to measure environmental concern, and has an acceptable internal consistency of α=.79. Their scale consists of 12 items, and measures the respondents attitudes and beliefs regarding their pro-ecological "world view" (Dunalp, 2008). For example, Roberts & Bacon (1997) used NEP scale to measure the relationship between environmental concern and consumers' ecological behavior. As the NEP- scale appears to be suitable for our purpose, it was implemented in our questionnaire. However, the scale was shortened from 12 items to 7 items, as too long surveys increase the likelihood of random responding, premature termination, and abandonment rate, all of which affect data quality (Herzog and Bachman, 1981).

Table 2: Overview of variables

Variable	Questions	Scale	Reference
Perceived Environmental Friendliness	"Based on the visual content, please rate the degree to which you evaluate the product as environmentally friendly"	7-point scale, where (1) I do not evaluate the product as environmentally friendly at all and (7) I definetively evaluate the product as environmentally friendly	Reid, Gonzalez & Papalambros (2010)
Purchase Intention	"I will purhcase this product" "I consider purchasing this product"	7-point scale, where (1) very unlikely and (7) very likely	Pancer, McShane & Noseworthy (2017)
Green Product Knowledge	"I am familiar with green products" "I can differentiate between green product attributes (e.g., eco-labels, packaging material, colors, imagery)" "I can explain to other people the environmental features of green products" "I can explain to other people the meaning of green product attributes (e.g., eco-labels, packaging material, colors, imagery)"	7-point scale, where (1) strongly disagree and (7) strongly agree	Kumar, Polonsky, Dwivedi (2021)
Environmental Concern	"We are approaching the limit of the number of people the earth can support" "Humans have the right to modify the natural environment to suit their needs" "When humans interfere with nature it often produces disastrous consequences" "Plants and animals exists primarily to be used by humans" "Humans must live in harmony with nature in order to survive" "Humans need not adapt to the natural environment because they can remake it to suits their needs"	7-point scale, where (1) strongly disagree and (7) strongly agree	Dunlap & Van Liere (1978)

5.0 Analysis

5.1 Data Cleaning

Before conducting the analyses, the data was checked for missing values and a consistency check was performed (Malhotra, 2010). It was decided to keep respondents who had less than 10% missing values in the data set. For these respondents, a neutral value was inserted by calculating the arithmetic mean for the variable. The participants with more than 10% missing values (N=45) were excluded from the dataset. Finally, participants who had not purchased laundry detergent in the previous six months were also removed from the survey (N=11) from screening. From initially having 228 respondents, we ended up with 172 in total after the data cleaning. During the consistency check, no out-of-range values for the variables were discovered (Malhotra, 2010). An overview of the missing values for each variable can be found in Table 4.

5.2 Reverse Coding

The variable “Environmental Concern” had items that were phrased both positively and negatively. This way of formulating questions is used as a validation to analyze whether respondents are answering consistently (Kent State University, s,a.). Before conducting any analyses, it was important to ensure that all of these items were phrased in the same way. The items that were negatively coded (Q5_2, Q5_4 and Q5_6), were therefore reverse coded through SPSS.

5.3 Descriptive Statistics

Among the 172 respondents who completed the questionnaire, the distribution between women and men was 59.3% vs. 40.7%, illustrating a dominance of female respondents. The average age of the respondents was 31 years, with a minimum age value of 20 and maximum age value of 65. Due to this wide range, the standard deviation ended up being SD=10.83. This is logical as the questionnaire was completed by people of all ages, and no age restrictions present in the survey. Furthermore, Table 3 shows that most of the respondents have completed a bachelor's degree, followed by master’s degree, secondary school and primary school.

Table 3: Respondent overview with descriptive statistics

Gender	**Frequency**	**Percent**
Female	102	59.3
Male	70	40.7
Other	0	0
Age	**Mean**	**Std. Dev**
	31.08	10.83
Education Level	**Frequency**	**Percent**
Primary School	3	1.7
Secundary School	24	14
Bachelor's degree	94	54.7
Master's degree	51	29.7

Figure 3 shows the distribution of the 172 participants across the four conditions. Due to the elimination of respondents from the data cleaning, the group sizes are slightly unequal. However, this is not a critical issue when comparing the means of the groups, as the sample differences are accounted for in the analysis (Vanhove,

2015). For simplicity, the conditions will hereinafter be referred to as 1) plastic without eco-label, 2) plastic with eco-label, 3) carton without eco-label, and 4) carton with eco-label. A more detailed overview of the variables and the respondents across the different conditions can be found in Table 4.

Figure 3: Overview of conditions

Table 4: Variable overview with descriptive statistics

Conditions	Variables	N	Missing Values	Min	Max	Mean	Std. Deviation
1	Perceived Environmental Friendliness	42	0	1	7	4.40	1.76
	Environmental Concern						
	EC_1	42	0	1	7	4.55	1.71
	EC_2	42	0	1	7	4.50	1.58
	EC_3	42	0	2	7	5.57	1.21
	EC_4	42	0	3	7	5.64	1.30
	EC_5	42	0	4	7	5.90	.93
	EC_6	42	0	3	7	5.85	1.09
2	Perceived Environmental Friendliness	55	0	2	7	4.76	1.34
	Environmental Concern						
	EC_1	55	2	1	7	4.35	1.74
	EC_2	55	2	1	7	4.64	1.67
	EC_3	55	2	3	7	5.64	1.11
	EC_4	55	2	2	7	5.45	1.41
	EC_5	55	2	5	7	5.89	.71
	EC_6	55	2	3	7	5.72	1.00
3	Perceived Environmental Friendliness	37	0	2	7	5.38	1.13
	Environmental Concern						
	EC_1	37	0	1	6	4.57	1.19
	EC_2	37	0	2	7	4.51	1.46
	EC_3	37	0	3	7	5.59	0.95
	EC_4	37	0	3	7	5.70	1.17
	EC_5	37	0	4	7	5.95	.88
	EC_6	37	0	4	7	5.62	.89
4	Perceived Environmental Friendliness	38	0	3	7	5.53	1.20
	Environmental Concern						
	EC_1	38	0	2	7	4.45	1.66
	EC_2	38	0	1	7	4.60	1.65
	EC_3	38	0	3	7	5.50	1.05
	EC_4	38	0	2	7	5.84	1.19
	EC_5	38	0	2	7	5.50	1.20
	EC_6	38	0	3	7	5.60	1.24

Conditions	Variables	N	Missing Values	Min	Max	Mean	Std. Deviation
1	Purchase Intention						
	PI_1	42	0	1	7	4	2.02
	PI_2	42	0	1	7	3.95	2.06
	Green Product Knowledge						
	GPK_1	42	0	1	7	4.76	1.65
	GPK_2	42	0	1	7	5.07	1.43
	GPK_3	42	0	1	7	4.45	1.65
	GPK_4	42	0	1	7	4.55	1.71
2	Purchase Intention						
	PI_1	55	0	1	7	4.25	1.75
	PI_2	55	0	1	7	4.18	1.76
	Green Product Knowledge						
	GPK_1	55	0	1	7	4.65	1.57
	GPK_2	55	0	1	7	4.80	1.58
	GPK_3	55	0	1	7	4.36	1.64
	GPK_4	55	0	1	7	4.35	1.74
3	Purchase Intention						
	PI_1	37	0	1	7	4.78	1.29
	PI_2	37	0	1	7	5	1.33
	Green Product Knowledge						
	GPK_1	37	0	1	7	4.95	1.22
	GPK_2	37	0	1	7	5.05	1.22
	GPK_3	37	0	1	6	4.62	1.23
	GPK_4	37	0	1	6	4.57	1.19
4	Purchase Intention						
	PI_1	38	0	1	7	4.89	1.39
	PI_2	38	0	1	7	5.05	1.52
	Green Product Knowledge						
	GPK_1	38	0	1	7	5.05	1.50
	GPK_2	38	0	2	7	4.89	1.57
	GPK_3	38	0	2	7	4.37	1.60
	GPK_4	38	0	2	7	4.45	1.68

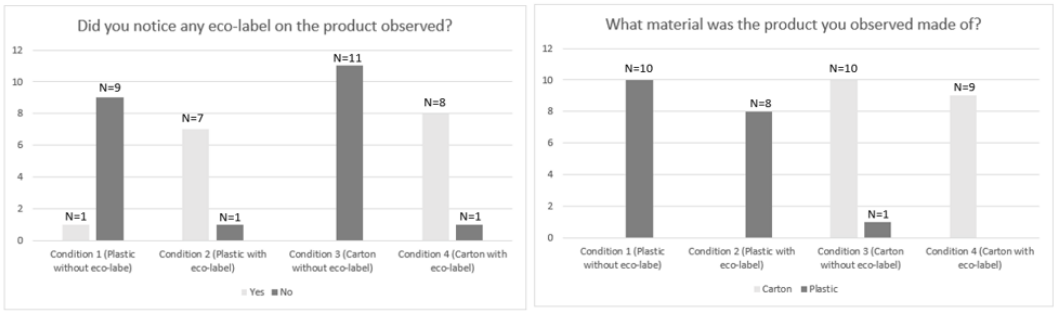
***5 additional missing values from the demographic statistics are not present in this table*

5.4 Manipulation Check

To determine the effectiveness of the manipulations in the experimental design, a manipulation check was performed (Hoewe, 2017). The test was based on a questionnaire distributed to 38 people prior to the main study. The participants were randomly assigned one of the four conditions and then asked whether they saw any

eco-labels on the product or what material it was made of. The respondents were given four answer options, but only carton and plastic were chosen. Figure 4 shows that the manipulation check was successful, as 34 out of 38 respondents detected the appropriate environmental cues.

Figure 4: Manipulation Check



5.5 Factor Analysis

Multiple factor analyses were conducted for variables with more than 2 items (Environmental Concern and Green Product Knowledge) for data reduction and to test for convergent and divergent validity. The objective of the factor analysis was twofold; 1) we wanted to check if the number of variables could be reduced to fewer explanatory factors to reduce any multicollinearity of highly intercorrelated factors, and 2) we want to confirm that the components did indeed measure what they were supposed to measure, confirming our scale- and construct validity (Malhotra, 2010). The whole output can be found in Appendix 2.

To test for convergent validity for the construct of Green Product Knowledge, we first formally checked that a factor analysis was appropriate to conduct. This was confirmed by the Kaiser-Meyer-Olkin Measure (KMO) of sampling Adequacy that was greater than .50 (=.822), and a significant Bartlett's test of sphericity (p=0.001). Once it was determined that a factor analysis was appropriate, we went forward with a principal component analysis with a varimax procedure. This method would minimize the number of loadings on a factor, enhancing the interpretability of the factors (Malhotra, 2010). By interpreting the results of the analysis, we can conclude that all four components indeed measure the construct of green product knowledge, and one single factor for this construct is appropriate. The former is concluded based on evidence from the component matrix, in which all factors load

on a single factor and have high factor loadings that are close to 1. The latter is supported based on three factor retention criteria. The first of these is that of Kaiser's rule, according to which we should only retain factors that have eigenvalues greater than 1. This was only applicable for one factor in this case. Next, the total variance explained by only one factor accounted for 83.70% of the variance, which is more than the minimum criteria of 60%. Finally, by assessing the scree plot, we see that the break point in which the scree flattens out also supports subtracting 1 factor.

The same procedure was followed to test convergent validity for the construct of Environmental Concern. Once again, we opted to look for sufficient correlations between the measures of the given construct. The analysis did confirm that a factor analysis was suitable, as both a KMO greater than .50 was generated (=.794), followed by a significant Bartlett's test of sphericity (p=0.001). However, in this case we found two factors with eigenvalues higher than 1, which was also evident in the scree plot and the point at which the elbow flattened out. Additionally, two factors accounted for 66% of the total variance. Having the items load on two factors could imply that the construct is multidimensional. However, due to the fact that all questions were taken from previous literary work, with high reliability scores, we wanted to keep it as a construct with a single factor. We thus analyzed the communalities table, and tried to remove the item that loaded highest on the "wrong" factor. After doing this, we reran the analysis, and found that the output now only had one factor. The results maintained a sufficient KMO (=.776) and Bartlett's test of sphericity remained significant (p=0.001). All of the aforementioned criteria for factor retention now suggested only 1 factor, and which explained 52.41% of the variance in the data. Finally, we could also observe that the components has high enough factor loadings on a single factor, confirming that they indeed measured the construct of environmental concern. Both tests for convergent validity were thus confirmed.

We then proceeded to test for divergent validity, in which all the aforementioned variables were included. This would help us establish construct validity, by demonstrating that the construct of environmental concern is indeed different from the construct of green product knowledge. We would thus expect to find little or no correlation between the two factors previously determined. When running the analysis, we let the program determine the amount of factors that should be

generated, although we could have placed a 2-factor restriction as this is a confirmatory factor analysis. Once again, we formally checked that all requirements to run a factor analysis were met. With a KMO greater than .50 (=.840), and a significant Bartlett's test of sphericity of p>0.000, these requirements were fulfilled. The results further confirmed that two factors were appropriate, accounting for 66.76% of the total variance. This was further confirmed using Kaiser's rule, as well as from the scree plot and where the curve began to flatten out. From the rotated component matrix, we could also see that all questions loaded on the correct factors, enabling us to conclude our factor analysis and proceed to other analyses.

5.6 Reliability test

Several supplementary Cronbach's Alpha tests were conducted to check the internal consistency reliability of whether the different items measured the same construct (Malhotra, 2010). The coefficient (=α) ranges from 0-1, where a value of .6 or less generally indicates satisfactory internal consistency reliability (Malhotra, 2010). The output below indicates an acceptable level of reliability for all of the constructs with more than one item in our questionnaire, in support of our findings from the factor analyses.

Table 5: Internal Consistency Reliability

Reliability Statistics	Cronbach's Aplha	N of items
Green Product Knowledge	.935	4
Environmental Concern	.741	5
Purchase Intention	.948	2

5.7 Indexing

The variables that consisted of multiple items and had passed the factor analyses and reliability tests (Green Product Knowledge, Environmental Concern and Purchase Intention) were transformed into index variables. The purpose of this was to create variables that combined single items that measured the same construct. In this way, we could obtain a better measurement and understanding of the underlying concepts that we were interested in analyzing.

5.8 Hypothesis Tests

5.8.1 Independent Sample T-tests and ANOVA

Several independent sample t-tests were conducted to confirm or reject H1a (carton as packaging material will have a stronger effect on customers' perceived environmental friendliness of a home care product than the use of plastic), H1b (carton as packaging material will have a stronger effect on purchase intentions of a home care product than plastic), H2a (the presence of an eco-label increases consumers' perceptions of a home care product's environmental friendliness) and H2b (the presence of an eco-label on a home care product will increase consumers' intention to purchase it). In sum, the analyses were conducted to test for differences in Perceived Environmental Friendliness and Purchase Intention between respondents that were exposed to either Condition 1 vs. Condition 3, and Condition 1 vs. Condition 2, and Condition 3 vs. Condition 4. The independent sample t-tests were suitable for these analyses as the parameters stem from different populations (Malhotra, 2010).

In addition to testing H1a-H2b as isolated hypotheses between packaging material (carton vs. plastic) and eco-labels (zero vs. one), we investigated the effect of how both environmental cues interacted with each other. Despite not having a separate hypothesis on this possible interaction effect, we thought it could provide some interesting insights. Two ANOVA and Bonferroni tests between all four conditions with Perceived Environmental Friendliness and Purchase Intention as dependent variables were therefore conducted.

5.8.2 Mediator Analysis

A PROCESS macro analysis (version 4) was used to assess the mediating role of perceived environmental friendliness between the environmental cues (IV) and purchase intention (DV). PROCESS is a macro that uses a multiple regression approach to mediation to perform observed-variable mediation, moderation, and conditional process analysis (Hayes, 2017). This regression method is appropriate as we had a categorical IV, a continuous mediator and dependent variable (Iacobucci D, 2012). Our manner of procedure was first to create two new dummy variables for our two groups of IV's, namely carton and eco-label, coded as either 0 or 1 respectively. We then ran the two datasets through the PROCESS mediation analysis, allowing us to see the total, direct and indirect effect of carton and the

presence of eco-labels on purchase intention, accounting for the mediating effect of perceived environmental friendliness.

5.8.3 Regression Analysis

To test the direct effect of Perceived Environmental Friendliness on Purchase intention (H3b), a linear regression model was run with the former as the independent variable and the latter as the dependent variable. This analysis works well to analyze the associative relationship between a metric dependent variable and independent variables, and is thus a suitable means of analysis. It is both useful in determining whether or not a relationship between these variables exists, as well as the strength and structure of the relationship (Malhotra, 2010).

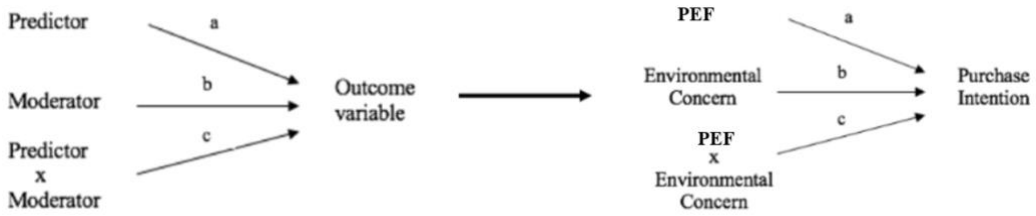
5.8.4 Moderator Analyses

The first moderator analysis was performed to test for whether the effect of environmental cues on perceived environmental friendliness was positively moderated by green product knowledge (H4). A new categorical variable was created for Green Product Knowledge from the existing 7-point scale. Participants scoring from 1 to 4 were labeled with low green product knowledge, whereas respondents scoring from 4.01 to 7 were labeled with high green product knowledge. This distribution was considered appropriate after analyzing the distributed means for this construct amongst the respondents. Thereafter, four independent sample tests were conducted separately for each condition, with Perceived Environmental Friendliness as DV and high vs. low Green Product Knowledge as grouping variables. These analyses were performed as it was necessary to see how the moderator variable changed for the different conditions of environmental cues.

The well-known framework of Baron & Kenny (1986) was used to test the second moderator effect of Environmental Concern in H5. To perform the analysis, an interaction term between Perceived Environmental Friendliness (PEF) and Environmental Concern was created. These variables were standardized before the multiplication, so that the mean of each variable was subtracted from the mean of every value of the variable (Allen, 2012). The regression analysis could thereafter

be run, following the procedure in Figure 5. Both the main effects of path a and b were tested for, in addition to the interaction between these two (path c).

Figure 5: Moderator model (Environmental Concern)



6.0 Results

6.1 Independent Sample t- tests and ANOVA

6.1.1 Packaging Material

To compare the Perceived Environmental Friendliness between Condition 1 and Condition 3, an independent sample t-test was performed to test for H1a. The results showed a significant difference in means between Condition 1 (M=4.40, SD=1.76) and Condition 3 (M=5.38, SD=1.13), under the conditions t(77)=-2.86, p=0.003. This indicates that respondents perceive the packaging material of carton as more environmentally friendly than plastic. The second test was performed to test for H1b, and showed a significant difference in scores for Condition 1 (M=3.97, SD=2.01) vs. Condition 3 (M=4.89, SD=1.24), under the conditions; t(77)=-2.39, p=0.010. These results indicate that the use of carton (vs. plastic) as packaging material is more likely to drive purchase intention. The full SPSS output can be found in Appendix 3.

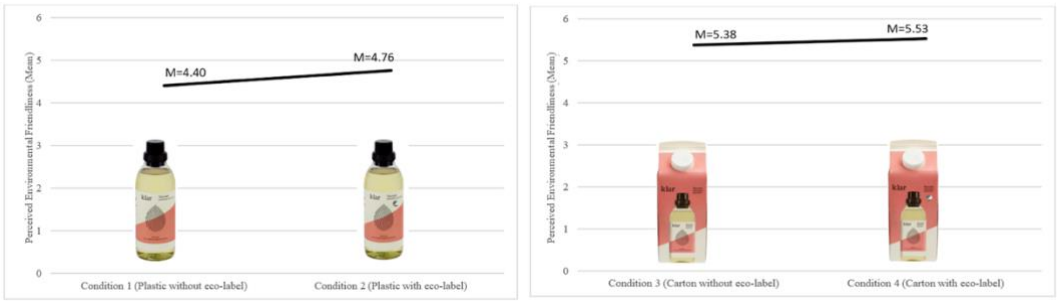
Figure 6: Visualization of packaging material

6.1.2 Eco-label

Two independent sample t-tests were conducted to analyze whether the presence of an eco-label increases consumers' perceptions of a home care product's environmental friendliness (H2a). The first test compared Condition 1 vs. Condition 2, whereas the second test compared Condition 3 vs. Condition 4. The same procedure was followed for the two last independent sample t-tests which were performed to test for whether the presence of an eco-label would increase consumers´ intention to purchase a home care product (H2b). An overview of the results can be found in Appendix 3.

The first independent sample t-test for H2a showed that there was an insignificant difference in means for Perceived Environmental Friendliness between Condition 1 (M=4.40, SD=1.76) and Condition 2 (M=4.76, SD=1.34), under the conditions t(95)=-1.135, p=0.130. The output for the second test of H2a between Condition 3 (M=5.38, SD=1.13) and Condition 4 (M=5.53, SD=1.20) were also insignificant, with t(73)=-0.547, p=0.293. In sum, these tests indicate that the presence of an eco-label is not decisive of whether the respondent believes that the product is environmentally friendly. It should be noted that, albeit not significant, an increase in mean for perceived environmental friendliness occurred when an eco-label was present for all conditions.

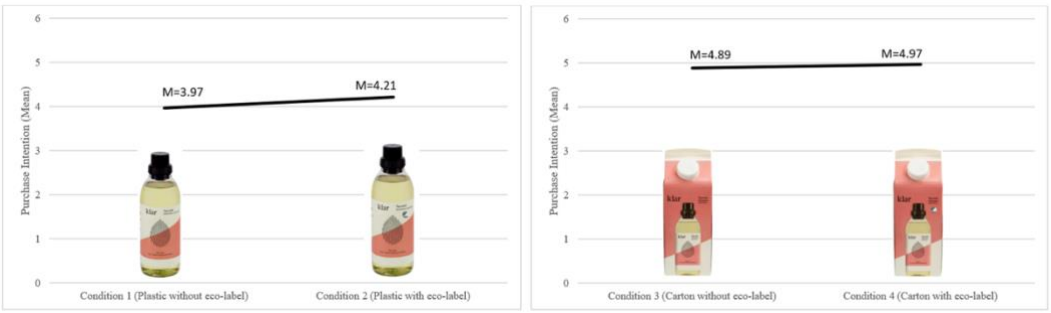
Figure 7: Visualization of eco-labelling (#1)



The result from H2b between Condition 1 (M=3.97, SD=2.01) and Condition 2 (M=4.21, SD=1.70) revealed that there was an insignificant difference in Purchase Intention between the two groups, t(95)=-.641, p=.262. The same tendency was observed when testing for Condition 3 (M=4.89, SD=1.24) and Condition 4 (M=4.97, SD=1.43), t(73)=-.263, p=.397. As a result, even though an eco-label is

visible on the product, the purchase intention does not statistically increase. However, we see the same general tendency for higher means of purchase intention when an eco-label is present on the product.

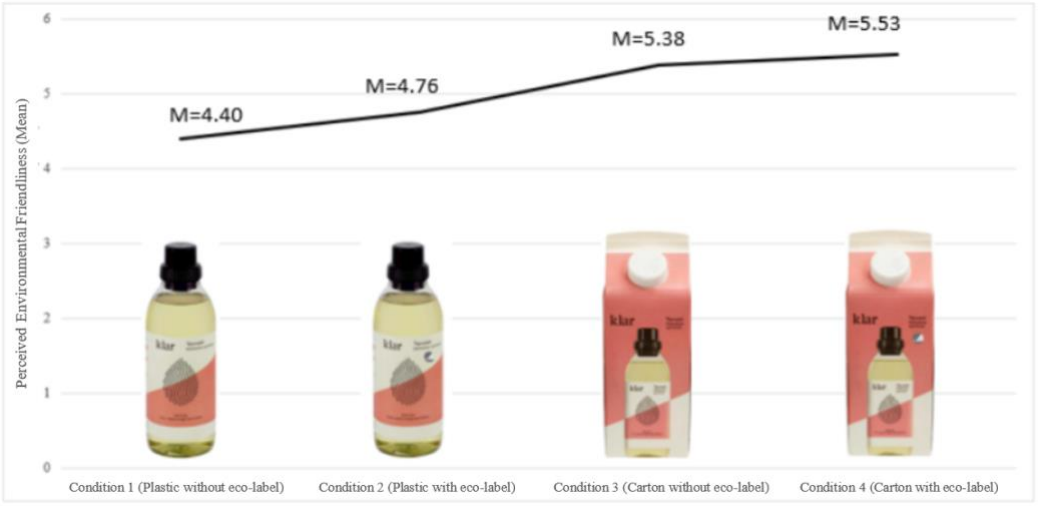
Figure 8: Visualization of eco-labelling (#2)



6.1.3 ANOVA

A one-way ANOVA revealed that there was a statistically significant difference in mean for Perceived Environmental Friendliness between at least two of the groups (F, 3,168)=5.782, p=<.001. The Bonferroni Post Hoc Test showed that the mean value was significantly different between Condition 1 (M=4.40, SD=1.76) and Condition 3 (M=5.38, SD= 1.13). Additionally, there was a significant difference between Condition 1 (M=4.40, SD=1.76) and Condition 4 (M=5.53, SD=1.20). Together, these results illustrate that the effect of carton as packaging material both with and without an eco-label has the strongest effect on perceived environmental friendliness. However, the perceived environmental friendliness is strongest when there is an interaction between carton and an eco-label (Condition 4).

Figure 9: Visualization of ANOVA (Perceived Environmental Friendliness)



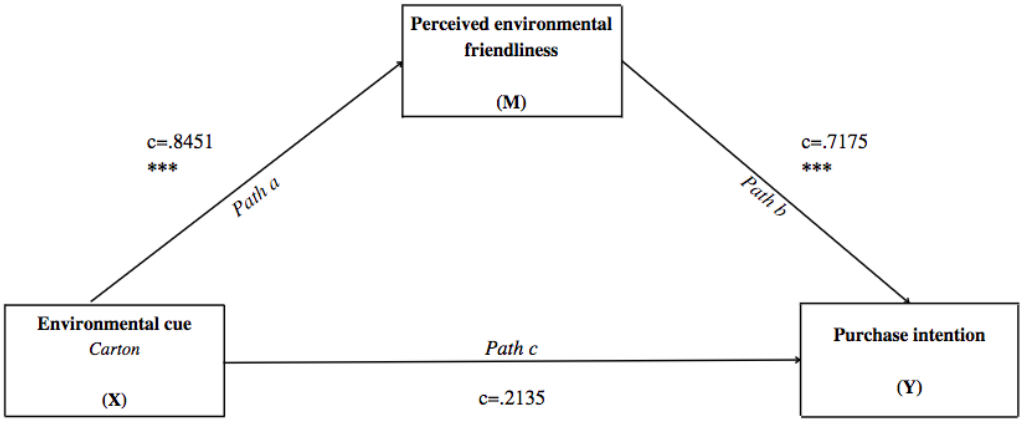
A second one-way ANOVA was conducted to compare the effect of Purchase Intention between the different conditions. The results revealed a statistically significant difference in at least two of the groups (F, 3, 168)=3.692, p=.013. A Bonferroni test for multiple comparisons revealed that the mean value of Purchase Intention differed significantly only between Conditions 1 (M=3.97, SD=2.01) and 4 (M=4.97, SD=1.43). Again, this indicates that the consumers' purchase intention for the product is higher when the environmental cues of carton and an eco-label are used in combination. The full outputs from the ANOVA and Bonferroni analyses can be found in Appendix 4.

Figure 10: Visualization of ANOVA (Purchase Intention)

6.2 Mediator Analysis

The PROCESS mediation analysis indicated that carton is a significant, and positive, predictor of perceived environmental friendliness (b=.8451, s.e.=.2141, p<0.0001). This coefficient reflects the direct effect of carton as an environmental cue on perceived environmental friendliness, referred to as path a. In the second regression of the mediation model, it was revealed that perceived environmental friendliness also had a significant, positive effect on purchase intention (b=.7175, s.e.=0717, p<.0.000), while carton had an insignificant effect on the same construct (b=.2132, s.e.=2090, p=2.268). Both these coefficients reflect the direct effects of perceived environmental friendliness and carton on purchase intention, known as path b and c respectively. These paths are all presented in Figure 11 below.

Figure 11: The mediating effect of perceived environmental friendliness between the environmental cue carton and purchase intention.



Using the coefficients presented above, we could calculate the total, direct and indirect effect of the model. The unstandardized indirect effect of perceived environmental friendliness was calculated as the product of paths a (.8451) and b (.7175) from the regression models. From this we can conclude that the construct of environmental cue *carton* has an indirect effect through perceived environmental friendliness on the construct of purchase intention (.6064, t=3.5), thus far supporting H3a. As the direct effect of the environmental cue of carton on purchase intention in the presence of the mediator was insignificant (b=.2135, p=.3085), we can conclude that environmental friendliness fully mediates the relationship between the environmental cue of carton on purchase intention. The total effect of carton on purchase intention was computed as the direct effect plus the indirect effect = .2135+.6064 = .8199, and was also significant (b=.8199, p=0.0014). A mediation analysis summary is presented in Table 6, and the full SPSS output can be found in Appendix 5.

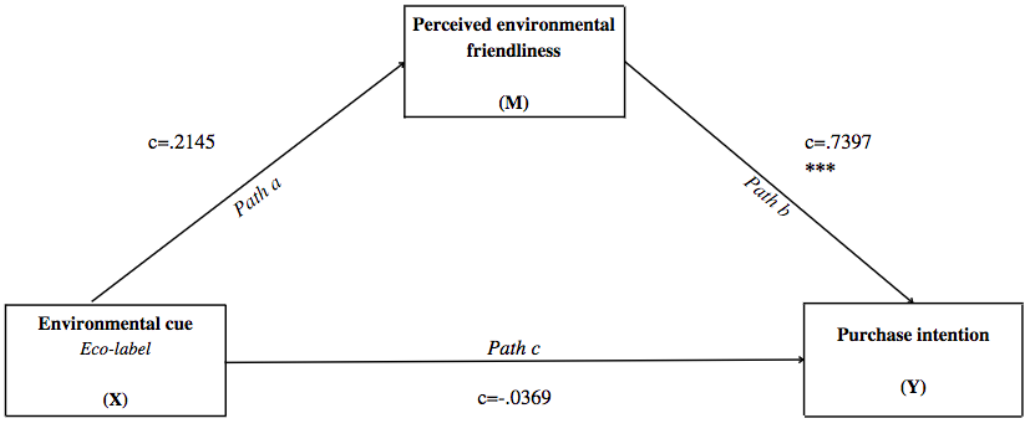
Table 6: Mediator Analysis Summary (Perceived Environmental Friendliness #1)

Relationship	Total Effect	Direct effect	Indirect effect	Confidence interval		t-statistics	Conclusion
				Lower Bound	Upper Bound		
Carton > Perceived Environmental Friendliness > Purchase Intention	.812***	.2135	.6064***	.2965	.9673	3.5	Full Mediation

When following the same procedure for the construct of eco-labels as the environmental cues, it was revealed that the environmental cue of an eco-label did

not have a significant direct effect on perceived environmental friendliness (b=.2145, s.e.=.2220, p=.3353). However, we could determine that perceived environmental friendliness still had a significant, positive effect on purchase intention (b=.7397, s.e.=0690, p<.0.000). The use of an eco-label had an insignificant effect on purchase intention (b=-.0369, s.e.=2002, p=.8542). These paths are all presented in Figure 12.

Figure 12: The mediating effect of perceived environmental friendliness between the environmental cue of an eco-label and purchase intention.



We could thus calculate the total, direct and indirect effect for this simple mediation. Following the same procedure, we can conclude that an eco-label as an environmental cue does not have an indirect effect on purchase intention through perceived environmental friendliness (b=.1587, t=.-.95). The direct effect the cue of the eco-label had on purchase intention was also insignificant (b=-.0369, p=.8542), even in the presence of the mediator. Thus, no mediation was found for perceived environmental friendliness between the relationship of the environmental cue *eco-label* and purchase intention. The corresponding analysis summary is presented in Table 7, and a full SPSS output in Appendix 5.

Table 7: Mediator Analysis Summary (Perceived Environmental Friendliness #2)

Relationship	Total Effect	Direct effect	Indirect effect	Confidence interval		t-statistics	Conclusion
				Lower Bound	Upper Bound		
Eco-label > Perceived Environmental Friendliness > Purchase Intention	.1218	.-.0369	.1587	.1587	.4994	.95	No Mediation

In light of the aforementioned, there is partial evidence for support of H3a. More specifically, mediation occurs when the environmental cue is carton, but not in the case of it being an eco-label.

6.3 Regression Analysis

The results revealed that when the participant's perceived environmental friendliness of the product is 0, the participants purchase intention is positive (β = .794, p = 0.02) (Table 8). If the perceived environmental friendliness goes up by 1 unit, the customer's intention to purchase will increase by .739 due to this effect (β = .739, p = 0.01), for a significant total score of intention to purchase from .794 to 1.533. The perceived environmental friendliness score explains 40.6% of the variation of the intention to purchase (R^2 = .406). We can thus conclude that the perceived environmental friendliness of a home care product has a direct positive effect on purchase intention. The full output can be found in Appendix 6.

Table 8: Regression Analysis (Perceived Environmental Friendliness and Purchase Intention)

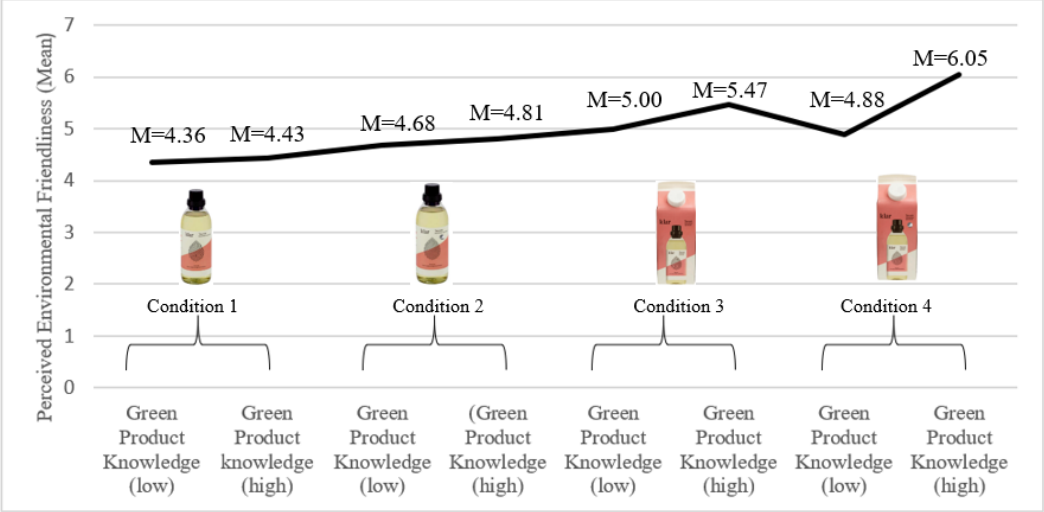
Coefficients						
Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.794	.356		2.234	.027
	Perceived Environmental Friendliness	.739	.069	.637	10.769	<.001

6.4 Moderator Analysis

6.4.1 Green Product Knowledge

We found mixed results for the moderating role of green product knowledge in the relationship between the environmental cues and perceived environmental friendliness (Figure 13). More specifically, we found that the significance of this moderating role depends on the various conditions of environmental cues. The results of the independent sample t-test between low green product knowledge (M=4.88, SD=1.26) and high green product knowledge (M=6.05, SD=.86) for Condition 4 revealed that this was the only condition in which there was a significant difference in perceived environmental friendliness between the two groups under the conditions t(36)=-3.358, p=.001. While the mean difference in perceived environmental friendliness between high and low knowledgeable consumers did increase along with each condition of exposure (Condition 1 (I-J) = 0.07, Condition 2 (I-J) = 0.13, Condition 3 (I-J) = 0.47 and Condition 4 (I-J) = 1.17), the differences were insignificant (Appendix 7).

Figure 13: Visualization of Moderator Analysis (Green Product Knowledge)



6.4.2 Environmental Concern

The ANOVA table in Appendix 7 indicates that both Model 1 (without interaction term) F(2,169)=57.999, p=.001 and Model 2 (with interaction term) F (3,168)=41.405, p=.001 were statistically significant. Furthermore, Model 2 accounted for significantly more variance than Model 1, with R2 change=.018, p=.023. This indicates that there potentially is a significant moderation effect. Table 9 shows that the main effects for the moderator (path b) were insignificant, and that the predictor were significant (path a). However, these results are not directly relevant conceptually to testing the moderator hypothesis (Baron & Kenny, 1986). The moderator hypothesis is supported, as the interaction (path c) is significant, p=.023, which is consistent with the Sig. F Change value. It can thus be concluded that the moderation of Environmental Concern positively strengthens the relation between Perceived Environmental Friendliness and Purchase Intention, showing support for H5.

Table 9: Moderator Analysis (Environmental Concern)

Coefficients[a]

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.417	.682		.611	.542
	Environmental Concern	.074	.115	.039	.649	.517
	Perceived Environmental Friendliness	.734	.069	.633	10.627	<.001
2	(Constant)	.399	.674		.592	.555
	Environmental Concern	.112	.114	.058	.982	.327
	Perceived Environmental Friendliness	.693	.071	.597	9.811	<.001
	Moderator	.196	.086	.140	2.297	.023

a. Dependent Variable: Purchase Intention

7.0 Discussion

Packaging has become an important tool with which marketers seek to communicate value and create consumer preference for one product over another. Simultaneously, consumers have become increasingly concerned with sustainability and altering their consumption habits to become greener, in response to which brand managers have started to implement cues to their products to signal eco-friendliness (Moon et al., 2017; Velasco & Spence, 2019). Previous studies have investigated the use of such cues and their effects on consumer response, but predominantly in the domain of food. As both the amount and various combinations of cues on product packaging increases, many research areas remain untapped in the body of literature. The present study thus explores the use of environmental cues and the way in which it affects consumer purchase intention of home care products, and more specifically, laundry detergent. On a deeper level, it investigates how perceived environmental friendliness of the product mediates this relationship, as well as the moderating roles of green product knowledge and environmental concern.

Our findings show that the environmental cue of carton has a significantly stronger effect on perceived environmental friendliness (H1a) of the product and purchase intention (H1b) than the use of plastic. This result is not surprising given that the majority of the existing body of literature have found similar evidence in favor of the former when attempting to convey eco-friendliness (Magnier & Schoormans 2015; Lindh et al., 2016). Yet it is the first to confirm that the same principle is applicable for home care product packaging in this specific setting. The results thus support previous literature on environmental cues (Lindh et al., 2016), confirming that plastic packaging is perceived as less environmentally advantageous compared to carton. It follows that the use of carton as packaging can be used as an effective tool if the purpose is to create perceptions of environmental friendliness, in addition to purchase intention.

On the other hand, we did not find statistical evidence in support of eco-labels having significant effects on perceived environmental friendliness (H2a), nor higher purchase intention (H2b). This was somewhat surprising given its contradiction to existing literature in which the use of eco-labels has been found effective, and is widely used in packaging to lend environmental claims (Pancer et

al., 2017; Thørgersen et al., 2010). However, the results may point to the area of research in which eco-labels have negative effects, both due to perceptions of greenwashing or increased consumer confusion if the consumer has limited environmental knowledge (Polonsky et al., 1998; Lee & Lee, 2004; Moon et al., 2017). It should be noted that the results did show a higher mean for perceived environmental friendliness and purchase intention when an eco-label was present (albeit not significant) indicating that the trend is positive, and most notably in combination with carton. In addition, when comparing all conditions through an ANOVA test, we did find that the strongest effect on perceived environmental friendliness and purchase intention occurred when carton and the eco-labeling was used in combination. While these results are not connected to a specific hypothesis in the current study, it does suggest that such a combination is beneficial when implementing eco-labels on product packaging. More specifically, it indicates that a singular eco-label, in the absence of supporting environmental cues, does not yield significant results if the purpose is to create perceptions of environmental friendliness and drive purchase intention.

We found partial statistical support for the moderating effect of green product knowledge on perceived environmental friendliness (H4). The difference in perceived environmental friendliness was statistically significant between consumers with high/low green product knowledge for Condition 4, but insignificant for the remaining conditions. The overall tendency shows that consumers with higher green product knowledge are more likely to perceive the products as environmentally friendly. More specifically, we see that the average mean of perceived environmental friendliness for this group of consumers is consistently higher than those with low product knowledge when exposed to Condition 4 with both eco-label and carton combined. One possible explanation is that these consumers are more aware of the environmental benefits related to packaging material and eco-labels, thus using these cues as ways to categorize the product as environmentally friendly (Galil et al., 2013). Our results also showed that the mean of perceived environmental friendliness for both groups increases along with each condition until being exposed to group 4, at which point we see a drop in perceived environmental friendliness for consumers with low green product knowledge. This is interesting, and may indicate what previous literature has discussed in terms of consumer confusion (Moon et al., 2017). A possible

explanation is that consumers with low green knowledge under this specific exposure of environmental cues are overstimulated and unable to properly understand the cues in questions. As such, they are confused or uncertain as to whether or not this is more environmentally friendly. Another possible explanation is that this combination of cues comes across as greenwashing, resulting in the drop in perceived environmental friendliness that we observe.

We further find that environmental concern has a positive moderating effect on the relationship between perceived environmental friendliness and purchase intention, confirming our hypothesis (H5). The direct effect between environmental friendliness and purchase intention was also significant (H3b). These findings offer room for some interesting discussion. The latter indicates that to some consumers, believing that a product is environmentally friendly is enough to drive purchase intention in its own. However, the former reveal that this effect is strengthened when the consumer feels a sense of concern for the environment and desire to alter their purchase intention accordingly. This finding is similar to those of Hartmann & Apablaza- Ibanez (2012) and Polonsky (2011), who found that environmental concern and pro-environmental beliefs have a significant effect on green purchasing behavior. This may indicate that those with higher environmental concern are more likely to search for cues to affirm environmental claims, and subsequently be more likely to purchase the product, resulting in the significant positive moderating effect we observe.

Our mediation analysis provided very interesting and somewhat inconclusive results. The results illustrated that the significant role of mediation was dependent on the type of environmental cue that was present, namely carton or eco-label. We could further determine that mediation was present when the cue in question was carton, in which case the perceived environmental friendliness of the packaging significantly strengthened the intention to purchase. We also found a full mediation effect, indicating that once the mediator was present, all other paths between our independent and dependent variables were insignificant. This further indicates that the full effect of the use of carton as an environmental cue is passed to purchase intention through its effect on the perceived environmental friendliness of the product. However, this was not the case when the environmental cue used was an eco-label. In this scenario, the mediating effect of perceived environmental

friendliness between the environmental cues and purchase intention was not supported in either of the models. Thus, the presence of an eco-label did not have an effect on purchase intention mediated through perceived environmental friendliness, or as a single variable. These findings can be seen in consistency with the results from our analyses on H2a and H2b, in which eco-labels were not found to have a significant effect on perceived environmental friendliness, nor purchase intention. This once again suggests that eco-labels as environmental cues have very limited effect on purchase intention, both on its own and indirectly through the creation of environmentally friendly perceptions.

7.1 Theoretical Implications

This study has important theoretical contributions to the body of literature on sustainable packaging. By investigating the various ways in which different environmental cues affect purchase intention, it explores the subject in a context that is, to the best of our knowledge, relatively unexplored. While much research has been executed on product packaging in the category of food, home care products and laundry detergents, has remained an untapped area of research. In contrast to foods, these are not products that are typically linked to environmentalism. Yet for this reason, consumers are often dependent on packaging cues to activate environmental perceptions of the product, and it is therefore a highly interesting product category (Mai, 2016; Peck & Childers, 2006; Velasco & Spence, 2019).

Our study confirms the positive effect that carton serves as an environmental cue on packaging, both in terms of its effect on perceived environmental friendliness and downstream purchase intention. In addition, our study sheds light on important moderators for this effect, namely green product knowledge and environmental concern, both of which correlates with stronger perceptions of environmental friendliness and purchase intention. Our findings further contradict a sizable share of the existing literature that proclaim the benefits of adding eco-labels as environmental cues on packaging. While we expected to find significant positive associations between eco-labels and the consumers responses included in this study, we found the opposite to be the case. What especially adds to the marketing literature is the findings which indicate that eco-labels are most effective when used

in combination with a carton. This opens up a research field of marketing in which eco-labels in combination with other cues ought to be more deeply explored.

7.2 Practical Implications

This study further presents practical implications for brand managers and other strategic decision makers in a company, with an interest in green marketing. It can be challenging to navigate the eco-jungle of best and worst practices, as both the types of environmental cues and consumer preferences continue to evolve. This study makes a contribution as to the tools managers can use to market green products and create favorable product preferences that subsequently lead to increased purchase intention.

The first practical implications for brand managers this paper contributes to relates to the use of material on product packaging. The use of carton as an environmental cue proved to be an effective tool for managers who wish to create environmentally friendly product perceptions, and increase purchase intention for laundry detergents. Carton proved significantly more effective in creating environmentally friendly product perceptions, thus making it an important tool if the strategic goal is to create favorable, green associations towards the product or brand. In addition, managers might benefit from improving consumer knowledge on environmental cues, as an increase in knowledge could result in stronger perceptions of environmental friendliness. Brand managers should therefore consider implementing educational content in their marketing campaign aimed at increasing the consumers' understanding on the environmental benefits of using carton and eco-labels.

Another important practical implication of this study is the insignificant results found for the effect of eco-labels on both environmental perceptions and purchase intentions. Many companies are investing in eco-labels and trusting them to inform consumers about the environmental impact of their products. However, findings from this study indicate that this investment should be done with caution, especially when used in solitary. In this study, the single use of eco-labels proved to be ineffective if the goal is to market the product as environmentally friendly and downstream increase purchase intention. However, when used in combination with

carton, their effect improved notably. This indicates that brand managers should reassess the entirety of their packaging efforts and cues, and aim to create synergies between multiple cues.

Finally, brand managers should spend some effort in understanding their target segments and their degree of environmental concern, and target them accordingly. Our study found that environmental concern positively moderated the relationship between perceived environmental friendliness of a home care product and purchase intention. Managers should thus attempt to understand their target customers and detect any such differences in environmental concern. While the highly concerned segment should be targeted with highly informative content aimed at communicating the environmental benefits of the products, other marketing campaigns may be required for the low-concerned segments. These consumers may be more concerned with other product benefits, and by uncovering these, managers can appeal to both segments in their own respective ways.

8.0 Limitations and Further Research

8.1 Limitations

In line with all other research papers, this thesis acknowledges some limitations. The use of a convenience sample poses the main limitation, as the results cannot be generalized to the entire population of Norwegians that has bought laundry detergent during the past six months (Malhotra, 2010). For further research, the experiment could therefore be performed with another sampling technique and a larger sample of participants. Despite being unable to generalize the findings, the results have contributed by generating ideas, insights and hypotheses (Malhotra, 2010).

A second limitation is related to the manipulation of the products. The respondents might have had background knowledge of the *product* (laundry detergent) and the *brand* (Klar) when answering the questionnaire, which might have led to biased results. Klar has positioned itself as a rather environmentally friendly home-care brand (Klar, 2022), which may have persuaded the respondents to think of the different conditions as environmentally friendly regardless of the environmental cues they were exposed to. Additionally, the respondents might have used the

product previously, which may have influenced their response on purchase intention. In this experiment, fictional alternatives could have been used to control for pre-existing knowledge, attitudes, and emotions towards the brand and product. However, a fictional brand and/or product would have created less realistic settings and behaviors, and thus lowering the ecological validity of the experiment (Schmuckler, 2001).

Another limitation was the use of a questionnaire as a data collection method. Consumers generally evaluate and purchase laundry detergent in physical stores, which is why this survey method may have felt unnatural, causing participants to be aware that they are taking part in an experiment. Consequently, this might have lowered the ecological validity of the study. Expanding on this argument, the data collection method made it difficult to measure actual purchase behavior, which is why purchase intention was used as a proxy for the respondent's buying decision. The answers might therefore have been a result of self- desirability bias, as the respondents could have provided socially desirable answers to be perceived as more environmentally friendly (Fisher & Katz, 2000). This is argued as a number of researchers claim that there is a large gap between purchase intention and actual purchase behavior, particularly in the context of sustainability. (Ohtomo & Hirose, 2007; Brouwers, 2018). To potentially overcome these issues, the study could have been conducted as a field experiment set in actual market conditions (Malhotra, 2010).

8.2 Further Research

In general, there are a number of exciting and related subjects in the field of sustainable packaging design that could be investigated further. This thesis focused on packaging materials and eco-labels as environmental cues. There are, however, a number of other environmental cues that also could have been included in the thesis to provide a more holistic and comprehensive understanding of the relationship between cues and whether they are perceived as environmentally friendly, as well as their impact on customers' purchase intention. The impact of color, size, font type, and use of images on product packaging are some examples. As an extension of this discussion, it could also be interesting to look further into the interplay between multiple cues as opposed to single cues, and whether or not this has a different effect on perceived environmental friendliness. This study did

only include hypotheses related to the effect of environmental cues in isolation, and not the interaction effect between them. However, as revealed through this study's ANOVA- analyses, the condition with carton and eco-label combined was perceived as more environmentally friendly, in comparison to the condition with the single cue of plastic. This is an interesting finding that may point to this interaction effect between cues, and ought to be explored in future research.

Finally, the current study compared displaying one eco-label versus not displaying any eco-labels at all. The results showed that the presence of an eco-label did not have any significant impact on either perceived environmental friendliness, nor purchase intention of the product. For further research, it could be worthwhile investigating whether it is more efficient to utilize multiple eco-labels. Another suggestion is to use colored eco-labels rather than black-and-white labels, as used in the present study. Lastly, it could be of interest to explore the difference in perceived environmental friendliness and purchase intention when using other types of third-party labels and/or self-declaration claims and environmental declarations.

9.0 Conclusion

In a world in which consumers are becoming increasingly conscious and concerned with environmental issues, packaging has become a way for brand managers to connect with their consumers and communicate green attributes. As the tools in this packaging tool kit evolve, it is important to understand how environmental cues on product packaging influence consumer's product perceptions (Pancer et al, 2017). In light of this, this paper sought to investigate how the use of carton as packaging material and eco-labeling affect purchase intention, as well as the influential roles of perceived environmental friendliness, green product knowledge and environmental concern. To conclude, our study revealed that the use of carton as product packaging both has a strong effect on the consumer's perceived environmental friendliness and purchase intention, as opposed to the use of plastic. On the other hand, we did not find statistical support for our hypotheses that claimed the presence of an eco-label would lead to the same effect. Our study further revealed that the perceived environmental friendliness of a home care product has a direct positive effect on purchase intention. However, when the same construct

was used as a mediator, we only found partial support for our analyses. While it did fully mediate the effect of carton on purchase intention, no relationship of mediation was found between eco-labeling and purchase intention. In terms of our moderators, we found that green product knowledge partially moderated the relationship between the environmental cues and perceived environmental friendliness, while the effect of perceived environmental friendliness on purchase intention was indeed moderated by environmental concern. In summary, the evidence derived from this research has successfully demonstrated how consumers' purchase intentions for home care products are affected by different environmental cues on product packaging.

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11.0 Appendix

Appendix 1 (Survey Questionnaire)

Start of Block: Introduksjon1

Kjære respondent,

Tusen takk for at du deltar i denne undersøkelsen, som er en del av vår masteroppgave i strategisk markedsføringsledelse ved Handelshøyskolen BI.

Studieoversikt:
Dette er en undersøkelse som omhandler produktdesign for husholdningsprodukter. Du vil bli presentert et vaskemiddelprodukt fra Klar, som vi ber deg studere nøye. Undersøkelsen vil ta omtrent 6 minutter å gjennomføre.

Konfidensialitet:
All data vil bli behandlet konfidensielt i henhold til GDPR lovverket. Dataene vil bli lagret i en Qualtrics- database og er kun tilgjengelig for de som står ansvarlig for denne undersøkelsen.

Deltakelse:
Deltakelse i denne undersøkelsen er frivillig og anonym. Du har rett til å trekke deg når som helst ved å gå ut av nettleseren.

Hvis du har spørsmål vedrørende undersøkelsen, vennligst ta kontakt med: ceciliejn@hotmail.com eller asyrstad@gmail.com.

På forhånd, tusen takk for din deltakelse!

End of Block: Introduksjon1

Start of Block: Screening

Screening Har du kjøpt vaskemiddel i løpet av de siste seks månedene?

- ○ Ja (1)
- ○ Nei (2)

Skip To: End of Survey If Har du kjøpt vaskemiddel i løpet av de siste seks månedene? = Nei

End of Block: Screening

Start of Block: Introduksjon2

Du vil nå bli presentert et bilde av et vaskemiddelprodukt fra Klar. Ta deg god tid til å studere bildet før du svarer på spørsmålene.

End of Block: Introduksjon2

Start of Block: Manipulasjon

Page Break

Q1 Basert på bildet ovenfor, vennligst ranger i hvilken grad du vurderer produktet som miljøvennlig.

	1	2	3	4	5	6	7	
Jeg vurderer definitivt ikke produktet som miljøvennlig	○	○	○	○	○	○	○	Jeg vurderer definitivt produktet som miljøvennlig

Q2 I hvilken grad er du enig i følgende utsagn fra (1) svært usannsynlig til (7) svært sannsynlig?

	Svært usannsynlig (1)	Usannsynlig (2)	Noe usannsynlig (3)	Verken sannsynlig eller usannsynlig (4)	Noe sannsynlig (5)	Sannsynlig (6)	Svært sannsynlig (7)
Jeg vil kjøpe dette produktet (1)	○	○	○	○	○	○	○
Jeg vurderer å kjøpe dette produktet (2)	○	○	○	○	○	○	○

Q3 Alt tatt i betraktning vil jeg si at dette vaskemiddelet har:

	1	2	3	4	5	6	7	
Generell dårlig kvalitet	○	○	○	○	○	○	○	Generell god kvalitet
Veldig dårlig kvalitet	○	○	○	○	○	○	○	Veldig god kvalitet

End of Block: Manipulasjon

Start of Block: Generelle spørsmål

Q4 I hvilken grad er du enig i følgende påstander fra (1) svært uenig til (7) svært enig? *Grønne produktattributter: Attributter som brukes for å indikere om et produkt er miljøvennlig.

	Svært uenig (1)	Uenig (2)	Noe uenig (3)	Verken enig eller uenig (4)	Noe enig (5)	Enig (6)	Svært enig (7)
Jeg har kjennskap til grønne produktattributter (1)	○	○	○	○	○	○	○
Jeg kan skille mellom grønne produktattributter (f.eks. miljømerker, emballasjemateriale, fargebruk, bildebruk) (2)	○	○	○	○	○	○	○
Jeg kan forklare andre mennesker hva fordelene ved grønne produktattributter er (3)	○	○	○	○	○	○	○
Jeg kan forklare andre mennesker betydningen av grønne produktattributter (f.eks. miljømerker, emballasjemateriale, fargebruk og bildebruk) (4)	○	○	○	○	○	○	○

End of Block: Generelle spørsmål

Start of Block: Generelle spørsmål

Q5 I hvilken grad er du enig i følgende påstander fra (1) svært uenig til (7) svært enig?

	Svært uenig (1)	Uenig (2)	Noe uenig (3)	Verken enig eller uenig (4)	Noe enig (5)	Enig (6)	Svært enig (7)
Vi nærmer oss grensen for hvor mange mennesker jorden kan forsørge (1)	○	○	○	○	○	○	○
Mennesker har rett til å modifisere det naturlige miljøet slik at det passer deres behov bedre (2)	○	○	○	○	○	○	○
Når mennesker forstyrrer naturen, gir det ofte katastrofale konsekvenser (3)	○	○	○	○	○	○	○
Planter og dyr eksisterer først og fremst for å brukes av mennesker (4)	○	○	○	○	○	○	○
Mennesker må leve i harmoni med naturen for å overleve (5)	○	○	○	○	○	○	○
Mennesker trenger ikke tilpasse seg det naturlige miljøet fordi de kan gjøre endringer som passer deres behov (6)	○	○	○	○	○	○	○

End of Block: Generelle spørsmål

Start of Block: Demografiske spørsmål

Q6 Vennligst oppgi din alder

_____

Q7 Hvilket kjønn identifiserer du deg mest med?

- Kvinne (1)
- Mann (2)
- Annet (3)

Q8 Hva er din høyeste fullførte utdanning?

- Grunnskole (1)
- Videregående (2)
- Bachelorgrad (3)
- Mastergrad (4)
- PhD (5)

End of Block: Demografiske spørsmål

Appendix 2 (Factor Analyses)

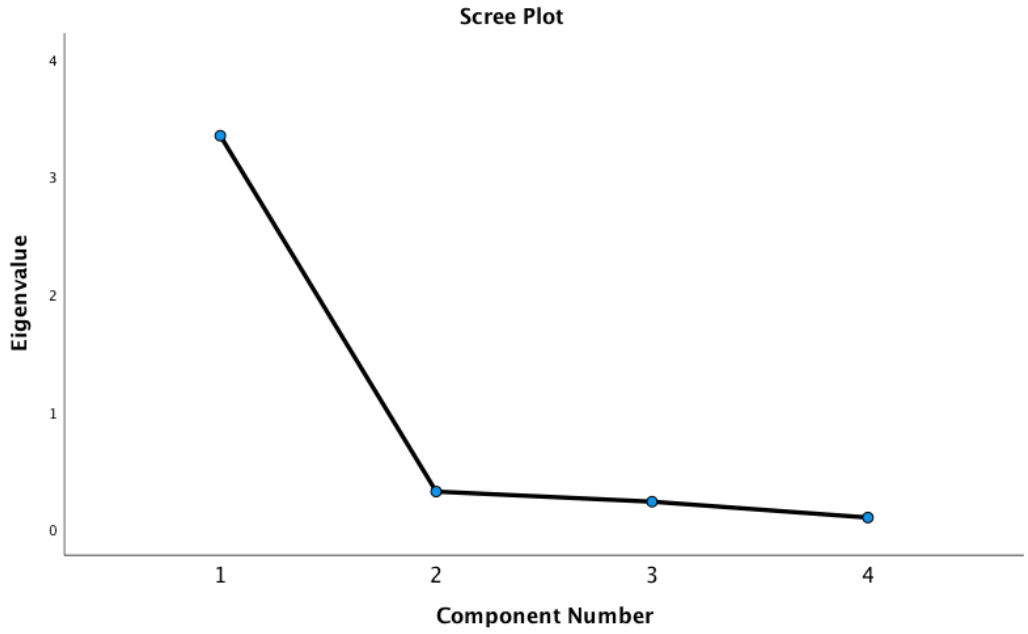
Convergent Analysis (Green Product Knowledge)

Green Product Knowledge

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.822
Bartlett's Test of Sphericity	Approx. Chi-Square	625.172
	df.	6
	Sig.	<.001

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loading		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative%
1	3.348	83.705	83.705	3.348	83.705	83.705
2	.320	7.990	91.694			
3	.234	5.840	97.534			
4	.0900	2.466	100.000			



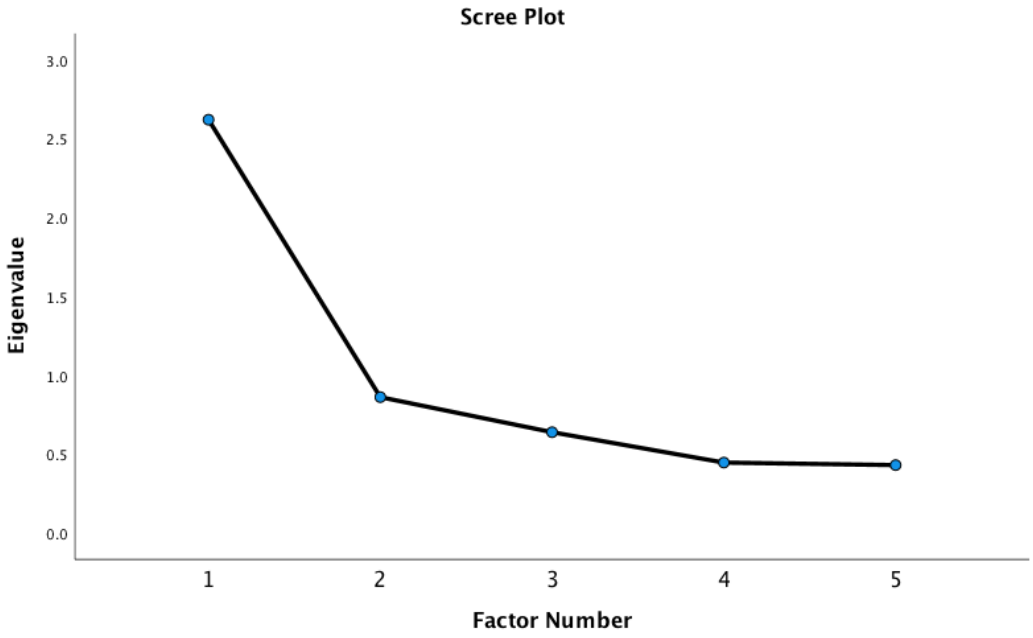
Component Matrix		
	Initial	Extraction
Item 1- Jeg har kjennskap til grønne produktattributter	1	.881
Iten 2- Jeg kan forklare andre mennesker hva fordelene ved grønne produktattributter er	1	.936
Item 3 - Jeg kan forklare andre mennesker betydningen av grønne	1	.936
Item 4 - Jeg kan skille mellom grønne	1	.905

Convergent Analysis (Environmental Concern)

Environmental Concern

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	220.574
	df.	10
	Sig.	<.001

	Initial Eigenvalues			Extraction Sums of Squared Loading		
Component	**Total**	**% of Variance**	**Cummulative %**	**Total**	**% of Variance**	**Cummulative %**
1	2.620	52.407	52.407	2.067	41.345	41.345
2	.862	17.238	69.645			
3	.640	12.792	82.437			
4	.447	8.942	91.378			
5	.431	8.622	100.00			



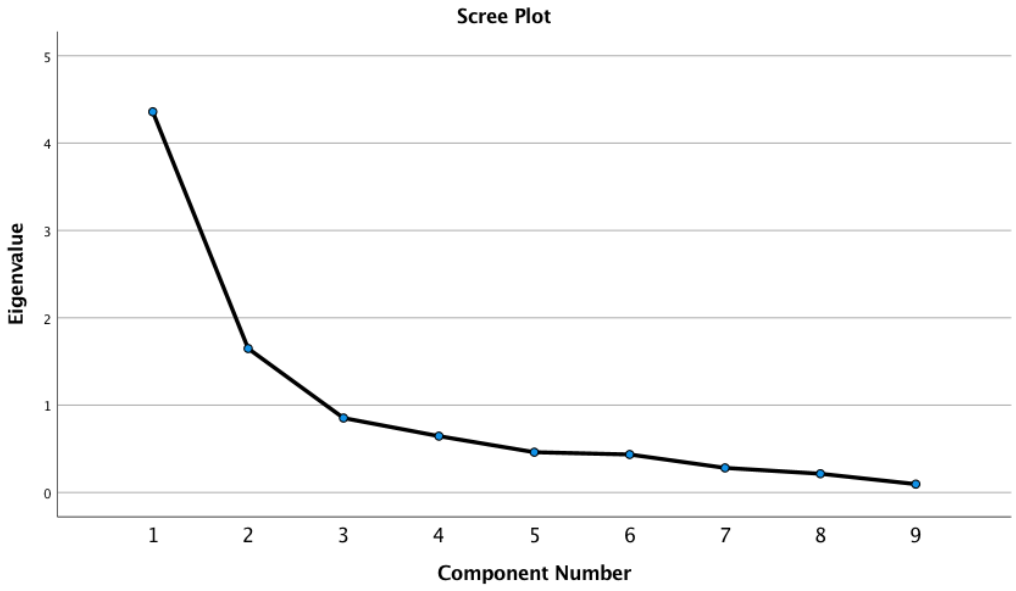
Component Matrix		
	Initial	Extraction
Item 1- Vi nærmer oss grensen for hvor mange mennesker jorden kan forsørge	1	.657
Iten 2- Når mennesker forstyrrer naturen, gir det ofte katastrofale konsekvenser	1	.802
Item 3 - Mennesker må leve i harmoni med naturen for å overleve	1	.786
Item 4 - Mennesker trenger ikke tilpasse seg det naturlige miljøet fordi de kan gjøre endringer som passer deres behov	1	.750
Item 5 - Mennesker har rett til å modifisere det naturlige miljøet slik at det passer deres behov bedre	1	.604

Environmental_Concern_Green_Product_Knowledge

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.840
Bartlett's Test of Sphericity	Approx. Chi-Square	1818.675
	df.	36
	Sig.	<.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loading		
Component	**Total**	**% of Variance**	**Cummulative %**	**Total**	**% of Variance**	**Cummulative %**
1	4.359	48.435	48.435	4.359	48.435	48.435
2	1.649	18.323	66.758	1.649	18.323	66.758
3	.853	9.483	76.241			
4	.646	7.177	83.419			
5	.464	5.134	88.552			
6	.436	4.842	93.394			
7	.282	3.139	96.533			
8	.215	2.393	98.927			
9	.097	1.073	100.00			



Rotated Component Matrix		
	1	2
Item 1- Jeg har kjennskap til grønne produktattributter	**.854**	.210
Item 2- Jeg kan skille mellom grønne produktattributter (f.eks miljømerker, emballasjemateriale, fargebruk,	**.892**	.163
Item 3 - Jeg kan forklare andre mennesker hva fordelene ved grønne produktattributter er	**.902**	.239
Item 4 - Jeg kan forklare andre mennesker betydningen av grønne produktattributter	**.914**	.195
Item 5- Vi nærmer oss grensen for hvor mange mennesker jorden kan forsørge	.088	**.675**
Item 6- Når mennesker forstyrrer naturen, gir det ofte katastrofale konsekvenser	.119	**.807**
Item 7 - Mennesker må leve i harmoni med naturen for å	.135	**.781**
Item 8 - Mennesker trenger ikke tilpasse seg det naturlige miljøet fordi de kan gjøre endringer som passer deres behov	.268	**.548**
Item 9 - Mennesker har rett til å modifisere det naturlige miljøet slik at det passer deres behov	.266	**.686**

Appendix 3 (Independent Samples t-Tests)

Packaging Material and Perceived Environmental Friendliness ($H1_a$)

Group Statistics

	Conditions	N	Mean	Std. Deviation	Std. Error Mean
Perceived Environmental Friendliness	1	42	4.40	1.768	.273
	3	37	5.38	1.139	.187

		Levene's test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	Sig	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environnmental Friendliness	Equal variances assumed	9.435	.003	-2,866	77	.003	.005	-0,974	.340	-1,65	-0,297
	Equal variances not assumed			-2,943	70.833	.002	.004	-0,974	.331	-1,633	-0,314

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmnetal Friendliness	Cohen´s d	1.507	-0,646	-1,098	-0,191
	Hedges´correction	1.522	-0,64	-1,087	-0,189
	Glass´s delta	1.139	-0,855	-1,334	-0,366

Packaging Material and Purchase Intention ($H1_b$)

Group Statistics

	Conditions	N	Mean	Std. Deviation	Std. Error Mean
Purchase Intention	1	42	3.976	2.012	.310
	3	37	4.891	1.242	.204

		Levene´s test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	**Sig**	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Purchase Intention	Equal variances assumed	17.833	<.001	-2,394	77	.010	.019	-0,9157	-0,38245	-1,677	-0,154
	Equal variances not assumed			-2,464	69.371	.008	.016	-0,9157	-0,37162	-1,657	-0,174

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Purchase Intention	Cohen´s d	1.696	-0,54	-0,988	-0,88
	Hedges´correction	1.712	-0,535	-0,979	-0,87
	Glass´s delta	1.242	-7,37	-1,206	-0,259

Eco-labelling and Perceived Environmental Friendliness (Plastic) ($H2_a$)

Group Statistics

Perceived	Conditions	N	Mean	Std. Deviation	Std. Error Mean
Environmental	1	42	4.40	1.768	.273
Friendliness	2	55	4.76	1.347	.182

		Levene´s test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	**Sig**	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	5.249	.024	-1,135	95	.130	.259	-0,359	.316	-0,986	0,269
	Equal variances not assumed			-1,095	74.311	.138	.277	-0,359	.328	-1,012	0,294

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmnetal Friendliness	Cohen´s d	1.543	-0,233	-0,635	0,171
	Hedges´correction	1.555	-0,231	-0,63	0,17
	Glass´s delta	1.347	-0,266	-0,67	0,139

Eco-labelling and Perceived Environmental Friendliness (Carton) ($H2_a$)

Group Statistics

Perceived	Conditions	N	Mean	Std. Deviation	Std. Error Mean
Environmental	3	37	5.38	1.139	.187
Friendliness	4	38	5.53	1.202	.195

		Levene´s test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	**Sig**	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	.337	.563	-0,547	73	.293	.586	-0,148	.271	-0,687	0.391
	Equal variances not assumed			-0,547	72.947	.293	.586	-0,148	0.270	-0,687	0.391

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmnetal Friendliness	Cohen´s d	1.171	-0,126	-0,579	0,327
	Hedges´correction	1.184	-0,125	-0,573	0,324
	Glass´s delta	1.202	-0,123	-0,576	0,331

Eco-labelling and Purchase Intention (Plastic) ($H2_b$)

Group Statistics

Purchase Intention	Conditions	N	Mean	Std. Deviation	Std. Error Mean
	1	42	3.976	2.012	.310
	2	55	4.218	1.701	.229

		Levene´s test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	**Sig**	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Purchase Intention	Equal variances assumed	2.046	.156	-0,641	95	.262	.523	-0,241	.377	-0,991	0,507
	Equal variances not assumed			-0,627	79.922	.266	.533	-0,241	.386	-1,01	0,526

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Purchase Intention	Cohen´s d	1.842	-0,131	-0,533	0,271
	Hedges´correction	1.856	-0,13	-0,529	0,269
	Glass´s delta	1.701	-0,142	-0,544	0,261

Eco-labelling and Purchase Intention (Carton) ($H2_b$)

Group Statistics

Purchase Intention	Conditions	N	Mean	Std. Deviation	Std. Error Mean
	3	37	4.891	1.242	.204
	4	38	4.973	1.437	.233

		Levene´s test for Equality of Variances				Significance				95% Confidence interval of the	
Independent Samples Test		**F**	Sig	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Purchase Intention	Equal variances assumed	.496	.483	-0,263	73	.397	.793	-0,081	.310	-0,7	0,537
	Equal variances not assumed			-0,264	71.994	.396	.793	-0,081	.310	-0,699	0,536

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Purchase Intention	Cohen´s d	1.344	-0,061	-0,513	0,392
	Hedges´correction	1.358	-0,6	-0,508	0,388
	Glass´s delta	1.437	-0,057	-0,509	0,396

Appendix 4 (ANOVA and Bonferroni)

Perceived Environmental Friendliness

Descriptives

Perceived Environmental Friendliness

					95% Confidence Interval for Mean			
Conditions	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
1	42	4.40	1.768	.273	3.85	4.96	1	7
2	55	4.76	1.347	.182	4.40	5.13	2	7
3	37	5.38	1.139	.187	5.0	5.76	2	7
4	38	5.53	1.202	.195	5.13	5.92	3	7
Total	172	4.98	1.451	.111	4.76	5.20	1	7

Perceived Environmental Friendliness **ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33.684	3	11.228	5.782	<.001
Within Groups	326.223	168	1.942		
Total	359.907	171			

Multiple Comparisons

Dependent Variable: Perceived Environmental Friendliness

Bonferroni

					95% Confidence Interval	
(I) Conditions	(J) Conditions	Mean Difference	Std Error	Sig.	Lower Bound	Upper Bound
1	2	-0,359	.286	1.000	-1,12	0,4
	3	**-0,974**	.314	.014	-1,81	-0,13
	4	**-1,122**	.312	.003	-1,95	-0,29
2	1	0,359	.286	1.000	-0,4	1,12
	3	-0,615	.296	.237	-1,41	0,18
	4	-0,763	.294	.062	-1,55	0,02
3	1	**0,974**	.314	.014	0,13	1,81
	2	0,615	.296	.237	-18	1,41
	4	-0,148	.322	1.000	-1,01	0,71
4	1	**1,122**	.312	.003	-0,29	1,95
	2	0,763	.294	.062	-0,02	1,55
	3	0,148	.322	1.00	-0,71	1,01

**Bold font, The mean difference is significant at the 0.05 level.*

Purchase Intention

Descriptives

Purchse Intention

Conditions	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	42	3.97	2.012	.310	3.34	4.60	1	7
2	55	4.21	1.701	.229	3.75	4.67	1	7
3	37	4.89	1.242	.204	4.47	5.30	1	7
4	38	4.97	1.437	.233	4.50	5.44	1	7
Total	172	4.47	1.683	.128	4.21	4.72	1	7

Purchase Intention **ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29.955	3	9.985	3.692	.013
Within Groups	454.399	168	2.705		
Total	484.355	171			

Multiple Comparisons

Dependent Variable: Purchase Intention

Bonferroni

(I) Conditions	(J) Conditions	Mean Difference (I-J)	Std Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-0,241	.337	1.000	-1,141	0,657
	3	-0,915	.370	.087	-1,905	0,074
	4	**-0,997**	.368	.045	-1,98	-0,014
2	1	0,241	.337	1.000	-0,657	1,141
	3	-0,673	.349	.334	-1,607	0,259
	4	-0,755	.346	.185	-1,681	0,17
3	1	0,915	.370	.087	-0,074	1,905
	2	0,674	.349	.334	-0,259	1,607
	4	-0,081	.379	1.000	-1,095	0,932
4	1	**0,997**	.368	.045	1,014	1,98
	2	0,755	.346	.185	-0,17	1,681
	3	0,081	.379	1.000	-0,932	1,095

**Bold font, The mean difference is significant at the 0.05 level.*

Appendix 5 (Mediation Analyses)

Output from the PROCESS procedure in SPSS (version 4.1) for the environmental cue of carton, perceived environmental friendliness (PEF) and purchase intention simple mediation analysis.

Run MATRIX procedure:

**************** PROCESS Procedure for SPSS Version 4.1 ****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

```
**************************************************************************
Model  : 4
  Y  : Purchase
  X  : Carton
  M  : Q1_PEF

Sample
Size:  172

**************************************************************************
OUTCOME VARIABLE:
 Q1_PEF

Model Summary
      R     R-sq      MSE        F       df1       df2        p
   .2897     .0839    1.9394    15.5753    1.0000   170.0000     .0001

Model
         coeff       se        t        p      LLCI      ULCI
constant    4.6082     .1414    32.5902     .0000    4.3291    4.8874
Carton       .8451     .2141     3.9466     .0001     .4224    1.2678

**************************************************************************
OUTCOME VARIABLE:
 Purchase

Model Summary
      R     R-sq      MSE        F       df1       df2        p
   .6397     .4092    1.6933    58.5226    2.0000   169.0000     .0000

Model
         coeff       se        t        p      LLCI      ULCI
constant     .8068     .3557     2.2681     .0246     .1046    1.5089
Carton       .2135     .2090     1.0215     .3085    -.1991     .6262
Q1_PEF       .7175     .0717    10.0126     .0000     .5761     .8590

************************** TOTAL EFFECT MODEL ***************************
**
OUTCOME VARIABLE:
 Purchase

Model Summary
      R     R-sq      MSE        F       df1       df2        p
   .2423     .0587    2.6819    10.6028    1.0000   170.0000     .0014

Model
         coeff       se        t        p      LLCI      ULCI
constant    4.1134     .1663    24.7382     .0000    3.7852    4.4416
Carton       .8199     .2518     3.2562     .0014     .3229    1.3170
```

********** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **********
****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
.8199	.2518	3.2562	.0014	.3229	1.3170

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.2135	.2090	1.0215	.3085	-.1991	.6262

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Q1_PEF	.6064	.1730	.2955	.9673

********** ANALYSIS NOTES AND ERRORS **********
***

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

WARNING: Variables names longer than eight characters can produce incorre
ct output
when some variables in the data file have the same first eight characters. Sho
rter
variable names are recommended. By using this output, you are accepting all
risk
and consequences of interpreting or reporting results that may be incorrect.

------ END MATRIX -----

Output from the PROCESS procedure in SPSS (version 4.1) for the environmental cue of eco-label, perceived environmental friendliness (PEF) and purchase intention simple mediation analysis.

Run MATRIX procedure:

********** PROCESS Procedure for SPSS Version 4.1 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 4
Y : Purchase
X : Ecolabel
M : Q1_PEF

Sample
Size: 172

****
OUTCOME VARIABLE:
Q1_PEF

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0739	.0055	2.1055	.9335	1.0000	170.0000	.3353

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.8608	.1633	29.7739	.0000	4.5385	5.1830
Ecolabel	.2145	.2220	.9662	.3353	-.2238	.6528

****
OUTCOME VARIABLE:
Purchase

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6369	.4057	1.7034	57.6734	2.0000	169.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.8096	.3661	2.2116	.0283	.0869	1.5322
Ecolabel	-.0369	.2002	-.1840	.8542	-.4322	.3584
Q1_PEF	.7397	.0690	10.7226	.0000	.6035	.8759

********** TOTAL EFFECT MODEL **********
OUTCOME VARIABLE:
Purchase

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0362	.0013	2.8454	.2228	1.0000	170.0000	.6375

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.4051	.1898	23.2109	.0000	4.0304	4.7797
Ecolabel	.1218	.2581	.4720	.6375	-.3877	.6313

********** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **********

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1218	.2581	.4720	.6375	-.3877	.6313

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
-.0369	.2002	-.1840	.8542	-.4322	.3584

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Q1_PEF	.1587	.1673	-.1596	.4994

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

WARNING: Variables names longer than eight characters can produce incorrect output
when some variables in the data file have the same first eight characters. Shorter
variable names are recommended. By using this output, you are accepting all risk
and consequences of interpreting or reporting results that may be incorrect.

------ END MATRIX -----

Appendix 6 (Linear Regression)

Model Summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.637	.406	.402	1.30143

ANOVA

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	196.423	1	196.423	115.972	<0.000
	Residual	287.931	170	1.694		
	Total	484.355	171			

Coefficients

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.794	.356		2.234	.027
	Perceived Environmental Belief	.739	.069	.637	10.769	<.001

Appendix 7 (Moderator Analyses)

Green Product Knowledge (Condition 1)

	Green Product Knowledge	N	Mean	Std. Deviation	Std. Error Mean
Perceived Environmental Friendliness	Low	14	4.36	1.216	.325
	High	28	4.43	2.008	.379

		Levene´s test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence interval of the Difference	
Independent Samples Test		**F**	**Sig**	**t**	**df**	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	5.422	.025	-0,122	40	.452	.904	-0,71	.586	-1,255	1,112
	Equal variances not assumed			-0,143	38.321	.444	.887	-0,71	.500	-1,082	0,94

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmental Friendliness	Cohen´s d	1.789	-0,04	-0,681	0,602
	Hedges´correction	1.824	-0,039	-0,668	0,591
	Glass´s delta	2.008	-0,036	-0,677	0,606

Green Product Knowledge (Condition 2)

Group Statistics

	Green Product Knowledge	N	Mean	Std. Deviation	Std. Error Mean
Perceived Environmental Friendliness	Low	19	4.68	1.336	.306
	High	36	4.81	1.369	.228

		Levene´s test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence interval of the Difference	
Independent Samples Test		**F**	**Sig**	**t**	**df**	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	.272	.604	-0,315	53	.377	.754	-0,121	.385	-0,894	.651
	Equal variances not assumed			-0,318	37.570	.376	.753	-0,121	.382	-0,985	.652

				95% Confidence Interval	
Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmental Friendliness	Cohen´s d	1.358	-0,089	-0,645	0,467
	Hedges´correction	1.378	-0,088	-0,636	0,46
	Glass´s delta	1.369	-0,089	-0,644	0,468

Green Product Knowledge (Condition 3)

Group Statistics

	Green Product Knowledge	N	Mean	Std. Deviation	Std. Error Mean
Perceived Environmental Friendliness	Low	7	5.00	1.633	.617
	High	30	5.47	1.00	.184

		Levene´s test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence interval of the Difference	
Independent Samples Test		**F**	**Sig**	**t**	**df**	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	1.220	.277	-0,975	35	.168	.336	-0,467	.478	-1,438	.505
	Equal variances not assumed			-0,725	7.103	.246	.492	-0,467	.644	-1,985	1.052

				95% Confidence Interval	
Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmental Friendliness	Cohen´s d	1.140	-0,409	-1,235	.422
	Hedges´correction	1.165	-0,401	-1,208	.413
	Glass´s delta	1.008	-0,463	-1,29	.372

Green Product Knowledge (Condition 4)

Group Statistics

	Green Product Knowledge	N	Mean	Std. Deviation	Std. Error Mean
Perceived Environmental Friendliness	Low	17	4.88	1.269	.308
	High	21	6.05	.865	.189

		Levene's test for Equality of Variances		t-test for Equality of Means						95% Confidence interval of the Difference	
						Significance					
Independent Samples Test		**F**	Sig	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Differene	Lower	Upper
Perceived Environmental Friendliness	Equal variances assumed	2.446	.117	-3,358	36	<.001	.002	-1,165	.347	-1,869	-0,462
	Equal variances not assumed			-3,228	27.212	.002	.003	-1,165	.361	-1,906	-0,425

Independent Samples Effect Sizes		Standardizer	Point Estimate	Lower	Upper
Perceived Environmental Friendliness	Cohen's d	1.063	-1,096	-1,776	-0,402
	Hedges'correction	1.086	-1,073	-1,739	-0,393
	Glass's delta	.865	-1,348	-2,098	-0,574

Environmental Concern

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.638a	.407	.400	1.303	.407	57.999	2	169	<.001
2	.652b	.425	.415	1.287	.018	5.278	1	168	.023

a. Predictors: (Constant), Perceived Environmental Friendliness, Environmental Concern

b. Predicotrs: (Constant), Perceived Environmental Friendliness, Environmental Concern, moderator

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	197.140	2	98.570	57.999	<.001b
	Residual	287.215	169	1.699		
	Total	484.355	171			
2	Regression	205.889	3	68.630	41.405	<.001c
	Residual	278.466	168	1.658		
	Total	484.355	171			

a. Dependent Variable: Purchase Intention

b. Predictors (Constant), Perceived Environmental Friendliness, Environmental Concern

c. Predictors (Constant), Perceived Environmental Friendliness, Environmental Concern, Moderator

Coefficientsa

		Unstandardized	Coefficients	Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.417	.682		.611	.542
	Environmental Concern	.074	.115	.039	.649	.517
	Perceived Environmental Friendliness	.734	.069	.633	10.627	<.001
2	(Constant)	.399	.674		.592	.555
	Environmental Concern	.112	.114	.058	.982	.327
	Perceived Environmental Friendliness	.693	.071	.597	9.811	<.001
	Moderator	.196	.086	.140	2.297	.023

a. Dependent Variable: Purchase Intention