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Does Eco-Friendliness Come at the Expense of Quality?

An Experimental Study on How Green Product Attributes Affect Quality and Preference for Eco-Friendly Products

Ellen Elisabeth Bjorvatn and Åsta Nordeng Bjarnadottir

Supervisor: Siv Skard

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Preface

“This master thesis is one of a series of papers and reports published by the Center for Service Innovation (CSI). Center for Service Innovation (CSI) is a coordinated effort by NHH to focus on the innovation challenges facing the service sector and involves 15 business and academic partners. It aims to increase the quality, efficiency and commercial success of service innovations and to enhance the innovation capabilities of its business and academic partners. CSI is funded through a significant eight year grant from the Research Council of Norway and has recently obtained status as a Centre for Research-based Innovation (SFI).”

Abstract

There is unrealized potential for businesses in the market of green products as more consumers are moving in the direction of conscious consumption. In order to understand how to best exploit this potential, there has been an increased amount of research about the drivers and barriers that lay behind the adoption of green products. We explore how perceived quality can act as one of these barriers. We aim to find out how changing the centrality of a green attribute changes the perceived greenness and perceived quality across two different product categories, respectively the gentle and strong product categories. Further, we explore how perceived greenness and perceived quality affect preference for green products. In addition, we try to uncover a perceived trade-off between eco-friendliness and quality, and how this varies between the two product categories. This research lays the foundation for further research on strategies to reduce this trade-off.

Conducting an IAT, an online experiment and a field experiment, we find that communicating eco-friendliness is an asset in the gentle product category if the green attribute is product-related. A green non-product-related attribute might have a negative effect on quality, and thus preference. Although, we find that a green non-product-related attribute can sometimes have a positive effect on preference as well. For the strong product category, we find that there is a perceived trade-off between quality and eco-friendliness, making it less beneficial to communicate the eco-friendliness of strong products. However, we do find that if the perceived quality is at a certain level, eco-friendliness can increase preference even though the product might be perceived as having lower quality. We also find that the effect of a green attribute on product preference is mediated by perceived quality.

Keywords: Green Products, Barriers to Adoption, Environmentally Friendliness, Quality, Preference, Trade-off, Implicit Associations, Product Attributes, Centrality

Acknowledgements

This master thesis is part of the requirements for the MSc in Economics and Business Administration program at the Norwegian School of Economics (NHH). Our major is in Marketing and Brand Management (MBM).

Sustainability, circular economy and green consumerism are topics that highly interest us, and we therefore feel honored to have been a part of the research project between NHH and Orkla regarding circular business models. Studying a topic as important as sustainability and green consumption has been rewarding, exiting and extremely educational.

First, we would like to extend our gratitude to Siv Skard for supervising us in this process. Your guidance and engagement in this project have been unmissable to us. We highly appreciate your close cooperation, always being open for discussion and challenging us to think critically. Second, we would like to thank Orkla for letting us be part of this project and providing us with the necessary resources to conduct this research. We also want to thank Lars Jacob T. Pedersen and Sveinung Jørgensen who were two of the initiators of this project and have helped us regarding communication with Orkla. Additionally, we would like to thank Katrine Nødtvedt for input when preparing the IAT, as well as our fellow students Jørgen Skoglund and Sondre Handeland whom we cooperated with in carrying out the experiment. Lastly, we would like to thank the Center for Service Innovation (CSI) for funding the research project.

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Ellen Bjorvatn and Åsta Bjarnadottir

Table of Contents

List of Figures

List of Tables

1. Introduction

1.1 Background

In recent years, people have become more and more educated about the environmental impact of excessive consumption (Sena, 2018). This has created a wave of conscious consumers, changing the surroundings in which firms operate. Firms meet new requirements in how to run their businesses because consumers demand that they operate responsibly and ethically. In addition, consumers are becoming more aware of how their actions affect the planet and have started to consume less and act more responsibly. This movement is by some called conscious consumption and consists of people who act in an environmentally friendly manner, and carefully select what to buy in order to minimize the negative impact on the environment (The Guardian, 2015). In fact, it may seem that buying and acting green has almost become a trend in many social environments (Olsen, Slotegraaf and Chandukalaet, 2014). Businesses are increasingly conducting market research on the topic, revealing that consumers often want healthier and more environmentally friendly products (Ditlev-Simonsen, 2017). In fact, as much as a third of consumers claim to prefer sustainable brands according to an international study conducted by Unilever (Unilever, 2017). Even though we have seen a positive development, we have a long way to go. Eco-friendly products are still considerably more expensive than non-eco-friendly products, preventing many consumers from choosing the green option (Gibbs and Hungerford, 2016; Stewart, 2016).

The problem is that consumers do not seem to choose the environmentally friendly option when confronted with the choice in the store (Ditlev-Simonsen, 2017), resulting in inconsistent behavior according to their attitudes. This is evident in several other aspects of life as well. For example, the consumption of clothing and accessories has doubled in the last few years (Ditlev-Simonsen, 2017), young people travel more (Mohn, 2013) and research reveals that there will be more plastic in the ocean than fish by 2050 (Kaplan, 2016; Wearden, 2016; Cronin, 2017). This evident gap between attitudes and behavior is popularly referred to as the attitude-behavior gap (Moser 2015; Schill and Shaw, 2016; Cohn and Vaccaro 2015).

However, many studies also reveal that the sales of green products are increasing. According to a study conducted by Umwelt Bundesamt (2017), sales of green products increased by seven percent in 2015 in the product categories homes and living, mobility and food. An international report from 2014 states that 55% of consumers have a higher willingness to pay (WTP) for

environmentally friendly products (Sena, 2018). Moreover, the market for organic products has experienced significant growth, from only generating $3.4 billion in 1997 to astoundingly $35 billion in 2014 (Sena, 2018). A third study confirming this finding, is GfK's study of 25 000 consumers, where they find that 56% of the consumers reported a willingness to pay more for green products (Marketing Charts, 2017).

Even though many studies suggest that there is a positive development in WTP towards environmentally friendly products and that sales of such products are increasing, are these numbers still too low to align with consumers' reported attitudes. Numbers from the Green Industry Analysis (Franchisehelp, 2017) reveal that 88% of Americans report that they believe it is important to take care of the environment, which is considerably higher than the 55% who reported higher WTP toward green products (Sena, 2018; Marketing Charts, 2017). These numbers suggest that the amount of people reporting positive attitudes towards green products is much higher than the amount of people actually taking part in green consumer behavior. This shows that the attitude-behavior gap is still present.

This gap between attitudes and behavior regarding green consumption, indicates that there are some barriers consumers face when considering adopting green products. Gleim, Smith, Andrews and Cronin Jr. (2013) conducted a qualitative study to gain insight into the reasons why consumers choose not to purchase green alternatives. The authors arrived at eight main green barrier categories; quality, trust, apathy, price, expertise, availability and brand loyalty. The perceived high price was clearly the largest barrier, followed by perceived poor product quality and lack of expertise (Gleim et al., 2013). Two other noteworthy barriers, in which the authors identified, were respectively "green stigma" and "green reservations". Green stigma is about consumers' less than favorable perceptions of "green consumers" and "green messages". Green reservations, on the other hand, reflects consumers' skepticism towards if green consumption practices actually make a difference and ensure less harm to the environment.

It is important for businesses to be aware of these barriers in order to overcome them. As we have seen, consumers have in general positive attitudes and are to a certain extent willing to pay for green products, but there are some barriers that prevent consumers from acting in accordance with their attitudes. Consequently, there is large unrealized potential for businesses and manufacturers that can be realized by removing these barriers to adoption. According to a study conducted by Unilever (Unilever, 2017), there is an estimated €966 billion opportunity

for companies that partake in environmentally friendly behavior, especially if they communicate it in a clear way to the consumers. Some have started to realize this and are trying to meet the needs and wants of the consumer by producing more green products (Luchs, Naylor, Irwin and Raghunathan, 2010). Hence, "going green" is becoming a much-used business strategy (Sena, 2018), also making it an important research topic.

The current research is conducted as part of a research project regarding circular business models between Orkla and NHH. Orkla is a supplier of brands to the grocery sector, the pharmacy sector, and several other sectors for countries in the Nordic, the Baltic and in Central-Europe. They operate within the businesses of Orkla Foods, Orkla Confectionery & Snacks, Orkla Care and Orkla Food Ingredients (Orkla, 2018). The project was initiated to find new ways in which companies can reduce plastic waste and recycle more (NHH, 2018). In 2017, Orkla Care launched a new series of sustainable household cleaning products with the brand name "Klar" (Klardag, n.d.). The product line consists of hand soap, laundry detergent, bathroom spray, WC gel, dishwashing soap as well as an all-purpose soap, and reaches consequently over a large range of categories. What differentiates "Klar" from other brands carrying similar products is that the bottles are made out of 100% recycled material and there are no unnecessary chemicals in the products (Klardag, n.d.).

1.2 Purpose

The purpose of this research project is to explore a potential barrier consumers face when deciding to adopt environmentally friendly products, namely perceived quality. We wish to explore if consumers believe that a product's eco-friendliness is at the expense of quality, and understand the mechanisms behind this perceived trade-off. Moreover, we test if this trade-off is perceived differently when tested implicitly vs. explicitly. Lastly, we wish to discover what kind of product categories this trade-off is applicable in, and how the trade-off affects preference for the product. This gives us the following research question:

RQ_1: Is there a perceived trade-off between greenness and perceived quality and how does it affect product preference?

The thesis contains an experimental design with three studies. We conduct an Implicit Association Test (IAT) to test if the respondents perceive this trade-off implicitly. Hence, the purpose of study 1 is to test if respondents implicitly associate functional quality with eco-

friendly products in the gentle product category, and lower functional quality with eco-friendly products in the strong product category.

Study 2 builds on study 1 by exploring how perceived quality and perceived eco-friendliness affect product preference in respectively a gentle and strong category. We manipulate the greenness of the products, i.e. whether the product-related or non-product-related attribute is green, and present the respondents with these two manipulations in addition to a non-green product. Based on this, we seek to answer the following research question:

RQ_2: How does changing the centrality of an eco-friendly attribute affect the perceived greenness and quality of a product in a gentle vs. strong product category, and how does this affect preference for the product?

Based on benefit congruity with the valued attribute and the product category, we believe that strength-related attributes are more important for consumers when considering buying drain opener, and gentleness-related attributes are more important for people when considering buying body lotion. We therefore identify the following research question:

RQ_3: How does benefit congruity with the product category affect product preference?

To find more support for our findings from study 2, and to further investigate this matter, we conducted yet another study. In study 3, we test our hypotheses with the abovementioned manipulations on real products in a field experiment. We also used a different and more generalizable sample.

The overall goal of the project is to contribute with customer insights about perceived quality as a barrier to adoption that can build a base for further research and communication of sustainable products at Orkla. Thus, leading to increased sales of environmentally friendly products. Not only is this helpful for companies that produce and sell environmentally friendly products, but it is also extremely important for the planet. In addition, we hope that our findings can assist other businesses when developing strategies to reduce the barrier regarding perceived quality for eco-friendly products.

1.3 Structure

This thesis starts with a review of the relevant literature in chapter 2 that lays the foundation for our three studies. The literature review is closely related to our two main topics: attribute centrality and benefit congruity, as well as containing other minor theories relevant to our research questions. In chapter three, we present our conceptual model and drawing on relevant literature, present our hypotheses. We also describe our research design and argue for the choice of experimental design. Furthermore, we have one chapter for each study; chapter five covers Study 1, Study 2 is in chapter six and lastly, chapter seven contains Study 3. These chapters contain descriptions of sampling and procedure for the experiments, a presentation of the findings and a short discussion of the results. This is followed by a general discussion in chapter eight that combines all three studies. Finally, the implications of our findings are discussed, as well as suggestions for further research and the limitations of our study. The conclusion is also included in chapter eight.

To clarify, the terms “green”, “greenness”, “environmentally friendly” and “eco-friendly” are used interchangeably throughout the paper with no variation in the meaning inflicted in them.

2. Literature Review

2.1 Literature Search Process

This section contains a description of the literature search process. The main purpose of the literature review was to provide an overview over existing research within the field of "green consumption" in order to find our position in the literature. The research we found most interesting and that consequently laid the foundation for our current research is presented in section 2.2.

First review

We used the database Business Source Complete to search for existing literature within our field of study. We identified words we thought would be the most effective in leading us to relevant articles, and used these words actively in the search. Many of these words were taken from the "keywords" section in other relevant articles. We started pairing the search term "green products" with various words such as "drivers", "barriers", "adoption", "spillover", "purchase", "brand attitude", "framing" etc. Each search and the number of hits we got per search were listed in a table (Appendix A), and only papers that were peer-reviewed were considered. If the number of peer-reviewed papers exceeded 90, we only considered the ones that were on the Association of Business Schools' (ABS) list of marketing journals. When the number of peer reviewed papers were lower than 90, we considered all of them. Although, we did consider what journal the articles were published in and the publication date to ensure they were reliable sources. In addition, we restricted the search to papers that were published after January 1st 2010. We realized in hindsight, however, that we might have benefited from widening the time period. The search was also limited to papers written in English.

The second search term we paired various words with, was "green innovation", then "green behavior" and "eco-friendly". When reviewing the articles at this level of the process, we mostly read the abstracts and summaries of each article to quickly get a sense of what they were about. We did this to achieve a wide overview of the field of green consumption.

Second review

In the second review, we went through all the articles again. This time, we specifically looked for experimental studies and made two new tables in order to categorize our findings, one called "IV Drivers/Barriers" and the other called "IV Message Appeals" (Appendix A). In

these tables, we inserted respectively the independent variables (IV), mediators, moderators, dependent variables (DV), findings, method and source. We also conducted several new searches, as we now were able to specify the searches more. The process eventually led to the work done by Gershoff and Frels (2015) about attribute centrality and Luchs' et al. (2010) work about benefit congruity, which are the two most important building blocks for our research.

2.2 The Greenness-Quality Trade-off

There is a positive development in attitudes towards conscious consumption, and this development contributes to higher sales of green products. However, "being green" is not exclusively positive. Previous research identifies several barriers to adoption of green products; price, quality, trust, apathy, expertise, availability and brand loyalty (Gleim et al., 2013). Consumers' internal obstacles such as ethical standards, sense of responsibility and social pressures are also aspects frequently mentioned when discussing barriers to adoption (Johnstone and Tan, 2015). This thesis focuses on how perceived quality, or lack thereof, influences preference for green products.

As little research has been done on how perceived eco-friendliness affects perceived quality and how this affects preference for eco-friendly products, we wished to research this gap. To conduct research on this topic, it was important to lay the theoretical foundation.

2.2.1 Attribute Centrality

Research done by Gershoff & Frels (2015) indicates that the way people think about the attributes and features of a product can influence the whole perception of the product. How *central* a product attribute or feature is, plays a major role in how consumers perceive products. Feature centrality is defined as "the degree to which the feature is integral to the mental representation of an object, the degree to which it lends conceptual coherence" (Sloman, Love, and Ahn 1998, p. 190). To understand what defines a central vs. a peripheral attribute, Sloman et al. (1998) give an example that involves a robin. A robin can be described in various ways, it has a beak, has wings, lays eggs and is alive. The most immutable features of the ones mentioned, can be said to be "has a beak" and "has wings" while the two remaining features "lays eggs" and "is alive" are the most mutable (least central). People find it easier to imagine a robin that does not lay eggs or is dead, than to imagine a robin that does not have a beak or

wings. Having a beak and wings are harder to mutate than laying eggs and being alive, and are therefore central attributes of the robin.

Keller (1993) addresses the concepts of centrality and peripherality in a slightly different way. He refers to product-related attributes and non-product-related attributes. Product-related attributes are referred to as the ingredients necessary for performing the function of the product or service that is sought by consumers (Myers and Shocker, 1981). Specifically, these attributes relate to the physical composition of a product. Non-product-related attributes are those aspects of the product that relate to its purchase or consumption. Keller (1993) lists the four main types of non-product-related attributes as the following: price, packaging or product appearance, user imagery and usage imagery.

Gershoff and Frels' (2015) main hypothesis is that if the product-related attribute has an environmental benefit, the whole product will be perceived as greener more so than if the non-product-related attribute possesses the same environmental benefit. Centrality theory proposes that some attributes and features are perceived as more crucial in consumers' minds when it comes to defining products and product categories. The more directly related an attribute or feature is to the product, the more important it is in defining the object and what product category it belongs to (Gershoff and Frels, 2015). Therefore, one can argue that if the product-related attribute of a product is eco-friendly, the whole product will be categorized as more eco-friendly in the consumer's mind compared to when the eco-friendly attribute is non-product-related.

To sum up, Gershoff and Frels (2015) find that altering the centrality of a product attribute can influence consumers' evaluations of the entire product. Because centrality theory suggests that the presence of a central attribute is more important to the identification of an object than the presence of a peripheral attribute (Sloman et al., 1998), a green central attribute will affect the perceived greenness of the product more than a green peripheral attribute (Gershoff and Frels, 2015).

2.2.2 Benefit Congruity

The terms "attributes", "benefits" and "benefit congruity" are discussed throughout this paper, therefore, a clarification of these concepts is necessary. We have already defined product-related attributes and non-product-related attributes, which are the working terms for this thesis. Attributes in general are referred to as "(…) those descriptive features that characterize

a product or service – what a consumer thinks the product or service is or has and what is involved with its purchase or consumption" (Keller, 1993, p.4). A benefit is the "the personal value consumers attach to the product or service attributes – that is, what consumers think the product or service can do for them" (Keller, 1993, p.4). In other words, attributes are physical features of the product or service, while benefits are about what consumers expect from the product or service. Congruity, on the other hand, refers to how well the product attributes are consistent with the product category schemas. Previous research has showed that the level of congruity affects how consumers evaluate the product and consequently affect their intent to purchase the product (Meyers-Levy and Tybout, 1989).

Luchs et al. (2010) identify that the type of benefit sought by consumers affects preference for sustainable products. Thus, benefit-category congruity is a determining factor regarding preference for such products. The authors find that ethicality is positively associated with gentleness-related attributes, and negatively associated with strength-related attributes. Because there are differences in which types of attributes that are valued in different product categories, presence or absence of ethicality will according to Luchs et al. (2010) affect preference for sustainable products. The results suggest that consumers value gentleness in product categories such as baby shampoo, facial soaps and body lotion. Therefore, including ethicality as an attribute will increase preference for products in this category. Likewise, since most consumers value strength in products such as detergents, hand sanitizers and car tires, including ethicality as an attribute will create incongruity that decreases preference for the product (Luchs et al., 2010). Thus, the authors find that sustainability can be a liability in the strong product category, but a benefit in the gentle product category. This suggests that benefit congruity with the product category is essential for a green attribute to increase preference.

Moreover, Luchs et al. (2010) find that explicitly mentioning a product's strength can reduce the negative effect sustainability has on preference for the product in the strong category. By providing adequate information about the product, consumers can be reassured that eco-friendly products also perform well. Based on this, we can infer that eco-friendliness affects perceived quality. Even though Luchs et al. (2010) only show this effect in the strong product category, we expect that this effect will be apparent in the gentle product category as well. Gentle attributes are valued in gentle products and will according to the literature, increase the perceived quality due to the congruity with the product category. However, strength-related attributes are valued in the strong category. Therefore, by adding a green attribute to a strong product, the perceived quality will be reduced because this leads to incongruity between the

valued attribute and the product category (Luchs et al., 2010). This implies that there might exist a trade-off for products in the strong category. While, for products in the gentle category, eco-friendliness might have a positive effect on perceived quality.

An alternative explanation for this trade-off can be that consumers think that the company has diverted resources away from the quality of the product in order to make it green. This phenomenon is by Newman and colleagues (2014) called "resource allocation".

2.2.3 Resource Allocation

Newman et al. (2014) show that when a company produces an eco-friendly product, consumers are less likely to buy the product if the green benefit is perceived as intended rather than unintended. The authors suggest that making a product eco-friendly, can lead to a decrease in product preference amongst consumers. There are companies that have launched new products where the green benefit was unintentional, and the products were received more favorably amongst consumers than products with intentional green benefits (Newman et al., 2014). One of these companies is Apple Computers. They brought out a design for a new laptop, and emphasized in their promotion that the innovative use of aluminum was the main source behind the improved performance. It turned out to be an unexpected green benefit from using aluminum, and the laptops were more favorably received by consumers than a competing product with an intended green benefit (Newman et al., 2014).

The authors discover that this finding stems from a relationship between the firm's intentions and its allocation of resources. Some consumers assume that when a firm makes an effort in making a product greener, it is at the expense of something else. In this case, quality. Because companies have limited amount of resources, consumers automatically believe that if resources are put into making a product more environmentally friendly, less resources are put into the performance and durability of the product. This phenomenon can be explained by a mechanism called the zero-sum; when a product is superior on one dimension, another dimension of the product must be inferior (Chernev and Carpenter, 2001). However, if this same environmental benefit happens unintentionally, consumers do not think that it happened at the expense of the performance. Consequently, believing that the product is similar to the non-green option regarding quality (Newman et al., (2014).

2.2.4 Consumer Inference Making

Luchs et al. (2010) found that consumers associate higher ethicality with gentleness-related attributes and lower ethicality with strength-related attributes. Consequently, the positive effect of product greenness on preference is reduced when strength-related attributes are valued. They argue that this can partially be explained by consumer inference making. Consumers do not always have the needed information or knowledge to make an informed opinion about products. This is especially relevant in the case of sustainability because consumers might not have perfect information about an eco-friendly product and how the green benefit affects quality. In order to make up for the "unknown", consumers use inference making to form product judgments. Prior experiences and knowledge about other products influence consumers' opinions about products with e.g. environmentally friendly attributes (Luchs et al., 2010).

Consumers sometimes use a causal or an ecological relationship between missing attributes and known attributes to create inferences about a product with missing information. This is what Dick, Chakravarti and Biehal (1990) call probabilistic consistency. When evaluating a product where the quality is unknown, consumers can use a perceived price-quality correlation to provide a basis for the quality inference. Furthermore, categorization theory suggests that an important cue for inference making is the category level at which the product is positioned (Sujan and Dekleva, 1987). This suggests that the product category, i.e. strong or gentle, might influence the inferred product attributes. This is in line with what Luchs et al. (2010) find about sustainable products being associated with gentleness-related products.

For inputs in memory to have influence on consumer judgments, the inputs must be relevant and accessible in the mind (Feldman and Lynch, 1988; Lynch et al., 1988). If the information in mind is irrelevant, consumers might notice that the product is missing information, but not use it in the decision process (Dick et al., 1990). In addition, information with low accessibility cannot be retrieved easily, making it useless in inference making. When evaluating a product with missing information, consumers might assess its relevance to task performance. The perceived relevance might be contingent upon factors such as relative attribute importance (Dick et al., 1990).

Common psychological theory states that there are two different ways in which we process information; system 1 and system 2 processing, often called the dual-process view

(Kahneman, 2003). These are commonly referred to as the intuitive mode and the analytic mode. The intuitive mode is characterized as the effortless, automatic and rapid way in which we process information. On the contrary, the analytic mode is effortful, deliberate and dependent on the availability of cognitive resources. System 1 processing controls fundamental processes such as perception and attention, while system 2 processing controls complicated processes such as logic and reasoning (Hamilton, Hong and Chernev, 2007). Implicit responses and attitudes stem therefore from system 1 processing, while explicit responses and attitudes stem from system 2 processing (Kahneman, 2003). System 1 generates impressions of attributes that are neither voluntary nor verbally explicit, creating intuitive responses and thoughts. An important aspect of intuitive thoughts is that under the right conditions, they appear spontaneously and effortlessly. System 2 generates judgments that are intentional and explicit, and these can originate from impressions or from deliberate reasoning (Kahneman, 2003). Impressions produced by system 1 that are highly accessible, control judgments and preferences. That is, if they are not overridden by the deliberate operations of system 2.

Based on this, we can draw a line between consumer inference making and the dual-process view. Inference making is a shortcut the human mind resorts to when little information is available, and one is dependent upon relevant and accessible inputs in the mind. System 1 processing is a system that simplifies decision-making and relies upon highly accessible information in the mind as well.

2.3 Our Position in the Literature

Research shows that people are becoming more willing to engage in sustainable consumption behavior (Umwelt Bundesamt, 2017), at least when it is not at the expense of other benefits of the product. It does seem, however, that buying green products often involve compromising other aspects of the product. Luchs and colleagues (2010) discovered that sustainability is sometimes a liability and can consequently negatively affect product preference.

To the best of our knowledge, there exists little research on how the effect of a green attribute on preference is mediated by perceived quality. We therefore wish to contribute with research within the field of green consumption by exploring how eco-friendly product attributes affect perceived quality and thus, product preference. If eco-friendliness negatively affects perceived quality and preference, it is an evidence of a perceived trade-off between the two. Thus,

making perceived quality a barrier to green adoption. Research on this topic is useful as it provides information to the well-discussed attitude-behavior gap, and how it can be reduced. In addition, the trade-off between eco-friendliness and quality is, as of our knowledge, barely covered in the literature regarding green consumption.

Furthermore, we believe the combination of a green attribute and its centrality affects perceived greenness, perceived quality and thus product preference. Gershoff and Frels (2015) research the effect of attribute centrality, while Luchs et al. (2010) research the effect of a green attribute on preference. However, few others have combined these two for an elaborate study on how both factors affect perceived quality and product preference across two different product categories. Therefore, we wish to contribute to closing this gap in the literature by conducting an IAT, an online experiment and a field experiment.

3. The Research Model and Hypotheses

We will in the following present our research design, proposed research model and the hypotheses that will be used to answer our research questions.

3.1 Research Design

The following section describes the research design used to answer our research question. Since the aim of our research is to find out if there is a causal effect of the condition (green product-related attribute, green non-product-related attribute and non-green baseline) on product preference, we apply a causal research design. More specifically, we conduct two online experiments and one field experiment.

We chose a mixed between-within subjects design. This mixed-model design is a combination of both within-subjects and between-subjects factors, meaning that some variables are measured between-subjects and others are measured within-subjects. We chose this design because it makes an efficient use of subjects, both in a practical and statistical sense (Kherad-Pajouh and Renaud, 2015). Practically, it requires fewer subjects than the typical between-subjects design and statistically, less error variance that leads to more statistical power. The main disadvantage with this design is that it is more complex than typical non-repeated measures designs because one needs to consider the associations between the observations obtained from the same individuals (Kherad-Pajouh and Renaud, 2015).

Our design consists of one between-subjects independent variable, the *product category*, which consists of two levels, *gentle* and *strong*. Further, we have one within-subjects independent variable, type of green attribute, which has three levels; *green product-related attribute, green non-product-related attribute* and *non-green baseline*. We have one dependent variable, *product preference*, and two mediating variables, *perceived greenness* and *perceived quality*. This implies a 2x3 factorial design.

The products we wish to test are body lotion and drain opener. Based on the attribute definitions presented in chapter 2, we define the content, or the ingredients of the bottle as the product-related attribute, and the packaging as the non-product-related attribute (Keller, 1993). We assume that the most defining characteristic of body lotion is the cream that moisturizes the skin and for drain opener it is the fluid that unclogs pipes. While the packaging,

or in this case, the material of the bottle, is not a defining aspect of the product but is important in regards to purchase, appearance and consumption (Keller, 1993).

3.2 Proposed Model

Our research is based on a mediation model that seeks to explain the mechanisms that underlie the relationship between the three conditions; green product-related attribute, green non-product-related attribute and a non-green baseline, and the preference for the product. Based on our literature review and our own assumptions, we expect perceived greenness and perceived quality to be the model's mediators. We believe that the existence of a green attribute in a product, as either a product-related attribute or a non-product-related attribute, will affect the perceived greenness and consequently the perceived quality of the product, lastly affecting preference (Figure 3.1). We suggest that if a product in the strong category is perceived as green by the consumer, the perceived greenness will have a negative effect on the perceived quality, hence reducing preference for the product. However, we believe that perceived greenness will have the opposite effect for the product in the gentle category, causing a positive effect on perceived quality and thus on preference. We therefore suggest that the effect of the condition on preference is sequentially mediated by perceived greenness and perceived quality. Thus, we suppose a serial multiple mediation model (see Figure 3.1. below).

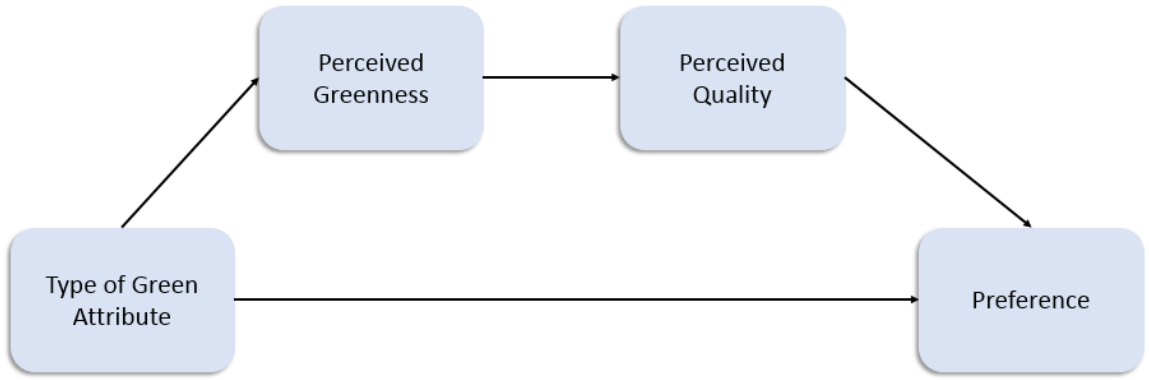


Figure 3.1: Serial Multiple Mediation Model

However, due to our research design, eco-friendliness is already manipulated within the independent variable. This means that greenness exists within the independent variable and in the mediators: *perceived greenness* and *perceived quality*. When comparing the green attribute

to the non-green baseline, it does therefore not make sense to include *perceived greenness* as a mediating variable because the effect is already present in the manipulation, making it redundant. Although, when comparing a green product-related attribute up against a green non-product-related attribute, it makes sense to include *perceived greenness* as a mediator. This is because we believe that there will be different levels of perceived greenness between the product-related and the non-product-related attributes that can influence perceived quality (Gershoff and Frels, 2015). By including *perceived greenness* as a mediator, we might detect these different effects. Due to this, we suggest a serial multiple mediation model when comparing green attribute types, but a simple mediation model when comparing green attribute to the non-green baseline (see Figure 3.2).

Figure 3.2 Simple Mediation Model

A simple mediation model is a causal system where at least one causal independent variable influences a dependent variable Y through a single variable M (Hayes, 2013). There are, as seen in figure 3.3 below, two pathways where the independent variable can influence the dependent variable. There is the direct effect of X on Y, labeled c' and the indirect effect X on Y through M, labeled ab. Together, these effects make the total effect, $c = ab + c'$.

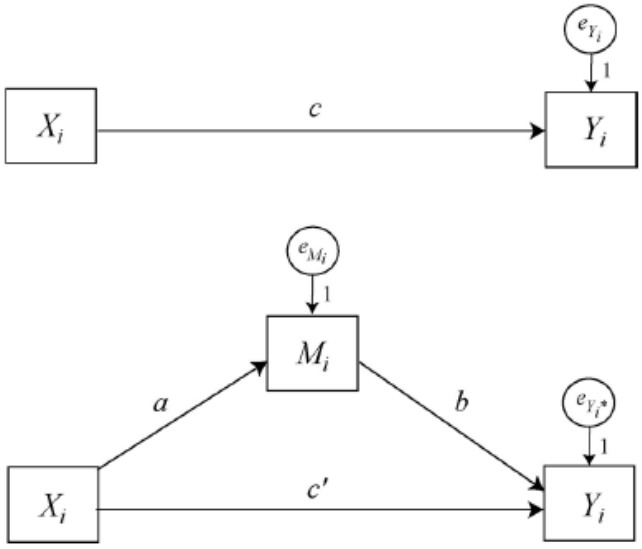


Figure 3.3: Simple Mediation Model (Hayes, 2013)

Figure 3.4 below, illustrates the serial multiple mediation model, were two mediating variables (M_1 and M_2) are also located causally between the X and Y variables.

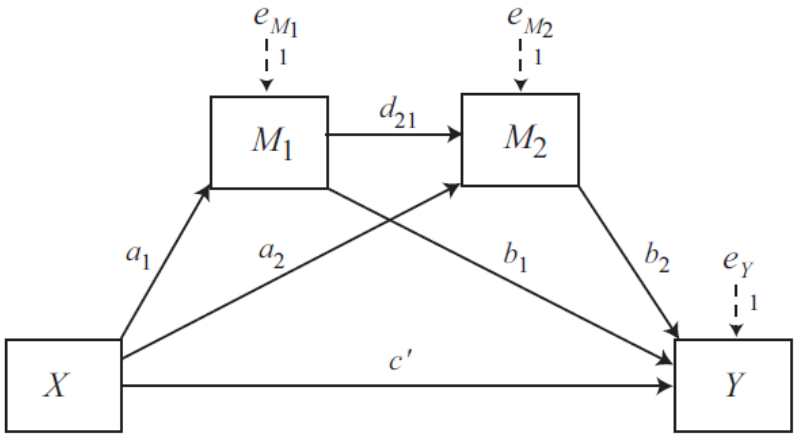


Figure 3.4: Serial Multiple Mediation Model (Hayes, 2013)

A serial multiple mediation model is a causal system, where the independent variable influences a dependent variable, not only through one variable, but two or more variables (here M_1 and M_2) (Hayes, 2013). In addition, the first mediating variable affects the second mediating variable. In the serial multiple mediation model there are several pathways where X can influence Y. As above, there is a direct effect of X on Y (c'), however there are more indirect effects in this model. The first is the indirect effect X on Y through M_1 ($a_1\, b_1$), the second is the indirect effect X on Y through M_2 ($a_2\, b_2$), and the third is the indirect effect X on Y through both M_1 and M_2 ($a_1 d_{21} b_2$).

3.3 Hypotheses

Based on theory about benefit congruity (Luchs et al., 2010), we suggest that a product with a green attribute in the gentle category will increase the congruity between the category and the product's benefits, thus leading to increased perceived functional quality. However, adding a green attribute to a product in the strong category will lead to incongruity between the category and the product's benefits, thus leading to a decrease in perceived functional quality. Consequently, we suggest that:

H_1: *Consumers associate higher functional quality with eco-friendly products in the gentle product category, and lower functional quality with eco-friendly products in the strong product category.*

Our research model seeks to explain how perceived eco-friendliness and perceived quality affect preference for the product. Luchs et al. (2010) find that congruity between the category and its benefit, increases preference for the green product, and that incongruity reduces preference. Luchs et al. (2010) test this on baby shampoo and car shampoo. We wanted to replicate the findings by Luchs et al. (2010) for other product categories. Consequently, we propose the following hypothesis:

H_{2a}: *The green alternative in the strong product category (gentle product category), will be rated lower (higher) on i) choice and ii) anticipated success, than the non-green alternative.*

Due to the effect attribute centrality has on perceived greenness (Gershoff and Frels, 2015), we suggest that preference for the two green products will differ depending on whether the green attribute is product-related or non-product-related. This is because a product-related attribute will result in higher perceived greenness than a non-product-related attribute. When the greenness increases, so does either the congruity or incongruity depending on the product category. Based on this we propose the following hypothesis:

H_{2b}: *The green product-related attribute results in lower (higher) preference measured by i) choice and ii) anticipated success, than the green non-product-related attribute in the strong product category (gentle product category).*

Luchs et al. (2010) only document a total effect. We believe however, that this effect is mediated by perceived greenness and perceived quality and wish to document this mediating effect. We have seen from Luchs' et al. (2010) that gentle benefits are valued in gentle products and strong benefits are valued in strong products. We have also seen that to reduce the negative effect eco-friendliness has on preference, one should explicitly mention the product's strength. Therefore, we infer that greenness affects perceived quality. Thus, we suggest that a green attribute in a gentle product will increase the perceived product quality because ethicality is associated with gentleness-related attributes (Luchs et al., 2010). However, by adding a green attribute to a strong product, the perceived quality will be reduced because this leads to incongruity between the category and its attributes. For products in the strong category, we therefore suggest that there exists a trade-off between quality and eco-friendliness. While, for products in the gentle category we believe that eco-friendliness will only have a positive effect on perceived quality.

Based on centrality theory, we suggest that the relationship between eco-friendliness and quality is also affected by the centrality of the green attribute (Gershoff and Frels, 2015). We propose that in the **strong product category**, if the *product-related attribute* has an environmental benefit, the product will be perceived as more eco-friendly (Gershoff and Frels, 2015). Hence, increasing the incongruity between the category and the sought benefit (Luchs et al., 2010). We propose that this will in turn lead to *lower* perceived quality compared to a product in the same category without the environmental benefit. If the eco-friendly attribute is *non-product-related*, the product will be less green compared to when the attribute is product-related (Gershoff and Frels, 2015). Hence, the incongruity in the strong product category will be less severe. Thus, leading to the product being perceived as having *higher* quality than the product with the green *product-related* attribute, but *lower* than the product without any green benefit.

We believe that the opposite will be applicable for the **gentle product category**. If the *product-related* attribute has an environmental benefit, the product will be perceived as more eco-friendly (Gershoff and Frels, 2015). Thus, resulting in the quality being perceived as *higher* compared to a product in the same category without the environmental benefit, due to congruity between the favored benefit and the product category (Luchs et al., 2010). If the environmentally friendly attribute is *non-product-related*, the product will be *less green* compared to when the attribute is product-related (Gershoff and Frels, 2015), leading to less congruity. Hence, we believe that the product with the green *non-product-related* attribute will be perceived as having *lower quality* than the product with the green *product-related* attribute, but still *higher* than the product without any green benefit.

We therefore suggest that perceived greenness and perceived quality will mediate the effect of the condition on product preference, and propose the following hypotheses:

H_{3a}: *The effect postulated in H_{2a} is mediated by perceived quality.*

H_{3b}: *The effect postulated in H_{2b} is mediated by perceived greenness and perceived quality, sequentially.*

4. Pretest of Product Categories

The purpose of the pretest is to explore whether gentle attributes are important to consumers when buying a product in the gentle category and if strong attributes are important when buying a product in the strong category. In other words, if the type of benefit sought is related to the product category. We do this to prove a distinction between shampoo, body lotion and drain cleaner regarding perceived gentleness and perceived strength to separate these product groups into two product categories. Our pretest is based on Luchs et al. (2010), who perform a similar study on the distinction between baby shampoo and car shampoo regarding gentleness and strength.

For the pretest, we use the term "drain cleaner". Moving forward, we decided to change the wording from "drain cleaner" to "drain opener" as we believe drain opener is a *stronger* word than drain cleaner, i.e. that consumers associate more strength-related attributes to the word "drain opener" than to "drain cleaner". We believe that to *open* pipes is more drastic than to *clean* them, implying that there is more strength in a drain opener than in a drain cleaner. In Norwegian, these words are respectively "avløpsåpner" and "avløpsrens".

Our expectations are that gentleness-related attributes are more important to the consumers who are in the market of buying body lotion, and that strength-related attributes are more important for the consumers buying drain cleaner (Luchs et al., 2010). We also expect that gentleness-related attributes are important for consumers buying shampoo, but that these attributes are more important in the body lotion category than in the shampoo category. Therefore, we believe that the distinction between gentle and strong product category is larger for body lotion vs. drain cleaner than for shampoo vs. drain cleaner. We conduct the pretest to confirm these expectations.

4.1 Method

Thirty-three students at the Norwegian School of Economics were randomly chosen to participate in the pretest. We used a convenience sample due to this only being a pretest for our main studies and recruited respondents by approaching students during their lunch break. The respondents were asked to imagine that they were going to purchase respectively body lotion, shampoo and drain cleaner. We randomized the sequence of the products. The

respondents were asked to: “Rate the importance of each of the following attributes for you when buying body lotion/shampoo/drain cleaner”. They rated the attributes on a seven-point Likert Scale anchored by “Not important at all” and “Very important”. We included four attributes for each category, namely; gentle, mild, soft and kind for the gentle category and intense, aggressive, strong and hard for the strong category. The attributes were inspired by the attributes used in Luchs’ et al. (2010) pretest, and the words were altered to better fit the Norwegian language, as the study was performed on Norwegian students. We translated the words used in the pretest to English for the sake of this paper. See Appendix B1 for the Norwegian wording.

4.2 Results

A factor analysis on the attribute importance measures revealed two factors, strong and gentle. We calculated the gentle factor using the average of the measures for the importance of “gentle”, “mild”, “soft” and “kind” (Cronbach’s $\alpha = .87$). The strong factor was calculated in the same way using the average of the measures for the importance of “intense”, “aggressive”, “strong” and “hard” (Cronbach’s $\alpha = .91$).

We analyzed the importance ratings for body lotion vs. shampoo vs. drain cleaner, and the results show, as expected, that the attribute “gentle” is more important for body lotion than for both shampoo ($M_{\text{difference for Body Lotion - Shampoo}} = .94$) and drain cleaner ($M_{\text{difference for Body Lotion - Drain Cleaner}} = 3.00$). We find that the attribute “strong” is more important for the consumers imagining buying a drain cleaner than for the consumers imagining buying shampoo ($M_{\text{difference for Drain Cleaner - Shampoo}} = 2.8$) and body lotion ($M_{\text{difference for Drain Cleaner - Lotion}} = 3.1$). The results can be found in Appendix B2.

To sum up, drain cleaner can be categorized as a strong product because strong attributes were the most important for the respondents considering buying drain cleaner. Body lotion falls within the gentle product category as gentle attributes were the most important for the respondents considering buying body lotion. Shampoo is also seen as a gentle product, but the associations to the attribute “gentle” are not as strong as for body lotion. The following three studies will therefore use body lotion as the product for the gentle category and drain opener as the product for the strong category.

5. Study 1: Implicit Association Test

It can be difficult to reveal people's real attitudes about certain subjects as people in general often tend to say what they think is expected of them, and not what they really mean (Gittelman et al., 2015). This is especially applicable if the matter of discussion is a delicate subject, e.g. political, moral or environmental questions. The phenomenon described above, is popularly known as social desirability bias; "participants' tendency to describe themselves in favorable terms by adhering to sociocultural sanctioned norms" (de Jong, Pieters and Fox, 2010, p. 14).

To detect these types of "hidden" attitudes, we decided to conduct an Implicit Association Test (IAT). An IAT is a test for measuring implicit associations and attitudes and does so by measuring respondents' underlying automatic evaluation (Greenwald, McGhee & Schwartz, 1998). Implicit attitudes can be defined as "actions or judgments that are under the control of automatically activated evaluation, without the performer's awareness of that causation" (Greenwald and Banaji, 1995, p. 6-8). In other words, the IAT measures evaluation and reactions to concepts that happen automatically, without the person in question actively processing it.

To perform the IAT within a Qualtrics survey we used Iatgen, which is a tool for building and analyzing Qualtrics surveys that host IATs (Carpenter et al., 2018). The aim was to demonstrate that people associate functional quality with eco-friendly products in the gentle product category, and that people associate functional quality with non-eco-friendly products in the strong product category (H_1).

5.1 Method

5.1.1 Participants

The sample consisted of 631 students from the Norwegian School of Economics (NHH), however only 446 completed the study, so the remaining 185 participants were disregarded. The participating students ranged in age from 19 to 42 years (M=23.78, SD=2.91). Sixty-one percent of the sample were males, and 39 percent were females. Five percent of the participants had high school as their highest level of education, 40.4 percent had a Bachelor's Degree and 54.6 percent had a Master's Degree as their highest completed degree or current degree.

5.1.2 Sampling

The target population for our study is the general population of consumers of home and personal care products, where the product categories of drain opener and body lotion belong. For our first study, the sampling frame consists of students currently attending the Norwegian School of Economics (NHH). We have chosen to use students as our sampling frame because they too are often consumers of such products, making our results generalizable to the general population. In addition, students are easy, time efficient and cheap to use as participants in experiments. We used a convenience sampling method where students could voluntarily participate in the experiment. The school's administration sent us a list of 3127 email addresses, whereas 446 (14.3%) completed the study. We recruited students by distributing the experiment in a link by email to each student and the study was completed online via Qualtrics. When we noticed a considerable reduction in the response rate and had achieved an adequate number of respondents, we terminated the data collection. To incentivize the participants, we explained that one respondent would be randomly drawn to win a BOSE QC35 headset if s/he completed both the IAT and the following survey (see chapter 6, study 2). The invitation to the test and survey can be found in Appendix C1.

To test the different product categories, we created two different IATs, each with their own link to a Qualtrics survey (an excerpt of the IAT can be found in Appendix C5). We assigned half of the participants to the gentle product category and half to the strong product category. To avoid selection bias and systematic differences between the two groups, we used random assignment. We randomized the order of the emails in the list and sent the link to the survey regarding the strong category to the first half of the list, and the link to the survey regarding the gentle category to the second half of the list. Randomization of participants to each group ensures that the respondents will be statistically similar with regards to observable and unobservable characteristics, contributing to homoscedastic data. The goal was to achieve an equal number of participants in each group. The final numbers of participants were respectively 228 (51%) in the gentle category and 218 (49%) in the strong category. We ensured the anonymity of each participant by sending out an anonymous link to the survey, and by choosing the "anonymize response" function in Qualtrics.

5.1.3 Stimuli

To test the respondents' associations between eco-friendly products and functional quality in an IAT, we needed to use words and images that would reflect respectively functional quality and eco-friendliness as stimuli. We pretested the IAT on a group of NHH Executive's and found that the words we originally wished to use (effective vs. ineffective) caused confusion. This was because the IAT is taken by using the "E" and "I" keys on the keyboard and the respondents thought the "E" key was for "effective" etc. Thus, we had to change the stimuli. We chose to use the terms "powerful" and "weak" as these terms are similar to "effective" and "ineffective" and can be used to explain a product's functional quality or lack thereof.

Stimuli for the IAT is therefore drawn from four different categories. These are: (1) synonyms describing the term "weak" ("ineffective", "inefficient", "soft", "incapable", "gentle" and "unproductive"); (2) synonyms and phrases describing the term "powerful" ("effective", "efficient", "gets the job done", "sufficient", "productive" and "strong"); (3) self-made images of eco-friendly products in the gentle and strong product categories (lotion vs. drain opener); and (4) self-made images of non-eco-friendly products in the gentle and strong product categories (lotion vs. drain opener). See Appendix C3 and C4 for the stimuli for respectively the gentle and strong product categories.

The images were created with subtle differences between the pictures within the same product category. Half of them were marked as eco-friendly with the phrase "Eco-Friendly" before the product name (lotion vs. drain opener) and had an image of a green flower on them. The other half were marked as non-eco-friendly by not including the phrase or the green flower. We included differences in the images to reduce the effect of respondents learning how to categorize the products, instead of using their implicit assumptions. Harvard's Race IAT, from their project implicit (Harvard, 2011) inspired us in making the images. They use images of white and black people, where the differences amongst them are very subtle. In addition, to reinforce the effect of the category type, we reminded the respondents about the product category by including an image of pipes for the strong category and an image of hands for the gentle category.

5.1.4 Procedure

Participants were asked to categorize the stimuli from the four categories as the words/images were shown on the middle of their computer screens. The category labels were displayed on

the upper-left and upper-right side of the screen, and the participants were instructed to use the "E" and "I" keys on their keyboard to categorize the words/images. The "E" key categorized the word/phrase to the category on the left, and the "I" key categorized the word/image to the category on the right. Because we wished to test the hypothesis about people implicitly associating functional quality with eco-friendly products in the gentle product category, but with non-eco-friendly products in the strong category, we had to create two separate IATs. Half of the respondents therefore received an IAT where the images were of lotion and the other half received an IAT where the images were of drain opener.

To reinforce the effect of the category, we explicitly wrote in the introduction to the test which product the test would be about (without mentioning the other product category). The participants were also shown a table with the different words/images and their corresponding category in the introduction (see Appendix C3 and C4). We did not test if they perceived the word/image correctly according to the category, but their associations between powerful (vs. weak) words and eco-friendly (vs. non-eco-friendly) products within a specific product category. It was therefore important they knew which category the words/images belonged to before the study began.

Iatgen, the program used to create the IAT (Carpenter et al., 2018) follows the established protocol for IATs (Greenwald, McGhee & Schwartz, 1998). Participants completed seven different blocks of trials, where five of these were trial blocks and two were critical blocks. Blocks 1, 2 and 5 were practice blocks where respondents were presented with stimuli either of the categories eco-friendly vs. non-eco-friendly, or of the categories powerful vs. weak. In blocks 3, 4, 6 and 7, the respondents were presented with stimuli from all four categories (for details, see Table 5.1 and 5.2). There were two critical blocks; number 4 and 7. In block 4 for the gentle category, the category labels were "Eco-Friendly or Powerful" vs. "Non-Eco-Friendly or Weak". In block 7 for the same category, the category labels were "Eco-Friendly or Weak" and "Non-Eco-Friendly or Powerful". In this example block 4 is the compatible group, in other words the hypothesis-consistent condition, in which the pairings between the stimuli match our predictions. Block 7 in this example is the incompatible group, meaning the hypothesis-inconsistent condition, where the pairings between the stimuli are the opposite of our predictions. In the gentle category, an implicit association between eco-friendliness and powerfulness (and between non-eco-friendliness and weakness) would be reflected in faster response time when the task involved the compatible group (vs. the incompatible group). It is

important to mention that the left/right assignments were randomized. This means that the order of compatible and incompatible groups is also randomized.

In the strong category, the compatible group, meaning the hypothesis-consistent condition, is the combination of the category labels “Non-Eco-Friendly or Powerful” and labels “Eco-Friendly or Weak”. The incompatible group is the combination of the category labels “Non-Eco-Friendly or Weak” and labels “Eco Friendly or Powerful”. The left/right assignments for the strong category are also randomized. An implicit association between non-eco-friendliness and powerfulness (and between eco-friendliness and weakness) would be reflected in faster response time when the task involved the compatible group (vs. the incompatible group).

Table 5.1: Sequence of Trial Blocks in IAT for the Gentle Category

Block	Number of Trials	Function	Left-Key Assignment	Right-Key Assignment
1	20	Practice	Eco-Friendly	Non-Eco-Friendly
2	20	Practice	Powerful	Weak
3	20	Combined Practice Block	Eco-Friendly or Powerful	Non-Eco-Friendly or Weak
4	40	Combined Critical Block	Eco-Friendly or Powerful	Non-Eco-Friendly or Weak
5	40	Practice	Weak	Powerful
6	20	Combined Practice Block	Eco-Friendly or Weak	Non-Eco-Friendly or Powerful
7	40	Combined Critical Block	Eco-Friendly or Weak	Non-Eco-Friendly or Powerful

Table 5.2: Sequence of Trial Blocks in IAT for the Strong Category

Block	Number of Trials	Function	Left-Key Assignment	Right-Key Assignment
1	20	Practice	Non-Eco-Friendly	Eco-Friendly
2	20	Practice	Powerful	Weak
3	20	Combined Practice Block	Non-Eco-Friendly or Powerful	Eco-Friendly or Weak
4	40	Combined Critical Block	Non-Eco-Friendly or Powerful	Eco-Friendly or Weak
5	40	Practice	Weak	Powerful
6	20	Combined Practice Block	Non-Eco-Friendly or Weak	Eco-Friendly or Powerful
7	40	Combined Critical Block	Non-Eco-Friendly or Weak	Eco-Friendly or Powerful

5.2 Data Preparation

We used Iatgen's analyzing tool through a web applet available at (https://applibs.shinyapps.io/iatui2/) to analyze the data from the combined blocks (3 + 4 and 6 + 7) (Carpenter et al., 2018). This tool calculated a difference score (D-score) for each participant that indicates in which condition s/he was faster. A D-score of zero indicates no difference in speed between categorization in the compatible and incompatible group. This is an indication that there are no implicit associations in either direction. A positive D-score means that the participant was faster in the compatible block, indicating a hypothesis-consistent association, while a negative D-score means that the participant was faster in the incompatible block, indicating a hypothesis-inconsistent association (Greenwald, McGhee and Schwartz, 1998; Carpenter et al., 2018). Iagent's analyzing tool uses a procedure validated by Greenwald et al. (2003; see Lane et al., 2007, for directions) (Carpenter et al., 2018). Greenwald et al. (2003) and Back, Schmukle & Egloff (2005) found that this method maximizes IAT reliability and other advantages. In addition, this tool also uses data cleaning procedures recommended by Greenwald et al. (2003). The exact procedures Iatgen uses to calculate the D-scores and to clean the data can be found in Carpenter et al. (2018).

5.3 Results

5.3.1 Data reduction

The proportion of trials dropped due to excessive duration (timeout rate) were low at <.001% of trials for both categories. The number of participants dropped due to excessive speed (< 300 ms) was only five participants for the strong category and six participants for the gentle category. The error rate was 9.4 percent for the strong category and 9.2 percent for the gentle category. To indicate hypothesis-consistent associations, the D-score algorithm was used to score the IAT (Carpenter et al., 2018). Because forced error was enabled, following Greenwald et al. (2003), durations for erroneous trials were kept (Carpenter et al., 2018). Finally, IATs were scored using the D-score algorithm; responses were scored such that scores that were positive indicated hypothesis-consistent associations. The results from Iatgen can be found in Appendix C6 and C7.

5.3.2 Reliability Estimation

The estimated internal consistency of the IATs, based on split-half with Spearman-Brown correction, shows that both IATs were internally consistent. Reliability estimate for the strong category is .90 and .92 for the gentle category.

5.3.3 Implicit Bias

We observed that the participants implicitly associate eco-friendly products with powerfulness in both categories, meaning that the results from the IAT for the strong category indicate hypothesis-inconsistent associations, $M_{IAT,\ Strong}$=-0.36, $SD_{IAT,\ Strong}$=0.51, which significantly differed from zero, 95% CI [-0.43, -0.29], t(212)= -10.24, p < .001, d= -0.70. While the results from the IAT for the gentle category indicate hypothesis-consistent associations, $M_{IAT,\ Gentle}$= 0.37, $SD_{IAT,\ Gentle}$=0.55, which significantly differed from zero, 95% CI [0.29, 0.44], t(221)= 9.90, p < .001, d= 0.66. These results partially support H_1.

5.4 Discussion

For the gentle product category, response times were significantly faster in the hypothesis-consistent block than in the hypothesis-inconsistent block, lending support for H_1. These results indicate that respondents associate functional quality with eco-friendly lotion. Because

gentle attributes are valued in gentle products such as lotion, and that there has proven to be a positive association between ethicality and gentleness (Luchs et al., 2010), we believe that an eco-friendly product in a gentle product category will increase the perceived functional quality of the product compared to a non-eco-friendly version of the same product. When participants categorize words/images faster in the compatible block (eco-friendly or powerful) vs. the incompatible block (eco-friendly or weak), this is an indication that they implicitly associate eco-friendliness with functional quality. As powerfulness can be described as a word for functional quality, we can imply that participants implicitly believe that eco-friendly lotion is of higher quality than a non-eco-friendly lotion.

Since response times were significantly slower in the hypothesis-consistent block than in the hypothesis-inconsistent block for the strong product category, we do not find support for H_1. These results indicate that respondents also implicitly associate functional quality with eco-friendly drain opener which is surprising to us, as ethicality is associated with gentleness-related attributes and not strength-related attributes (Luchs et al., 2010).

This surprising result might be explained by the dual-process view (Kahneman, 2003). We expected that the respondents would implicitly associate lower functional quality with eco-friendliness in the strong category, but that this association would be easier to detect in an IAT than in a survey due to social desirability bias. Because environmentalism is a sensitive subject and is starting to become a trend, respondents might change their answers to portray themselves as better people (Gittelman et al., 2015). However, the results reveal the opposite of what we expected in the strong product category. An explanation might be that consumers are not able to evaluate the trade-off between quality and environmentalism in the strong category when only using system 1 processing. Since the IAT is created to test implicit associations, the test prohibits system 2 processing through the build-up and time limit of the test. We therefore suppose that respondents are not able to use system 2 processing, resulting in them not considering the trade-off between eco-friendliness and quality in the strong product category. Hence, resulting in them more easily categorizing the words and images in the hypothesis-inconsistent group than the hypothesis-consistent group for the strong product category.

While study 1 tests H_1 using implicit measures, study 2 tests H_1 and the other measures explicitly. This allows us to compare the results and identify if the respondents answer differently when asked either implicitly or explicitly.

6. Study 2: Online Experiment

The purpose of study 2 is to explore how perceived quality and perceived eco-friendliness affects preference for a product in respectively a gentle and strong category. In this study, participants evaluated the environmentally friendliness, quality and their preference for different product versions of drain opener or body lotion. As we learned from the pretest, strength-related attributes are more important for consumers when considering buying drain opener, and gentleness-related attributes are more important for people when considering buying body lotion. In other words, drain opener falls within the strong product category and body lotion falls within the category of gentle products.

6.1 Method

6.1.1 Participants and sampling

The sample, respondents and recruitment methods were the same for study 2 as for study 1. This is because the IAT from study 1 and the questionnaire from study 2 were part of the same Qualtrics survey, which altogether took seven minutes to complete. The sample of 631 students from NHH remains the same, however only 436 (69%) respondents finished the questionnaire. The 195 incomplete responses were disregarded from the data. To recap: the participating students ranged in age from 19 to 42 years old (M=23.78, SD=2.91), 61 percent of the sample were males and 39 percent were females. Five percent of the participants had High School as their highest level of education, 40.4 percent had a Bachelor's Degree and 54.6 percent had a Master's Degree as their highest completed degree or current degree. The assignment to either of the product categories and randomization occurred in the same way as in study 1. We ended up with 224 (51%) responses in the gentle product category and 212 (49%) responses in the strong product category.

6.1.2 Procedure

After the respondents had completed the IAT, they were informed that the test was over and further instructed to answer some questions about their beliefs and attitudes. In this part of the study, we ask the respondents state their level of perceived greenness, perceived quality and preference of the products.

Respondents were asked to imagine that they were going to buy a product in the given product category. As described in study 1, they were tested either in the gentle product category (see Appendix D1) or the strong product category (see Appendix D2). We created three different versions of the product by manipulating the information about each product version. This was done to manipulate the within-subject independent variables, so that the respondents would answer questions based on the product with a green product-related attribute, a green non-product-related attribute and a non-green product. The products were introduced with the following information:

- Drain opener/body lotion made of 100% natural ingredients
- Drain opener/body lotion in 100% recycled materials
- Regular drain opener/body lotion

Plastic pollution is a topic widely covered in the news these days (Hoare, 2018; Laville and Smithers, 2018; Taylor, 2018; Torjusen, 2018) making it a topic "everyone" is aware of. Since we are manipulating the non-product-related attribute, we are essentially manipulating the product's packaging. To avoid respondents rating the product version with the green non-product-related attribute as more green than the other versions just because of the prominence of plastic pollution, were we careful when deciding how this should be manipulated. We did not want to include words such as "plastic" or "bottle", as these words carry strong associations to the issue, and decided therefore upon the manipulation "Drain opener/body lotion in 100% recycled materials". The entire questionnaire for both product categories can be found in Appendix D1 and D2.

To measure the participants *perceived greenness* of each product version, hence measuring the first mediating variable, we asked for their level of agreement with the following statements: "Buying this product is a good environmental choice" and "A person who cares about the environment would buy this product". Items were rated on a seven-point Likert scale anchored by "Strongly Disagree" and "Strongly Agree". The Likert scale is a common tool used by researchers to measure opinions, attitudes and views of respondents (Likert, 1932). The reason why we chose a seven-point scale instead of a five- or nine-point scale, is because we believe data from a five-point scale is not accurate enough to detect nuances in the answers. Furthermore, the scales in a nine-point scale are very narrow, making it difficult for the participants to rate the answer correctly, hence we saw it as unnecessary to include that many levels.

We applied two different techniques to measure the participants' *perceived greenness*. The first question is presented from a "personal point of view", while the other is presented from an "other point of view". Both versions were included because we believe that the "other point of view" is more reflective of their true preferences, due to social desirability bias. The underlying assumption is that people might respond more honest if the question is not regarding themselves. These measures of perceived environmental friendliness are based upon the measures used in Gershoff and Frels' (2015) study.

To measure the level of *perceived quality*, hence measuring the second mediating variable in our model, we asked the participants to "(…) rate the ability of these products to open clogged pipes/moisturize dry skin". Again, we used a seven-point Likert scale, this time anchored by "Low ability" and "High ability". This measure is based upon Newman's et al. (2014) measure of quality.

We applied two different items to measure the dependent variable, preference. These measured *choice* and *anticipated success* in the market. Thus, the first question measures preference from a "personal point of view" while the other question measures preference from an "other point of view". The first question measured *choice* in the following way: "Please rate the likelihood that you would choose each of the different alternatives if you were in the need for a drain opener/body lotion for dry skin". The Likert scale was anchored by "Not likely at all" and "Very likely". This measure is based upon an item from the study of Newman et al. (2014). The second question measured *anticipated success* in the market: "Please rate the likelihood that each alternative will be a success in the market", where the seven-point Likert scale was anchored by "Not a success at all" and "Major success". This last measurement is based on Luchs' et al. (2010) measurement of preference and is adjusted to better fit our research.

In addition to the mentioned mediating and dependent variables, we also measured some control variables. These were included to control for different effects that could affect our results, giving us the opportunity to focus on the main relationship between the manipulation and our dependent variable. First, asked the respondents to rate the level of damage they thought the three product versions would have on respectively their pipes/skin, their health and the environment. By asking about how much damage the respondents believe the product will have, we might discover hidden opinions about perceived environmentally friendliness regarding these products.

The second control question contained a set of three statements where the participants were asked for his/her level of agreement on a seven-point scale: "An environmentally friendly product has lower quality than a non-environmentally friendly product", "I am willing to sacrifice quality for environmentally friendliness" and "It is important to me that the products I purchase are environmentally friendly". The scale was anchored by "Strongly disagree" and "Strongly Agree". These measurements were included to discover participants' viewpoints regarding eco-friendliness, and if their responses differ when asked directly. Lastly, we included some demographic questions to control for variables such as gender, age, income etc.

6.2 Data Analysis

6.2.1 Main Effects

The main effects of our conceptual model (H_{2a} and H_{2b}) were tested using a one-way repeated measures analysis of variance (ANOVA), which is a tool used in within-subject designs where each subject is exposed to two or more different conditions or to compare respondents' responses to two or more different items (Pallant, 2007). Since we have three conditions that are within-subject factors (green product-related attribute, green non-product-related attribute and non-green baseline), the repeated measures ANOVA is the correct procedure to use. The mixed between-within subjects ANOVA could have been used in our analysis as we have a between-subjects factor, namely the product category. However, this procedure did not create the pairwise comparison table needed to evaluate which set of scores differ from one another (Pallant, 2007), so we chose not to use that test.

We applied the Bonferroni adjustment to our alpha level when judging statistical significance, meaning that we set a more strict alpha level for each comparison (Pallant, 2007). This keeps the alpha across all the tests at a reasonable level, enabling us to conduct several tests and comparisons while simultaneously protecting against Type 1 errors (Pallant, 2007).

6.2.2 Mediation Analysis

The mediation analysis is a method used to answer the question as to how a causal variable X influences Y (Hayes, 2013). To test our hypotheses H_{3a} and H_{3b} regarding how the conditions (green product related attribute, green non-product related attribute and non-green baseline) affect preference through both perceived greenness and perceived quality, we conducted a

mediation analysis. As explained in chapter 3, we propose two different mediation models, a simple mediation model and a serial multiple mediation model.

To perform these tests, we used the MEMORE macro in SPSS by Montoya (2017). This macro is used to measure the total, direct and indirect effects of X on Y though M in the two-condition within-subjects design. Since X does not actually exist in our data, the effect of X is carried in the difference scores between the two conditions for M and Y (Montoya, 2017). We used the macro to produce confidence intervals using bootstrapping for inference about the indirect effects. We used bootstrapping with 5000 bootstrap samples in our analysis because the approach is extensively used and recommended in mediation analysis (Montoya and Hayes, 2017). The indirect effect is significant when the bootstrap interval does not include zero (Montoya and Hayes, 2017).

Today's version of MEMORE only allows mediation analysis in the two-condition within-participant design (Montoya and Hayes, 2017). Since we have a three-condition within-participant design, we had to conduct several mediation analyses to test our hypotheses. It is important to mention that when conducting multiple tests, the probability of an error occurring increases. Meaning that the possibility that the test will fail to reject a false null hypothesis or incorrectly reject a new one, increases (Hayes, 2013). Because we must conduct several mediation analyses to find support for our hypotheses might this be an issue in our analysis.

6.3 Results

6.3.1 Descriptive Statistics

Descriptive statistics for the dependent variables and mediator variables for both product categories are attached in Appendix D3.

6.3.2 Merging of Measurements

We combined the measurements for perceived greenness for each condition and product category, meaning that we combined the two measures for perceived greenness for respectively natural ingredients, recycled material and baseline. This was done for both product categories and resulted in a reduction of variables from twelve to six. The data reduction was done by averaging the scores from the two green items for each condition in both product categories, to create a combined measure of perceived greenness for each

condition in both categories. We did not perform a factor analysis, as we are only combining two and two variables. Our measurements for perceived greenness are adapted from Gershoff and Frels (2015) who combined these measurements to one combined measure of greenness. The Cronbach's Alpha values for the combined measures of perceived greenness ranged from .66 to .78. The accurate values can be found in Table D4.1 in Appendix D4.

The inter-term correlation means ranged from .50 to .64 (see Table D4.1 in Appendix D4). These were included because our Cronbach's Alpha values are lower than the acceptable value of .7 (Pallant, 2007). Achieving a decent Cronbach's Alpha value can be difficult for scales with less than 10 items (Pallant, 2007), it is therefore not surprising that our values are low. In such situations it is recommended to evaluate the mean inter-item correlation value as well. For our data these values were quite high, suggesting a strong relationship between the items.

6.3.3 Test of Assumptions

The statistical techniques used in the analysis require a set of assumptions to be satisfied. We will in the following briefly discuss these assumptions.

Independence of Observations

The observations making up our data cannot be influenced by another observation or measurement, meaning that our observations must be independent of one another (Pallant, 2007). As the link to the experiment was distributed by email to each individual respondent and answers were not collected in a group setting, we believe we were able to ensure independence of observations.

Normal Distribution

To check the normality assumption, we measured the skewness and kurtosis of the data (Pallant, 2007). We used the skewness value to obtain an indication of the symmetry of the distribution. A positive value indicates that the scores are clustered at low values, while a negative value indicates that the scores are clustered at high values. Kurtosis provides an indication about whether the scores are clustered or spread out. A positive kurtosis value indicates that the distribution is clustered in the center and when the value is negative, the distribution is likely flat. When the skewness and kurtosis values are between -1 and 1 is this an indication that the scores are normally distributed and when they are 0, the scores are perfectly normally distributed. Perfectly normal distribution is relatively uncommon. However, with reasonably large samples, skewness does not "make a substantive difference

in the analysis" (Tabachnick and Fidell, referenced in Pallant, 2007, p. 56). Kurtosis can result in underestimation of variance, but the risk is reduced with a large sample. Tabachinick and Fidell (referenced in Pallant, 2007, p. 56) suggest that a large enough sample in this case is 200+ observations; however, others suggest that the sample is large enough when N is at least 30.

The descriptive statistics from study 2 show that four of the 27 variables had skewness values above |1|; two positive and two negative. In addition, three of the 27 variables had kurtosis values above |1|; two positive and one negative. Our data does therefore not meet the assumption of normal distribution. However, since our sample size is reasonably large (*n=436*) we do not believe that this will cause any major problems.

6.3.4 Control Variables

The control variables damage, trade-off, sacrifice, importance, and the demographic variables could have influenced the response on the dependent variable. In order to see if the control variables correlate with the independent variable, we conducted a correlation analysis. Our variables are measured on a Likert scale, and we have treated the values as continuous variables, which is a method under great dispute (Laerd Statistics, n.d.). We decided therefore to use the Spearman rho procedure because it is used when the data does not meet the Person product-moment correlation procedure (Pallant, 2007).

We did not find any correlation between the dependent variables *choice* and *success* and the control variables age, education, shop or D_score (results from the IAT in study 1), for the strong product category. We did find some correlation between the respondents' housing arrangements and *choice* and *success*, and between the damage variables and choice and success. However, the strength of the relationships were small (Cohen, 1988, p. 79-81). The amount of shared variance is also small, indicating only a minor overlap between the variables. Since the significance of rho is highly influenced by the size of the sample, very small correlations might reach statistical significance (Pallant, 2007). We have therefore chosen not to place weight on these results.

The relationship between the dependent variables choice and success, and the control variables trade-off, sacrifice and importance in the strong product category can be found in Table 6.1 below.

Table 6.1: Spearman rho Correlations Between Measures of choice and success, and tradeoff, sacrifice and importance for the strong product category

Scale	Tradeoff	Sacrifice	Importance
Choice NI[1]	-.195**	.312**	.345**
Choice RM[2]	-.232**	.332**	.345**
Choice Reg.[3]	.184**	-.209**	-.263**
Success NI[1]	-.196**	.116	.206**
Success RM[2]	-.147*	.211**	.309**
Success Reg.[3]	.006	-.056	-.115

** p < .001 (2-tailed).

We found a relationship between gender and success NI. There was a small negative correlation between the two variables (rho = -.266, n = 212, p<.0005), indicating that males score lower on the believed success for drain opener with natural ingredients. For the gentle product category, we did not find any correlation between the dependent variables *choice* and *success* and the control variables age, education, house, shop or D_score. We did find relationships between the dependent variables and the control variables trade-off, sacrifice and importance (see Table 6.2 below).

Table 6.2: Spearman rho Correlations, Gentle Product Category

Scale	Tradeoff	Sacrifice	Importance
Choice NI[4]	-.289**	.056	.290**
Choice RM[5]	-.201**	.202**	.427**
Choice Reg.[6]	.022	-.185**	-.149*
Success NI[4]	-.225**	-.005	.109
Success RM[5]	-.189**	.188**	.240**
Success Reg.[6]	.046	-.019	-.011

** p < .001 (2-tailed).

[1] NI = Product version with Natural Ingredients
[2] RM = Product version in Recycled Materials
[3] Reg. = Non-green Baseline
[4] NI = Product version with Natural Ingredients
[5] RM = Product version in Recycled Materials
[6] Reg. = Non-green Baseline

Furthermore, we found relationships between the dependent variables and the control variables for damage (see Table 6.3 below).

Table 6.3: Spearman rho Correlations Between Measures of choice and success, and measurements on damage for the gentle product category

Scale	Choice NI	Choice RM	Choice Regular	Success NI	Success RM	Success Regular
Skin NI[4]	-.350**	-.087	-.069	-.344**	-.123	-.132*
Health NI[4]	-.332**	-.082	.018	-.335**	-.187**	-.173**
Env. NI[4]	-.218**	-.072	-.085	-.259**	-.148*	-.147*
Skin RM[5]	-.089	-.159*	-.136*	-.185**	-.215**	-.122
Health RM[5]	-.051	-.142*	-.147*	-.206**	-.195**	-.183**
Env. RM[5]	-.092	.005	-.065	-.272**	-.077	-.047
Skin Reg.[6]	.047	-.100	-.299**	-.106	-.160*	-.200**
Health Reg.[6]	.072	-.030	-.224**	-.114	-.130	-.142*
Env. Reg.[6]	.210**	.046	-.136*	.038	.038	.068

** p < .001 (2-tailed).

We also found a relationship between the dependent variables, choice NI and success NI, and gender. There was a medium negative correlation between choice NI and gender (rho = -.307, n = 224, p<.0005), indicating that males score lower than women on the choice measurement for lotion with natural ingredients. There was a small negative correlation between success NI and gender (rho = -.221, n = 224), p = .001, indicating that males score lower than women on the success measurement for lotion with natural ingredients.

6.3.5 Main Effects

To test our hypotheses regarding preference, we used a one-way repeated measures ANOVA. As mentioned earlier, we measured preference using both "personal point of view" and "other point of view" techniques. We have therefore conducted analyses for each of these measurements. The hypotheses we tested are as follows:

H_{2a}: *The green alternative in the strong product category (gentle product category), will be rated lower (higher) on i) choice and ii) anticipated success, than the non-green alternative.*

H_{2b}: *The green product-related attribute results in lower (higher) preference measured by i) choice and ii) anticipated success, than the green non-product-related attribute in the strong product category (gentle product category).*

Choice

The analysis was conducted to compare the choice scores across the different conditions. The means and the standard deviations are presented in Table 6.4 below. For the strong product category there was a significant effect of the condition, Wilks' Lambda = 0.76, F(2,210) = 34.04, p < .0005, multivariate partial eta squared = .25. For the gentle product category, there was a significant effect of the condition, Wilks' Lambda = .87, F(2, 222) = 16.22, p < .0005, multivariate partial eta squared = .13. The partial eta squared value for the strong product category is above .14 indicating a large effect size, while for the gentle product category the value is below .14 indicating a more moderate effect size (Cohen, 1988, p. 284-7).

Table 6.4: Descriptive Statistics for Choice, for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Green Product-Related Attribute	212	4,24[a/b]	1,55
	Green Non-Product-Related Attribute	212	5,02[a]	1,39
	Non-Green Baseline	212	5,30[b]	1,37
Body Lotion	Green Product-Related Attribute	224	5,10[c]	1,55
	Green Non-Product-Related Attribute	224	4,50[c/d]	1,49
	Non-Green Baseline	224	4,98[d]	1,40

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

We can see from the pairwise comparisons (Table D5.1 in Appendix D5) that drain opener with a green product-related attribute scores significantly lower on choice than the two other product versions (p<.0005). However, there is no significant difference between drain opener in recycled materials and regular drain opener (p=.12). When asked from a "personal point of view", respondents prefer drain opener with natural ingredients the *least*, but there is no difference in preference regarding drain opener in recycled material and regular drain opener. These results lend partial support for H_{2a} and full support for H_{2b}. This is because even though we cannot determine that the respondents prefer regular over recycled material, we do find that they prefer the version in recycled materials more than they prefer the version with natural ingredients.

Regarding the gentle product category, we can see that the respondents rate lotion with natural ingredients the highest and lotion in recycled material the lowest. However, as seen from the pairwise comparisons (table D5.1 in appendix D5) only two of these differences are significant. There is not a significant difference in their scores regarding lotion with natural

ingredients and regular lotion (p=1), but body lotion with natural ingredients scores significantly higher than body lotion in recycled materials (p<.0005), and body lotion in recycled materials scores significantly lower than regular body lotion (p=.001). When respondents are asked from a "personal point of view" regarding which of the three versions of lotion they would choose, the results lend partial support for H_{2a} and full support for H_{2b}.

In total for the measurement of choice, we find partial support for H_{2a} and full support for H_{2b}.

Success

The results are slightly different when we ask respondents about their preference for the products from an "other point of view". Again, we performed a one-way repeated measures ANOVA to compare scores on the anticipated success of the product across the three different conditions. The means and the standard deviations for both product categories are presented below in Table 6.5. For the strong product category, there was a significant effect of the condition, Wilks' Lambda = 0,80, F(2, 210) = 26.73, p < .0005, multivariate partial eta squared = .20. For the gentle product category, there was also a significant effect of the condition, Wilks' Lambda = 0,82, F(2, 222) = 24.65, p < .0005, multivariate partial eta squared = .18. Since both the partial eta squared values are above .14, is this an indication that the effect size of the result for both categories is large (Cohen, 1988, p. 284-7).

Table 6.5: Descriptive Statistics for Success, for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Green Product-Related Attribute	212	4,49[a/b]	1,24
	Green Non-Product-Related Attribute	212	5,04[a]	1,21
	Non-Green Baseline	212	5,29[b]	1,20
Body Lotion	Green Product-Related Attribute	224	5,39[c/d]	1,15
	Green Non-Product-Related Attribute	224	4,75[c]	1,23
	Non-Green Baseline	224	4,93[d]	1,19

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

As seen from the pairwise comparisons (Table D5.2 in Appendix D5), regular drain opener scores significantly higher than drain opener with natural ingredients (p<.0005) and drain opener in recycled materials scores significantly higher than drain opener with natural ingredients (p<.0005). There is no significant difference between regular and recycled materials (p=.074), lending partial support for H_{2a} and full support $H_{2b.}$

For the gentle product category, lotion with natural ingredients is anticipated to have the highest chance of success, with regular lotion next and lotion in recycled material as having the least chance of success. While, lotion with natural ingredients scores significantly higher than the other two regarding believed success ($p<.0005$), we cannot determine which of the two is anticipated to have the lowest chance of success as regular lotion and lotion with recycled materials are not significantly different ($p=.24$). This lends support for H_{2a} and H_{2b}.

In total, for the measurement of success, we find partial support for H_{2a} and full support for H_{2b}.

6.3.6 Mediation Effects

As mentioned, we used MEMORE to test the hypothesized mediation models. The hypotheses we wished to test were:

H_{3a}: *The effect postulated in H_{2a} is mediated by perceived quality.*

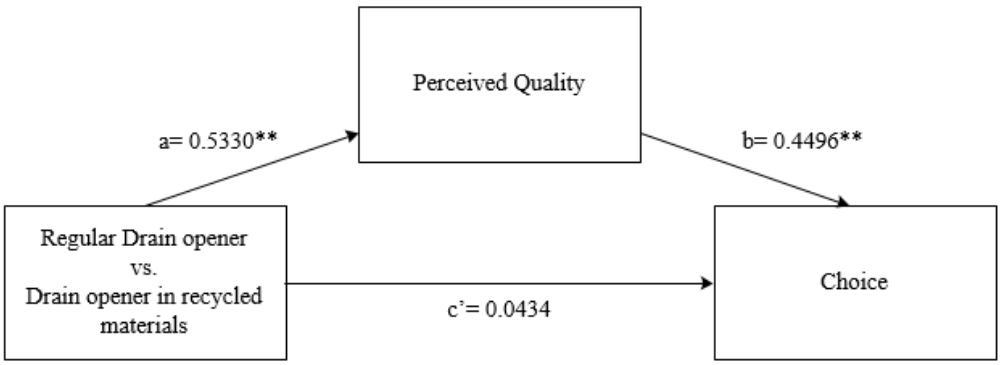
H_{3b}: *The effect postulated in H_{2b} is mediated by perceived greenness and perceived quality, sequentially.*

The hypotheses regarding meditation are based upon the hypotheses regarding preference. Thus, since we did not find full support for these, we will not be able to find full support for these hypotheses either. However, we will be able to determine if the main effects that we do find are mediated by perceived greenness and/or perceived quality. For both product categories, we analyzed the effect of the condition, through the mediating variables, on both choice and success. The results from the mediation analysis can be found in Appendix D6.

Strong product category with choice as the dependent variable

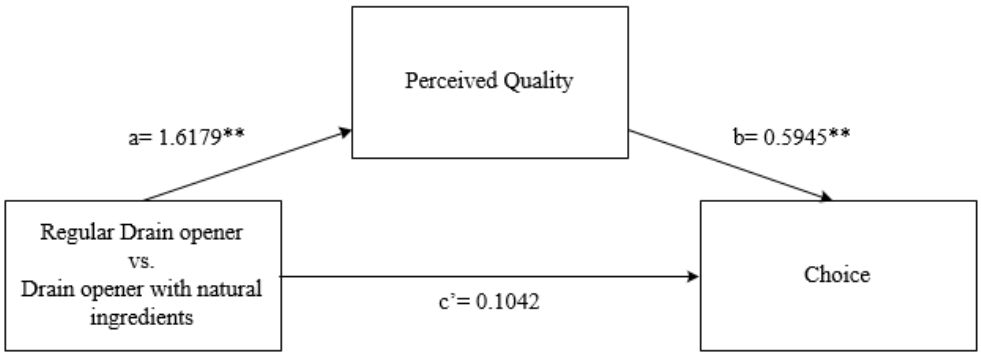
When testing the effect of the conditions; "non-green baseline" vs. "green non-product-related attribute" on choice through perceived quality, we found a significant indirect effect (effect=0.2397, 95% BootCI={.1167, .3919}). There was no support for the direct effect (c'=0.043, p =.755), indicating that we have a complete mediated model. Furthermore, when testing "non-green baseline" vs. "green product-related attribute", we also found a significant indirect effect through perceived quality (effect=0.9619, 95% BootCI={.6543, 1.2816}). Again, there was no support for the direct effect (c'=0.104, p =.584), indicating that we have a complete mediated model. This lends support for H_{3a}.

The detailed processes behind the mediation can be found in Figure 6.1 and 6.2 below. As mentioned earlier, there are two distinct pathways in a simple mediation model: The direct effect of a green attribute on choice (c') and the indirect effect of a green attribute on choice through perceived quality (ab). The effect of including a green attribute, both non-product-related (Figure 6.1) and product-related (Figure 6.2), was significant. The results reveal that there is a significant mean difference in perceived quality between regular drain opener and drain opener in recycled materials (a=0.5330**) (Figure 6.1) and between regular drain opener and drain opener with natural ingredients (a=1.6179**) (Figure 6.2). Regular drain opener is perceived as having higher quality than both green versions, lending support for H_1. From path b, we can see that perceived quality had a significant effect on choice on a p<.01 level, both when the green attribute was non-product-related (Figure 6.1) and product-related (Figure 6.2). Thus, the indirect effect through perceived quality was significant. Respondents chose regular drain opener over both green options because of higher perceived quality.



Significance level: *p<.05, **p<.01

Figure 6.1: Simple Mediation Model: Effect of Baseline vs. Green non-product-related attribute on Choice – Strong Product Category

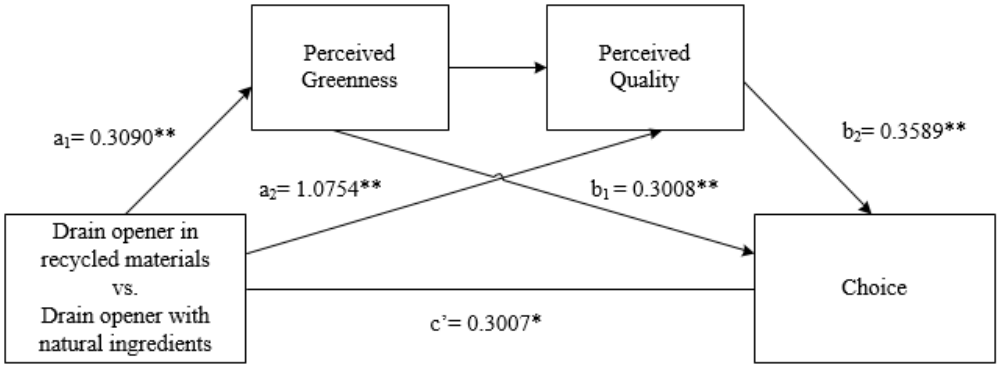


Significance level: *p<.05, **p<.01

Figure 6.2: Simple Mediation Model: Effect of Baseline vs. Green product-related attribute on Choice – Strong Product Category

When testing the effects of two green attributes on choice, we do not find support for the serial multiple mediation model (effect=0.0034, 95% BootCI={-.0126, .0254}), and therefore no support for H_{3b}. However, we do find support for a parallel mediation model because we find that perceived greenness and perceived quality positively mediate the effect separately ($effect_{greenness}$=0.0930, 95% BootCI={.0231, .1861}, $effect_{quality}$=0.3859, 95% BootCI={.2263, .5519}). In addition, the direct effect is significant (c'=0.3007, p =.009), indicating a partial mediation model. Interestingly, preference is *positively* mediated by perceived greenness. We expected greenness to have a negative effect on preference in the strong product category, but we find the opposite.

The detailed processes behind the serial mediation effects (Figure 6.3) reveal that drain opener in recycled materials is perceived as being significantly greener than drain opener with natural ingredients (a_1=0.3090**) and perceived significantly better regarding quality (a_1=1.0754**) as well. In addition, perceived greenness has a significant effect on choice (b_1=0.3008**), and perceived quality has so too (b_2=0.3589**). Thus, both indirect effects are significant and suggest that the respondents chose drain opener in recycled materials over drain opener with natural ingredients due to both higher perceived quality and higher perceived greenness. Further, the indirect effect of perceived quality (M_2) is significantly larger than the indirect effect of perceived greenness (M_1) ($effect_{M1-M2}$=-0.2930, 95% BootCI={-.4727, -.1145}).



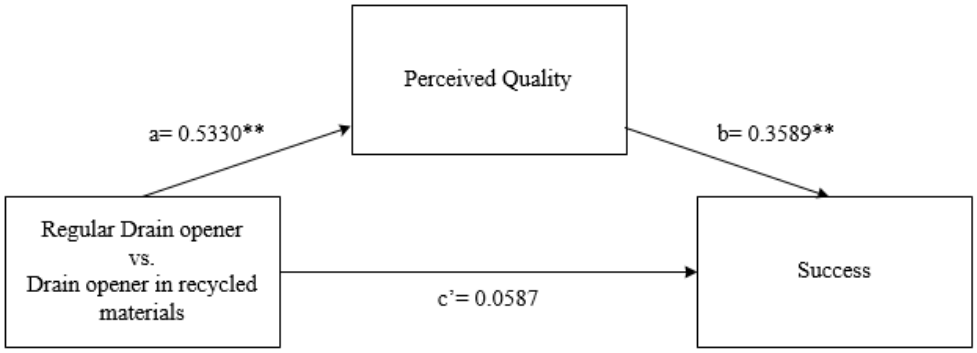
Significance level: *p<.05, **p<.01

Figure 6.3: Serial Multiple Mediation Model: Effect of Both Green Attributes on Choice – Strong Product Category

Strong product category with success as the dependent variable

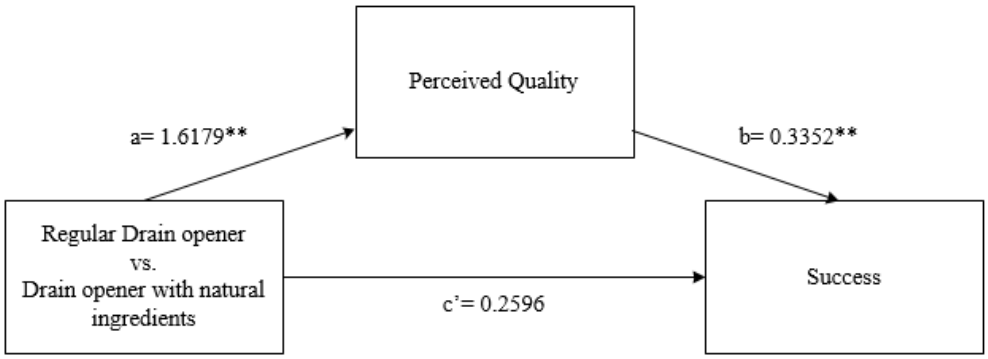
We found similar results when believed success was the dependent variable. For the effects of the conditions; "non-green baseline" vs. "green non-product-related attribute" on anticipated success through perceived quality, we found a significant indirect effect (effect=0.1913, 95% BootCI={.0682, .3651}). The direct effect is not significant (c'= 0.0587, p=.604), indicating that the model is completely mediated. When testing "non-green baseline" vs. "green product-related attribute", we also found a significant indirect effect through quality (effect=0.5423, 95% BootCI={.2867, .8537}), and a non-significant direct effect (c'=0.2596, p=.0874), indicating a complete mediation model. These results support H_{3a}.

The detailed processes behind the mediation reveal that the effect of including a green attribute, both non-product-related (Figure 6.4) and product-related (Figure 6.5), was significant for success as well. Path a for both comparisons (Figure 6.4 and 6.5) is the same as path a when choice is the dependent variable (see Figure 6.1 and 6.2). Path b when the green attribute is non-product-related is 0.3589 and significant on a p<.01 level, and path b when the green attribute is product-related is 0.3352 and significant on a p<.01 level. Consequently, respondents anticipate that regular drain opener will have a higher chance at succeeding in the market due to higher perceived quality.



Significance level: *p<.05, **p<.01

Figure 6.4: Simple Mediation Model: Effect of Baseline vs. Green non-product-related attribute on Success – Strong Product Category

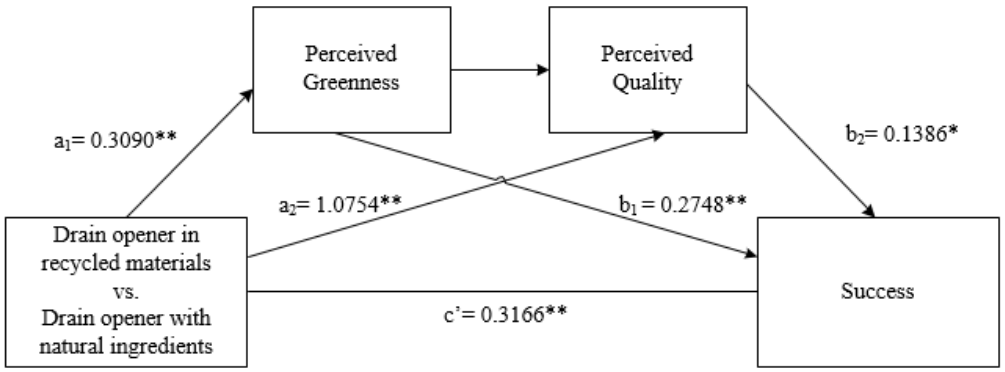


Significance level: *p<.05, **p<.01

Figure 6.5: Simple Mediation Model: Effect of Baseline vs. Green product-related attribute on Success – Strong Product Category

We did not find support for the serial multiple mediation model when the dependent variable was anticipated success (effect=0.0013, 95% BootCI={-.0053, .0111}), and do therefore not find support for H_{3b}. Although, we do find support for a parallel mediation model ($effect_{greenness}$=0.0849, 95% BootCI={.0256, .1603}, $effect_{quality}$=0.1491, 95% BootCI={.0031, .2959}). Although, perceived greenness mediates in the opposite direction than expected. In addition, we find a significant direct effect (c'=0.317, p=.0044), indicating a partially mediated model. Above, we found that the indirect effect of perceived quality is larger than the indirect effect of perceived greenness. When success is the dependent variable we did not find any significant difference between the two indirect effects regarding their effect size ($effect_{M1\text{-}M2}$=-0.0642, 95% BootCI={-.2217, .0926}).

The detailed processes behind the mediation when success is the dependent variable are very similar to when then the dependent variable is choice. The details are found in Figure 6.6 below, but due to simplification purposes are not discussed further.



Significance level: *p<.05, **p<.01

Figure 6.6: Serial Multiple Mediation Model: Effect of Both Green Attributes on Success – Strong Product Category

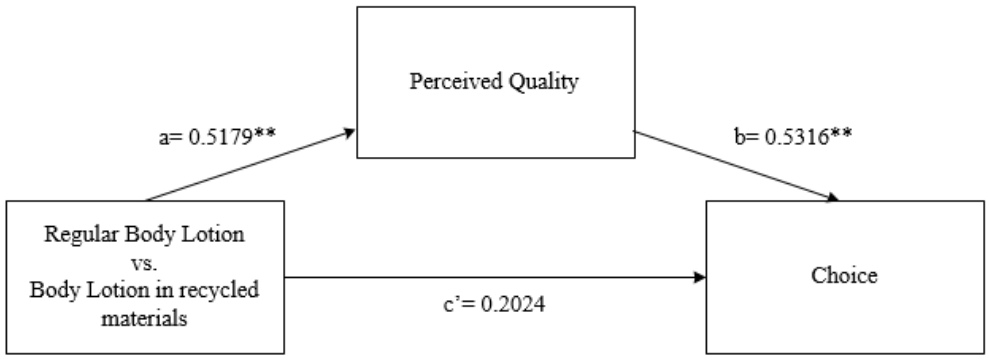
For the strong product category in total, we find full support for H_{3a} and no support for H_{3b}.

Gentle product category with choice as the dependent variable

When comparing the non-green baseline to the green non-product-related attribute, we found a significant indirect effect on choice through perceived quality (effect=0.2753, 95% BootCI={.1350, .4247}). The results indicate a complete mediated model as the direct effect is not significant (c'=0.2024, p=.134). For the comparison of the non-green baseline to the green product-related attribute, we did not find a significant total effect (c=0.1250, p=.3928), indirect effect (effect=0.1096, 95% BootCI={-.0231, .2579}) or direct effect (c'=0.0154, p=.9054).

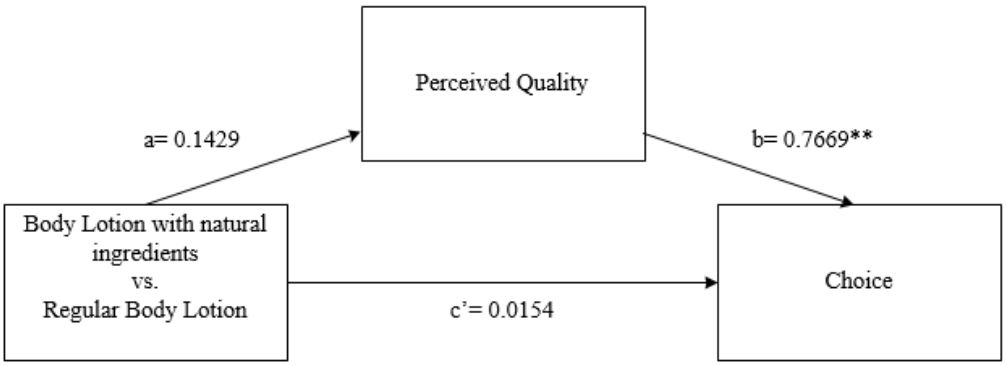
The detailed processes behind the mediation provides us with more insight regarding these results. Path a for the comparison of non-green baseline to green non-product-related attribute reveals that regular body lotion is perceived as having higher quality than body lotion in recycled materials (a=0.5179**) (Figure 6.7). Path b reveals that perceived quality has a significant effect on choice (b=0.5316**). Thus, resulting in an effect of green non-product-related attribute on choice through perceived quality. For the comparison of non-green baseline to green product-related attribute, we find that path a is not significant (a=0.1429), indicating that there is no difference in perceived quality between the two product versions (Figure 6.8). Since neither the total nor direct effect are significant, does the green product-

related attribute not influence choice. Since we only find an effect of the green non-product-related attribute, do we only find partial support for H_{3a}. Moreover, we do not find support for H_1 since the results reveal that the green product is not perceived as having higher quality than the non-green product.



Significance level: *p<.05, **p<.01

Figure 6.7: Simple Mediation Model: Effect of Baseline vs. Green non-product-related attribute on Choice – Gentle Product Category



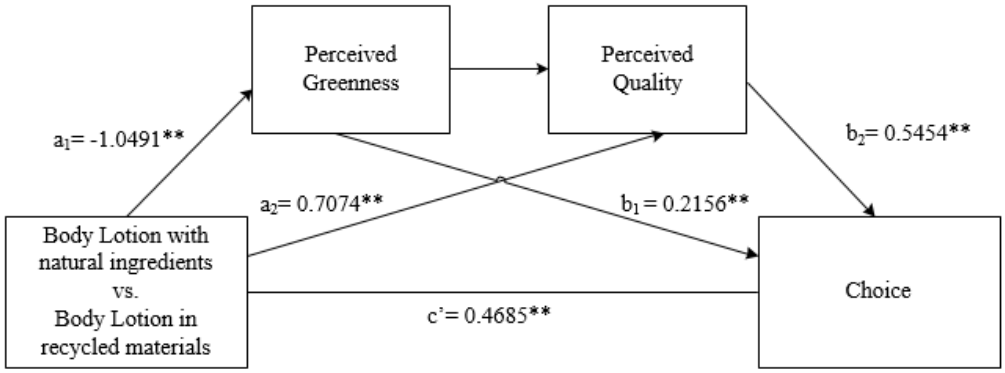
Significance level: *p<.05, **p<.01

Figure 6.8: Simple Mediation Model: Effect of Green product-related attribute vs. Baseline on Choice – Gentle Product Category

The test of the two green attributes' effects on choice, through perceived quality, reveals that we do not find support for the serial multiple mediation model (H_{3b}). The indirect effect through sequentially perceived greenness and perceived quality is not significant (effect=-0.0254, 95% BootCI={-.1102, .0510}). However, we do find support for both indirect effects separately, indicating a parallel mediation model ($effect_{greenness}$=-0.2262, 95% BootCI={-.4050, -.0542}, $effect_{quality}$=0.3858, 95% BootCI={.2142, .5946}). We also find a significant direct effect (c'=0.469, p=.0009), indicating a partial mediation model.

Furthermore, the detailed processes behind the mediation reveal that body lotion with natural ingredients is perceived as less green than body lotion in recycled materials (a_1=-1.0491**), but that it is perceived to have higher quality (a_2=0.7074**). Although, the indirect effect of perceived quality (M_2) is greater than the indirect effect of perceived greenness (M_1) ($effect_{M1-M2}$=-0.6120, 95% BootCI={-.8817, .3471}), resulting in body lotion with natural ingredients being chosen over body lotion in recycled materials.

It is important to mention that even though the mediating effect of perceived quality is a negative value, does this not mean that perceived quality has a negative mediating effect. Body lotion with natural ingredients is perceived as being less green than body lotion in recycled materials and this negatively affects the choice score for lotion with natural ingredients *relative* to lotion in recycled materials. However, due to the difference in perceived quality between the two, body lotion with natural ingredients is still chosen over body lotion in recycled materials.



Significance level: *p<.05, **p<.01

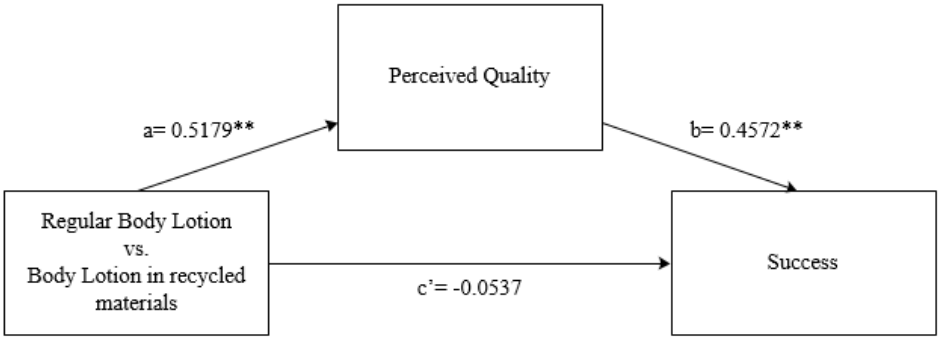
Figure 6.9: Serial Multiple Mediation Model: Effect of Both Green Attributes on Choice – Gentle Product Category

Gentle product category with success as the dependent variable

The indirect effect of the green attribute on believed success through quality, when comparing the non-green baseline to the green non-product-related attribute, we find a significant indirect effect through perceived quality (effect=0.2368, 95% BootCI={.1049, .3822}), but not a significant total effect (c=0.1830, p=.0801) or direct effect (c'=-0.0537, p=.616). This stems from there not being a significant difference between regular body lotion and body lotion in recycled materials concerning their anticipated success. Thus, this suggests that some other effect is cancelling out the positive effect of perceived quality (Hayes, 2009). When comparing the green product-related-attribute to the non-green baseline, we do not find a significant

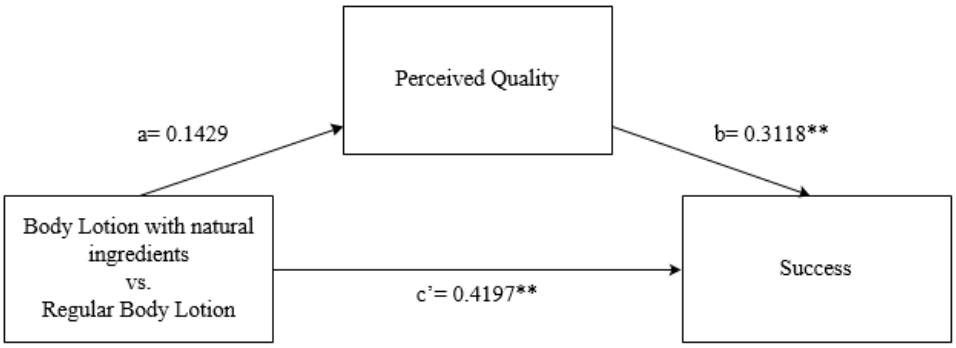
indirect effect through quality (effect=0.0445, 95% BootCI={-.0087, .1180}). Although, the direct effect is significant (c'=0.4197, p<.0005). These results lend only partial support for H_{3a}.

From the detailed processes of the mediation effects (Figure 6.10), we can see that regular body lotion is again perceived as having higher quality than body lotion with recycled materials (a=0.5179**). However, the total and indirect effects are not significant; meaning that some unidentified effect neutralizes the positive effect perceived quality has on believed success (Hayes, 2013). Path a in Figure 6.11 below, reveals that there is no significant difference regarding quality between body lotion with natural ingredients and regular body lotion, resulting in an insignificant indirect effect through quality. Since the direct effect is significant (c'=0.4197, p<.0005), is this an indication that the manipulation itself (green attribute) results in body lotion with natural ingredients having higher anticipated success in the market than regular body lotion.



Significance level: *p<.05, **p<.01

Figure 6.10: Simple Mediation Model: Effect of Baseline vs. Green non-product-related attribute on Success – Gentle Product Category

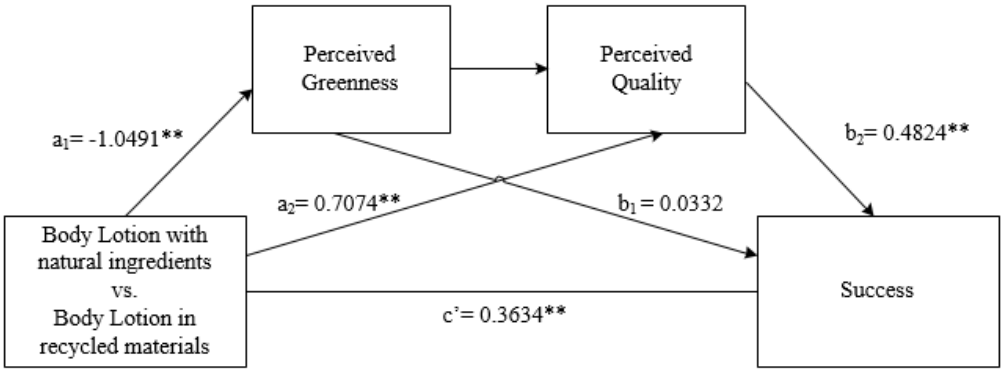


Significance level: *p<.05, **p<.01

Figure 6.11: Simple Mediation Model: Effect of Green product-related attribute vs. Baseline on Success – Gentle Product Category

The test of the serial multiple mediation model shows no support for the suggested sequential effect of both perceived greenness and perceived quality (effect=-0.0225, 95% BootCI={-.0913, .0466}). We do therefore not find support for H_{3b}. We only find support for the indirect effect of perceived quality, suggesting a simple mediation model ($effect_{greenness}$=-0.0348, 95% BootCI={-.1648, .0926}, $effect_{quality}$=0.3412, 95% BootCI={.1984, .5094}). We also find a significant direct effect (c'=0.363, p=.0018), indicating a partial mediation model.

The detailed processes behind the mediation when success is the dependent variable are very similar to when then the dependent variable is choice. The details are found in Figure 6.12 below, but are due to simplification purposes, not discussed further.



Significance level: *p<.05, **p<.01

Figure 6.12: Serial Multiple Mediation Model: Effect of Both Green Attributes on Success – Gentle Product Category

For the gentle product category in total, we find partial support for H_{3a} and no support for H_{3b}.

To sum up, for the strong product category we find support for H_{3a}, but no support for H_{3b}. For the gentle product category, we find some support for H_{3a} and no support for H_{3b}. We find that perceived quality has a positive mediating effect for both product categories and for both dependent variables (choice and success). We find that perceived greenness also has a positive mediating effect for both categories, but for the gentle category, it is only significant when the dependent variable is "choice".

6.3.7 Additional Findings

Perceived Damage

To test if there were any differences in how much damage the participants believed the different products had on respectively their pipes/skin, their health and the environment, we performed several one-way repeated measures ANOVAs on the respondents' damage scores.

First, we compared how much damage they believed the product would have on their pipes/skin across the different conditions within each category. The means and standard deviations are presented in Table 6.6 below. We found a significant effect of the condition on the strong product category, Wilks' Lambda= .52, $F(2, 210)=97.90$, $p<.0005$, multivariate partial eta squared = .48, and on the gentle product category, Wilks' Lambda= .71, $F(2, 222)=45.49$, $p<.0005$, multivariate partial eta squared = .29. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

Table 6.6: Descriptive Statistics for Perceived Damage to pipes/skin for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to pipes	212	$2.66^{a/b}$	1.352
	Recycled Material's damage to pipes	212	$3.75^{a/c}$	1.382
	Regular's damage to pipes	212	$4.53^{b/c}$	1.503
Body Lotion	Natural Ingredient's damage to skin	224	$2.02^{d/e}$	1.303
	Recycled Material's damage to skin	224	$2.63^{d/f}$	1.333
	Regular's damage to skin	224	$2.87^{e/f}$	1.311

Mean scores with matching alphabetic notation are significantly different at the $p<.05$ level.

Regular drain opener scores significantly higher than drain opener with natural ingredients ($p<.0005$) and drain opener in recycled materials ($p<.0005$) on perceived damage. Further, drain opener with natural ingredients scores significantly lower ($p<.0005$) than drain opener in recycled material.

Regular body lotion scores significantly higher than body lotion with natural ingredients ($p<.0005$) and body lotion in recycled materials ($p=.001$) on perceived damage. Further, body lotion with natural ingredients scores significantly lower ($p<.0005$) than body lotion in recycled material. The pairwise comparisons are attached in Table D7.1 in Appendix D7.

Second, we compared the respondents' damage scores on health across the different conditions within each product category. The means and standard deviations are presented in Table 6.7

below. We found a significant effect of the condition for both product categories. The results for the strong category are: Wilks' Lambda = .41, F(2, 210)=152.61, p<.0005 and the multivariate partial eta squared = .59. For the gentle product category, the results are: Wilks' Lambda = .69, F(2, 222)=51.03, p<.0005 and the multivariate partial eta squared = .32. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

Table 6.7: Descriptive Statistics for Perceived Damage to health for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to health	212	$2.50^{a/b}$	1.326
	Recycled Material's damage to health	212	$3.79^{a/c}$	1.372
	Regular's damage to health	212	$4.78^{b/c}$	1.434
Body Lotion	Natural Ingredient's damage to health	224	$2.03^{d/e}$	1.300
	Recycled Material's damage to health	224	$2.57^{d/f}$	1.300
	Regular's damage to health	224	$2.92^{e/f}$	1.345

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Regular drain opener scores significantly higher than drain opener with natural ingredients (p<.0005) and drain opener in recycled materials (p<.0005) on perceived damage. Further, drain opener with natural ingredients scores significantly lower (p<.0005) than drain opener in recycled material. Regular body lotion scores significantly higher than body lotion with natural ingredients (p<.0005) and body lotion in recycled materials (p=<.0005) on perceived damage. Further, body lotion with natural ingredients scores significantly lower (p<.0005) than body lotion in recycled material on perceived damage. The pairwise comparisons are attached in Table D7.2 in Appendix D7.

Lastly, we compared how much damage the respondents believed the products would have on the environment. The means and standard deviations are presented in Table 6.8 below. Again, we found a significant effect of the condition on both product categories. The results for the strong product category are: Wilks' Lambda = .35, F(2, 210)=193.72, p<.0005 and the multivariate partial eta squared = .65. For the gentle product category, the results are: Wilks' Lambda = .44, F(2, 222)=139.13, p<.0005 and the multivariate partial eta squared = .56. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

Table 6.8: Descriptive Statistics for Perceived Damage to the environment (env) for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to env	212	2.78[a/b]	1.438
	Recycled Material's damage to env	212	3.33[a/c]	1.461
	Regular's damage to env	212	5.28[b/c]	1.311
Body Lotion	Natural Ingredient's damage to env	224	3.27[d/e]	1.306
	Recycled Material's damage to env	224	2.57[d/f]	1.276
	Regular's damage to env	224	4.40[e/f]	1.365

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Regular drain opener scores the highest on perceived damage to the environment and drain opener with natural ingredients is perceived to have the least damage. Regular body lotion is also perceived to have the most damage to the environment of the products in the gentle category, and body lotion in recycled materials is perceived to have the least damage. All pairwise comparisons were significant at the p<.0005 level. The pairwise comparisons are attached in Table D7.3 in Appendix D7.

6.4 Summary of Results and Discussion

Table 6.9: Summary of Hypotheses and Results – Study 2

Hypothesis	Choice	Success	Total
H_1: Consumers associate higher functional quality with eco-friendly products in the gentle product category, and lower functional quality with eco-friendly products in the strong product category.	-	-	**Partial Support**
H_{2a}: The green alternative in the strong product category (gentle product category), will be rated lower (higher) on i) choice and ii) anticipated success, than the non-green alternative.	Partial Support	Partial Support	**Partial Support**
H_{2b}: The green product-related attribute results in lower (higher) preference measured by i) choice and ii) anticipated success, than the green non-product-related attribute in the strong product category (gentle product category).	Full Support	Full Support	**Full Support**
H_{3a}: The effect postulated in H_{2a} is mediated by perceived quality.	Partial Support	Partial Support	**Partial Support**
H_{3b}: The effect postulated in H_{2b} is mediated by perceived greenness and perceived quality, sequentially.	No Support	No Support	**No Support**

Main Effects

The analysis of product preference reveals that when respondents are asked from both a "personal point of view" and from an "other point of view", we find partial support for H_{2a} and H_{2b}. For the strong product category, the respondents prefer the option with natural ingredients the least, but there is no difference in preference regarding regular drain opener and drain opener in recycled material. This is interesting, as they do perceive drain opener in recycled material to be significantly lower regarding perceived quality. However, we can see from the mediation analysis that the total effect of the condition when comparing regular drain opener to drain opener in recycled materials on choice, is significant (c=0.2830, p=.0386). In addition, when the dependent variable is success, the total effect is significant (c=0.2500, p=.0246). This indicates that there might be a difference between these two products regarding preference, lending support for both H_{2a} and H_{2b}. This difference might stem from the use of the Bonferroni adjustment to our alpha level when judging statistical significance, as this sets a more strict alpha level.

For the gentle product category, when respondents are asked from a "personal point of view", they choose regular body lotion and body lotion with natural ingredients over body lotion in recycled materials. However, there is no difference in choice between the regular body lotion and body lotion with natural ingredients. This is not surprising when we consider the results from the mediation analysis, which revealed that these two did not differ significantly regarding perceived quality. As quality is a strong predictor of product preference (Newman et al., 2014), it is understandable that these products do not differ significantly regarding choice. However, when the respondents are asked from "another point of view", the results reveal that body lotion with natural ingredients has a significantly higher anticipated success, compared to both other versions. It might be the combination of high perceived quality and high perceived greenness that makes the respondents believe it will perform better in the market. Body lotion with recycled material is perceived as being greener, but the quality is much lower, leading to the low anticipated successfulness.

Meditation Effects

For the strong product category, the results were similar for both questions of preference, choice and success. We found support for our suggested simple mediation model when comparing a green product up against a non-green product. We found that the effect of the condition (green vs. non-green) on preference, is positively mediated by perceived quality, lending support for H_{3a}. However, we did not find support for the serial multiple mediation model as proposed, when comparing the two green conditions up against each other. We do therefore not find support for H_{3b}. We do although, find support for a parallel mediation model where the effect of the condition on preference is mediated by perceived greenness and perceived quality simultaneously.

We assumed that perceived greenness would have a negative mediating effect on preference in the strong product category, but instead it positively mediates the effect. This can explain why there is no significant difference in preference between regular drain opener and drain opener with recycled materials, even though the green version has significantly lower perceived quality. We assume that since regular drain opener is perceived as having high quality, this pulls it in the direction of being preferred, but that the high perceived greenness of drain opener in recycled materials, possibly contributes to it being chosen as well. Thus, leading to a non-significant difference between the two regarding preference. In addition, even though drain opener with natural ingredients also scores highly regarding perceived greenness,

it still scores the lowest on preference. This suggests that for eco-friendliness to have a determining effect on preference, the product must meet a certain level regarding quality.

For the gentle product category, we do not find any effects on choice when comparing body lotion with natural ingredients and regular body lotion. Although, when comparing regular body lotion to body lotion in recycled materials, we do find a significant indirect effect of quality. This lends for partial support for H_{3a}. Furthermore, we do not find support for the serial multiple mediation model (H_{3b}). We do however, find support for a parallel mediation model where the effect of the condition on choice is positively mediated by both perceived quality and perceived greenness simultaneously. In sum, even though body lotion in recycled materials is perceived as greener than body lotion with natural ingredients, we can assume that the respondents choose natural ingredients over recycled material because the first option has higher perceived quality. Again, it seems like it is the combination of quality and greenness that makes the respondents prefer one product over the other.

We did not find a significant indirect effect on success when comparing body lotion with natural ingredients to regular body lotion, but we did find a direct effect. This means there is something else that explains why the respondents anticipate that body lotion with natural ingredients will have a better chance at succeeding. A possible explanation is the green manipulation, since it is the only difference between the two products. When comparing regular drain opener to drain opener in recycled materials, we did find an indirect effect through quality, but no total or direct effect. This means there are some unidentified effects that are cancelling out the positive effect of quality (Hayes, 2009). Furthermore, we did not find support for the serial multiple mediation model, resulting in no support for H_{3b}. In addition, we did not find support for the indirect effect through perceived greenness either, suggesting a simple mediation model when comparing the two green products' effect on success.

In total, we find that perceived greenness and perceived quality in most cases mediate the relationship between the condition and preference. However, they do so separately and not sequentially, leading to a rejection of the serial multiple mediation model (H_{3b}). When comparing a green product to a non-green product, we mostly found that the effect on preference was mediated by perceived quality, lending partial support for H_{3a}.

Findings from the detailed processes of the mediation analysis

We find that respondents believe that drain opener and body lotion in recycled materials are the most environmentally friendly. This is not according to our assumptions based on the research by Luchs et al. (2010) and Gershoff and Frels (2015). An explanation is that plastic pollution is extremely prominent in peoples' minds today due to increased awareness about the issue. Therefore, consumers might believe that plastic packaging is worse for the environment than the chemicals within the product. If they believe so, they may also believe that the product with the recycled material is more eco-friendly. In addition, since the product is compared to a product with natural ingredients, the respondents might have intuitively inferred that the product version with the recycled material also had natural ingredients. In other words, that they were not able to fully understand the difference between the two green versions.

We also find that the respondents perceive the quality of the products in the strong category as expected, thus lending support for H_1. They believe that regular drain opener has the highest quality, while drain opener with natural ingredients has the lowest quality. This is in line with our assumptions regarding perceived quality and the research from Luchs et al. (2010), and Gershoff and Frels (2015). Interestingly, this is the opposite of what we find in study 1, where respondents implicitly associate eco-friendly products with functional quality in the strong product category. This supports our argument that consumers need to use system 2 processing (Kahneman, 2013) to evaluate the trade-off between quality and eco-friendliness.

This is not the case for the gentle product category. The results reveal that respondents perceive regular body lotion and body lotion with natural ingredients to be similar regarding quality, and body lotion in recycled material to have the lowest quality. According to congruency theory one would believe that body lotion in recycled materials would be perceived as the product with the highest quality, because it is perceived as being most eco-friendly (Luchs et al., 2010). An explanation for body lotion in recycled materials scoring lower on quality than regular body lotion, can be explained by resource allocation theory (Newman et al., 2014). It is possible that the respondents believe that making the bottle eco-friendly might have led the product's producers to divert resources away from product quality (Newman et al, 2014). Since we found that recycled materials was perceived as being the most green product, might this also reflect that more quality must have been sacrificed for this product.

Additional Findings

From the analysis of perceived damage, we find that the product with natural ingredients, either it is drain opener or natural ingredients, is perceived to have the least damage on respectively the pipes/skin, health and the environment. However, for the gentle product category, body lotion in recycled materials is believed to have the least damage on the environment. The detailed processes behind the mediation analysis revealed that the product version in recycled materials is also perceived as being the most green. Thus, the results regarding believed damage to the environment lend support for this result, however, only for the gentle product category. For the strong product category, drain opener with natural ingredients is perceived to have the least damage on the environment, so these results are somewhat contradictory. A possible explanation might be that when asked about the product's damage they become more aware about how strong a drain opener is, and that the version with natural ingredients becomes somewhat surprising to them. Hence, leading them to believe that it must have the least damage to the environment, even though they did not rate it as most green in the first place. This although, is in line with the findings from Gershoff and Frels (2015) that find that the product with the green product-related attribute will be perceived as being most eco-friendly.

The respondents believing that body lotion in recycled materials will have the least damage on the environment, supports our argument that the product version in recycled materials is perceived as being greenest due to the prominent problem with plastic pollution.

From the descriptive statistics in Table D3.5 and D3.6 in Appendix D3, we can find the results from the question regarding *believed trade-off*; "An environmentally friendly product has lower quality than a non-environmentally friendly product". When compared with the rest of the results, these descriptive statistics are interesting. The mean score for the question is on the lower end of the scale for both product categories ($M_{\text{strong category}}$=3.75, $SD_{\text{strong category}}$=1.60; $M_{\text{gentle category}}$ =2.96, $SD_{\text{gentle category}}$= 1.58). This suggests that the respondents do not believe that eco-friendly products have lower quality when asked directly. Our results from the mediation analysis indicate that the respondents *do* believe that eco-friendly products have lower quality, especially for the strong product category. This indicates that respondents are inconsistent in their answers, suggesting that social desirability bias is an actual issue regarding environmental topics.

The mean scores for the other questions are close to the mid-value (4.00), indicating that the respondents neither disagree or agree with the statements and therefore provide less interesting insights. We will therefore not elaborate further upon these, but the mean scores can be found in Tables D3.5 and D3.6 in Appendix D3.

7. Study 3: Field Experiment

Study 3 seeks to find further support for the findings from study 2. In this study, we conduct a field experiment where the respondents were exposed to actual products while assessing the product's quality, eco-friendliness and their product preference across two product categories. We also used a sample that is more similar to our target population, making it more generalizable.

7.1 Method

7.1.1 Sampling and Recruitment

The study was carried out at a shopping mall, Åsane Storsenter in Bergen, Norway. This allowed us to conduct the experiment and recruit respondents simultaneously. We chose to perform the experiment at a shopping mall to get a sample that was representative for the average population. In study 1 and 2, our sample consisted of students from the Norwegian School of Economics, which is a more homogenous group than the people you meet at a shopping center. Moreover, we find it reasonable to believe that the people at a shopping center are within the target group of household cleaning products. The fact that we had a different sample in study 3, can be viewed as a weakness of our study and will be discussed further in chapter 8.4 *limitations*.

We recruited 191 respondents and out of these, 181 (95%) completed the experiment. Thus, we had to disregard 10 of the respondents due to nonresponse error. The 181 respondents ranged in age from 15 to 78 years (M=36.05, SD=16.23), 33.7 percent of the sample were males, and 66.3 percent were females. 9.4 percent of the participants had Lower Secondary School as their highest completed or current degree, 40.3 percent had High School, 35.4 percent had a Bachelor's Degree, 13.8 had a Master's Degree and 1.1 percent reported to have a PhD as their highest completed degree or current degree. 93.4 percent of the respondents were of Norwegian origin.

7.1.2 Procedure

The experiment was conducted over three days, Wednesday 21st of March, Friday 23rd and half day on Saturday 24th right prior to the Easter Holidays. We collaborated with two other

master students from NHH who were conducting a similar experiment for their thesis. As we both used the same equipment, the experiment was executed more efficiently for both parts. Because we had helped them with the planning of their experiment, they took care of most of the practical aspects of conducting the experiments; setting up the stalls, contacting the shopping mall management etc.

The experiment took place right inside of one the main entrances of the shopping mall, providing us with a good overview of people coming and going. We had rollups on each side of the entrance with our school's logo on, to ensure credibility. As from prior experience with standing by stands, we know that people to try to avoid you if they think you are trying to sell them something. We thought that emphasizing that we were from the Norwegian School of Economics, would make people believe that we were doing something research-related, increasing the chance of them participating in the experiment.

To have more than one respondent participating in the survey at once, stalls were set up so the respondent could be separated from the other respondents. This ensured that the respondent could feel safe that neither we nor the other participants saw which answers s/he gave. The stalls were alongside a wall and we used dividers on the sides to separate the them, and in front we had a curtain to make it easy to enter and exit the stall. The first day of the experiment, we had two stalls. We found out, however, that the collecting of data was going slower than expected. Therefore, we built a third stall ahead of the second day to increase the speed of sampling. On the second day of the experiment, we also put up two posters that said "Please help us with our master thesis. Take 10 min survey, get 70 NOK gift card". This was something we should have done from day one as it turned out to be very effective for recruiting participants.

Inside the stalls, the respondents found two boxes and a computer on a table, and a chair beside the table. The boxes were labeled respectively "1" and "2". Box number 1 had the three versions of body lotion inside, while box number 2 consequently had the three versions of drain opener inside.

After the respondents had given their consent to participate in the study, we provided them with some specific information prior to taking the survey. This was done orally. They were given a short run-through of how the survey was built up; open only the box you are instructed to and answer questions about the products inside the box. Also, we empathized that they

needed to follow the instructions carefully, and that the products were under development and may therefore look "unfinished". Lastly, we told them to contact us if they experienced technical issues and ensured them that the participation in the study was fully anonymous.

After completing the study, the respondents were thanked and given a 70 NOK mall gift card. We made sure to clear the stall and prepare it for the next respondent as quickly as possible.

7.1.3 Random Assignment

To minimize systematic error of the results and strengthen the internal validity of our experiment, respondents were randomly assigned to either the strong or gentle product category (Parasuraman, Grewal and Krishan, 2004, p. 250). We used the randomization function in Qualtrics that randomly assigned a product category to each respondent and ensured an equal number of respondents in each group. In this way, we did not know which product category each respondent received before sending them into the stall. Ninety-one respondents (50.3%) answered questions about body lotion, and 90 respondents (49.7%) answered questions about drain opener. By doing this, there should be no observable or unobservable statistical differences between the respondents in the two product categories. The only difference between the two groups should be the product category they were exposed to, leaving us with the ability to detect causal inference from the manipulations (Parasuraman, Grewal and Krishan, 2004, p. 250).

7.1.4 Questionnaire

Qualtrics was used to set up the survey and it took about 10 minutes to complete. The first page of the study included the practical information about the experiment (see Appendix E2 and E3). We stated that the survey was a part of the work with our master thesis. Furthermore, information about the length of the study was given, and the fact that they would receive a gift card after completing the entire survey. The next paragraph provided them with some directions of how to proceed with the study. They were told that in the following, they would be asked to open one of the boxes with either the number "1" on or the box with number "2", and it was emphasized that they were only going to open *one* of the boxes. Moreover, the respondent was ensured that all responses would be handled anonymously and that participation in the study was voluntarily; they could leave whenever they wanted without providing a reason. After having read all the information, the respondent had to check off the

box “Yes, I wish to participate” to continue with the experiment. There was also an option that said “No, I do not wish to participate” that sent the respondents to the last page of the survey.

7.1.5 Manipulation

The products used in the experiment were actual products with the actual corresponding products inside. An image of the products is found in Appendix E1. The bottles were white, and the shape was as ordinary as possible to ensure that the respondents would not have any associations to the products. Also, we wanted to avoid any environmental cues affecting the results (Pancer, McShane and Noseworthy, 2017). The bottle for the gentle category had the typical shape of a bottle of lotion, and the bottle for the strong category had the typical shape of a bottle for drain opener. These bottles and their labels were created and designed in collaboration with Orkla.

To ensure that the products seemed realistic, we included some extra information on the product’s labels. The labels on the lotion bottles had the message “body lotion for dry skin”, while the drain opener bottles had the message “unclogs clogged pipes”. Moreover, we included information about the amount of body lotion in ml and the amount of drain opener in grams. Illustrations were also included on the labels to avoid respondents associating the products with a typical affordable product line in Norway, called “First Price”, as these products have quite simple designs and might resemble our products. We did not include any color, as we believe many people have different associations to certain colors. In sum, we tried to make the products as realistic as possible but keep them generic. We named the products “Sera”.

For both products categories, the only thing that distinguished the products from each other was the manipulated message. The condition, “green product-related attribute” was manipulated by adding the message “Drain opener/body lotion made of 100% natural ingredients”. The “green non-product-related attribute” condition was manipulated using the message “Drain opener/body lotion in 100% recycled material”. Lastly, the non-green baseline did not have a manipulation and only included the same message as the others; “body lotion for dry skin” or “unclogs clogged pipes”.

7.1.6 Measures

The entire experiment was conducted in Norwegian, so every question and explanation in this description is translated. The original version of the experiment is attached (Appendix E2 and E3).

After conforming to participate in the study, the respondents were sent to a page instructing them to open either the box to the right or the box to the left. In question 1, respondents were asked to imagine that they were going to buy the products they found inside the box. As we had manipulated the within-subjects independent variables, we had the respondents answer questions about each of the products presented in the previous section, *manipulation*. To reinforce the manipulations, we introduced the following product descriptions:

- Drain opener/body lotion made of 100% natural ingredients
- Drain opener/body lotion in 100% recycled material
- Regular drain opener/body lotion

Question 1 was included to measure the participant's *perceived greenness*, which is the first mediating variable, and the participant's *perceived quality*, which is the second mediating variable. The respondents were asked to rate the question "To what extent do you think the products possess the abilities listed in the tables below?" on a seven-point Likert scale anchored by "To a very little extent" and "To a very large extent". The words listed in the table were respectively: "Environmentally friendly", "Sustainable", "Efficient" and "Strong". The two first words were included to measure perceived greenness and the two last words were measures of quality and can be seen as a reinforcement of the manipulation.

Question 2 was also a measure of *perceived greenness* and we asked for the respondent's level of agreement with the following statements: "This product should be labelled environmentally friendly", "Buying this product is a good environmental choice" and "A person who cares about the environment would buy this product". Items were rated on a seven-point Likert scale anchored by "Strongly Disagree" and "Strongly Agree". These measures of environmentally friendliness are taken from Gershoff and Frels' (2015) study. In study 2, we only included two of these statements, but we found it beneficial to include a third statement, as Gershoff and Frels (2015) use all three in their study. Question 1 and 2 combined, resulted in five measures of perceived greenness.

To measure the second mediating variable, *perceived quality*, we asked the participants to rate "(...) the ability of these products to open clogged pipes/moisturize dry skin" on a seven-point Likert scale anchored by "Low ability" and "High ability". This measure is based upon Newman's et al. (2014) measure of quality.

To measure the participants' preference for the different product versions, thus measuring the dependent variable, we applied two different measures, *choice* and *success*. While *choice* measured preference from a "personal point of view", *success* measured preference from an "other point of view". *Choice* was measured in the following way: "Imagine that your pipes are clogged/your skin is dry, and you are in the need of a drain opener/body lotion. What is the likelihood that you would choose these products?", where the seven-point Likert scale was anchored by "Not likely at all" and "Very likely". The question was based on a measure for preference from Newman et al. (2014). Believed *success* was measured in the following way: "Please rate the likelihood that each alternative will be a success in the market", where the seven-point Likert scale was anchored by "Not a success at all" and "Major success". This measurement is based on Luchs' et al. (2010) measurement of preference, albeit we did some minor changes to make it fit our research better.

To control for various unidentified constructs that could potentially disturb our results, we measured several control variables, letting us focus on the relationship of interest. We asked the respondents to rate the level of damage they thought the three product versions would have on respectively their pipes/skin, their health and the environment. Again, we used a seven-point Likert scale that was anchored by "No damage" to "Very much damage". This gave us further information about how the respondents perceived the strength and eco-friendliness of the products and might help us discover other hidden conceptions about perceived environmentally friendliness.

For the next question, respondents who were assigned to the strong product category were informed that there had been conducted studies in a laboratory about how much drain opener was needed to completely unclog clogged pipes in 15 minutes. We asked them to guess the right amount by pouring drain opener into a measuring cup and then submitting their answer by selecting a point on a scale from 0 to 500 ml. We had an incentive to win two tickets to the movies and the participants were instructed that the winner would be the one who guessed closest to the correct answer. This question was made a competition to hopefully discover the respondents' true opinion about the amount they thought was necessary. The winner was

picked randomly amongst those who submitted their email addresses. For the gentle product category, the question was similar but not did not involve them physically measuring the amount needed. The respondent was told that we knew the correct amount needed of each product to soften dry skin effectively and was asked to state if s/he thought there was a difference in the amount needed amongst the different product versions. This was a "yes" or "no" question. We included a follow-up question where the respondent had to rate the product from "least needed amount" to "largest needed amount", by rating the products from 1 to 3.

The next variable we controlled for was if the participants perceived a trade-off to be present and if they view themselves as environmentally friendly people. The question included a set of four statements where we asked for the participants' level of agreement: "An environmentally friendly product has lower quality than a non-environmentally friendly product", "It is important to me that the products I purchase are environmentally friendly", "I recycle as often as I can" and "I am willing to sacrifice quality for environmentally friendliness". The seven-point Likert scale was anchored by "Strongly disagree" and "Strongly Agree". These measures were included to discover the participants' viewpoints regarding environmentally friendliness and if they perceive themselves as environmentally conscious people.

Furthermore, we included a question regarding what the respondent identifies as the greatest environmental challenge nowadays; "Of the two alternatives listed below, which one do you believe is the greatest environmental challenge humans face today?". The alternatives were "Chemicals from cosmetics and washing detergents that pollute the sea, rivers and lakes" and "Packaging from products that end up in the nature and pollute the sea, rivers and lakes". This question was included to control for the risk of prominence of plastic pollution affecting our results, as there is increasing awareness about plastic pollution (Wearden, 2016; Cronin, 2017).

The last variable we controlled for was price. Eco-friendly products have traditionally been more expensive than non-green products (Gibbs and Hungerford, 2016; Telegraph, 2010), thus, respondents' beliefs about price might have influenced their answers. We asked the respondents if they thought there was a price difference between the three products, with a "yes" or "no" question. If they responded "yes", they received a follow-up question asking them to rate the products from the cheapest to the most expensive.

At the end of the survey, we included some demographic questions. These can be found in Appendix E2 and E3. The reason why it is important for researchers to collect demographics is so that researchers do not draw conclusions without considering culture, ethnicity, gender, race, age etc. (Hammer, 2011). One must know something about one's sample to know whether the results are generalizable to the population or not and if the results from the study can be compared to replications of studies.

7.2 Data Analysis

7.2.1 Main Effects

We tested the main effects by using the same methods as in study 2. We will therefore not describe this again. See chapter 6.2.1 for reference.

7.2.2 Mediation Analysis

The mediation analysis in this study was also performed using MEMORE and utilizes therefore the same method as in study 2. We will therefore not describe this again. See chapter 6.2.2 for reference.

7.3 Results

7.3.1 Descriptive Statistics

Descriptive statistics of the dependent variables, mediator variables and control variables for both product categories are found in Appendix E4.

7.3.2 Factor Analysis and Merging of Measurements

The mediating and dependent variables were subjected to a principal components analysis (PCA). We applied the rotation method Oblimin with Kaiser Normalization. Before performing the PCA, we assessed the data and determined that each condition (green product-related attribute, green non-product-related attribute and non-green baseline) within each category would be analyzed for themselves. This was done because the "X" value is included within the mediating and dependent variables, resulting in the variables conceptually measuring different concepts; hence, there is non-redundancy between the items (Singh,

1991). It made therefore sense to analyze them independently. The goal of the factor analysis was to determine if we could in fact merge the five measurements of greenness into one, and if the quality measurement could be merged together with the items measuring perceived effectiveness and strength.

The PCA revealed that the measurements of effectiveness and strength loaded on different components depending on the condition for the gentle product category, and it did not load together with the other measurement of quality. For the strong product category, these measurements did load as suspected, namely together with the other measurement of quality. In other words, the measurements of effectiveness and strength seemed to measure different concepts in the different product categories. Considering this, and the fact that we received questions about these items from participants during the experiment, we decided to exclude the measurements of effectiveness and strength from our analysis.

As seen from the factor analysis (see Appendix E5), the two first green measures loaded on a third component for the non-green baseline condition in the gentle product category (see Table E5.3 in Appendix E), and for the green non-product-related attribute condition in the strong product category (see Table E5.5 in Appendix E). Because of this, we performed an extra factor analysis for each product category where we used merged items. These merged items consisted of the average of the green measures across the three conditions. In other words, we combined the first green measure for each condition, and then combined the second green measure for each condition and so on. We did the same for quality, choice and success, and then performed a factor analysis. The test revealed that the green measures load on one component, while the items for quality, choice and success load on the other component. This is the case for both product categories. In addition, four of our measures of perceived greenness are based upon Gershoff and Frels' (2015) measures of *green evaluation*, and they averaged these four items into *one* measure. Based upon this, we decided to merge the five green measures within each condition into one measure of perceived greenness. Since we have three conditions and two product categories, we had six measures of perceived greenness. The factor analysis with the Cronbach's Alpha values can be found in appendix E5.

The factor analysis reveals that quality, choice and success load on the same component, indicating that there exists a correlation between the items and that they might measure the same concepts. Thus, indicating a redundancy problem (Singh, 1991). Singh (1991) suggests that redundancy can be evaluated by a review of the literature and that non-redundancy is

supported if there are clear differences in the definitions, causes and effects of the constructs. It is not surprising that the factor analysis revealed a relationship between quality, choice and success, as quality is a major driver of purchase interest (Newman et al., 2014). In addition, choice and success are both measures of preference (Luchs et al., 2010). We therefore saw these two items as non-redundant and kept them separate for the remaining analysis. Regarding the measurement of perceived quality, conceptually it measures something different from choice and success. In addition, our measure of quality is adapted from Newman et al. (2014), and they too include a measurement of quality and another measurement of preference. It therefore appears that we have sufficient theoretical evidence to claim that the items for perceived quality and preference are non-redundant, but related, constructs (Singh, 1991).

7.3.3 Test of Assumptions

The statistical techniques used in the analysis require a set of assumptions to be satisfied. Since we used the same tests in both study 2 and study 3, we will in the following only briefly discuss how our data meets these assumptions without giving a theoretical explanation, as this can be found in section 6.3.3.

Independence of Observations

We ensured independence of observations by collecting individual responses from our participants. As explained in section *7.1.2, procedure*, each respondent participated in the experiment within a closed stall, making it nearly impossible to collaborate or be influenced by someone else's answers.

Normal Distribution

The descriptive statistics from study 3 (see Appendix E4), show that out of the mediating and dependent variables only 10 of the variables had skewness values above |1|; three positive and seven negative. Six of the mediating and dependent variables had kurtosis values above |1|; five positive and one negative. This means that our data does not meet the assumption of normal distribution. However, since our sample size is reasonably large (*n=181*), we do not believe that this will cause any major problems (Pallant, 2007).

7.3.4 Main Effects

We used the repeated measures ANOVA to answer the following hypotheses:

H_{2a}: *The green alternative in the strong product category (gentle product category), will be rated lower (higher) on i) choice and ii) anticipated success, than the non-green alternative.*

H_{2b}: *The green product-related attribute results in lower (higher) preference measured by i) choice and ii) anticipated success, than the green non-product-related attribute in the strong product category (gentle product category).*

Choice

The choice scores across the different conditions were tested using the repeated measures ANOVA. The means and standard deviations are presented in Table 7.1 below. For the strong product category, there was not a significant effect of the condition, Wilks' Lambda = .99, F(2, 88)=0.44, p = .647, multivariate partial eta squared =.010. However, for the gentle product category, there was a significant effect of the condition, Wilks' Lambda = .64, F(2, 89)=24.59, p < .0005, multivariate partial eta squared = .36. The effect size of the result for the gentle product category is large, but the effect size for the strong product category is very small which is reasonable considering the condition did not have any effect (Cohen, 1988, p. 284-7).

Table 7.1: Descriptive Statistics for Choice, for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Green Product-Related Attribute	90	4.72	1.88
	Green Non-Product-Related Attribute	90	4.74	1.88
	Non-Green Baseline	90	4.98	1.80
Body Lotion	Green Product-Related Attribute	91	$5.38^{a/b}$	1.57
	Green Non-Product-Related Attribute	91	4.10^{a}	1.83
	Non-Green Baseline	91	3.95^{b}	1.70

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Since there is no significant effect of the condition on choice in the strong product category, none of the pairwise comparisons will be significant either and have therefore been excluded from the pairwise comparisons table (Table E6.1 in Appendix E6). For the gentle category, the results reveal that the respondents will choose body lotion with natural ingredients over both body lotion in recycled materials (p<.0005) and regular body lotion (p<.0005). There is no difference regarding regular body lotion and body lotion in recycled materials regarding choice (p=1).

These results lend partial support for H_{2a} and H_{2b}.

Success

To analyze the results for when respondents are asked for their preference for the products from an "other point of view", we again used the repeated measures ANOVA. We used the test to compare the scores on the believed success of the product across the different conditions and product categories. The means and standard deviations from the tests are presented below in Table 7.2 below. Again, for the strong product category, there was no effect of the condition, Wilks' Lambda = .97, F(2, 88)=1.50, p = 0.23, multivariate partial eta squared = .033. For the gentle product category on the other hand, there was a significant effect of the condition, Wilks' Lambda = .56, F(2, 89)=34.72, p < .0005, multivariate partial eta squared = 0.44. The effect size of the results for the strong product category is very small, which is expected as there was no effect of the condition. For the gentle product category, the effect size of the result is large (Cohen, 1988, p. 284-7).

Table 7.2: Descriptive Statistics for Success, for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Green Product-Related Attribute	90	4.83	1.63
	Green Non-Product-Related Attribute	90	4.67	1.65
	Non-Green Baseline	90	4.41	1.60
Body Lotion	Green Product-Related Attribute	91	$5.46^{a/b}$	1.21
	Green Non-Product-Related Attribute	91	$4.73^{a/c}$	1.36
	Non-Green Baseline	91	$3.84^{b/c}$	1.47

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Since there is no significant effect of the condition on success in the strong product category, none of the pairwise comparisons will be significant either and have therefore been excluded from the pairwise comparisons table (Table E6.2 in Appendix E6). For the gentle category, there is a significant difference in believed success between each of the conditions (p<.0005). Where body lotion with natural ingredients is believed to have the highest chance of success in the market and regular body lotion is believed to have the least chance of success.

These results lend partial support for H_{2a} and H_{2b}.

7.3.5 Mediation Effects

To test our hypothesized meditation model, we again used the MEMORE macro in SPSS. The hypotheses we wished to test are the same as in study 2, namely:

H_{3a}: *The effect postulated in H_{2a} is mediated by perceived quality.*

H_{3b}: *The effect postulated in H_{2b} is mediated by perceived greenness and perceived quality, sequentially.*

These hypotheses are based upon the hypotheses about product preference. Since the results from the analysis of the main effects do not fully support both hypotheses regarding preference, will we not find full support for these either. However, we will be able to determine if the main effects that we find are mediated by perceived greenness and/or perceived quality.

For both product categories, we analyzed the effect of the condition, through the mediating variables, on both choice and success. The results from this analysis can be found in Appendix E7.

Strong product category

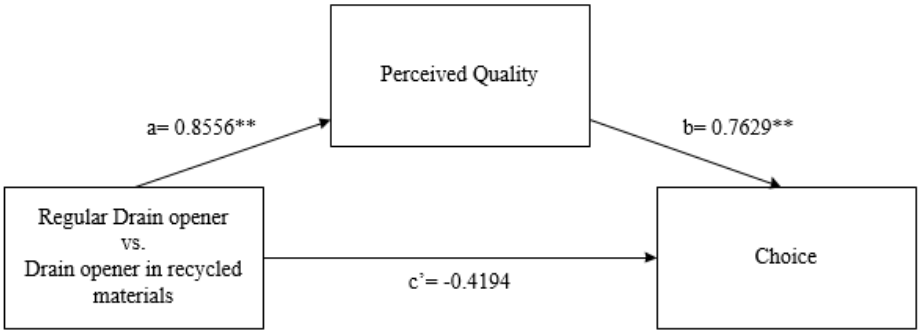
From the repeated measures ANOVA performed on the strong product category in the previous section *7.3.5, main results*, we found that there was no significant effect of the conditions on preference. Neither of the measurements choice and success, were significantly affected by the condition. Therefore, when we ran MEMORE on our data for the strong product category none of the total effects were significant – as expected.

However, we did find some indirect effects. This means that the condition exerts an indirect effect on preference through perceived greenness and/or perceived quality even in the absence of a relationship between X and Y. Hayes (2009) explains that this is possible because the total effect is the sum of several different paths of influence, and that not all are necessarily a part of the proposed model. If there are two or more indirect effects from X to Y, and these effects work in opposite directions, they can cancel each other out. Thus, resulting in a non-significant total effect, even though there exist significant indirect effects (Hayes, 2009).

When comparing the non-green baseline to the green non-product-related attribute, we found a positive indirect effect through quality on both choice (effect=0.6527, 95% BootCI={.3076, 1.0739}) and success (effect= -.4111, 95% BootCI={-.7032, -.1163}). We also found

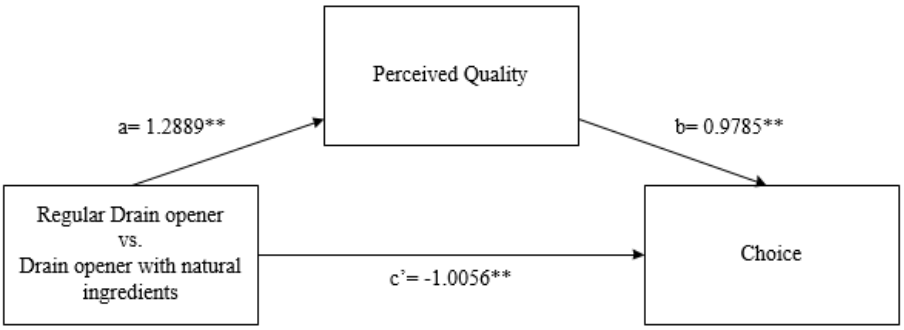
significant indirect effects through perceived quality on choice (effect=1.2612, 95% BootCI={,7880, 1.7848}) and success (effect=-0.7705, 95% BootCI={-1.1133, -.4383}) when comparing the non-green baseline to the green product-related attribute (see table E7.1 in Appendix E7 for more details). The indirect effects in themselves lend support for H_{3a}, but because the total effect is not significant, we do not find an effect on preference. Thus, we do not find support for the hypothesis.

The processes behind the mediation reveal that regular drain opener is perceived as having higher quality than drain opener in recycled materials (a=0.8556**)(Figure 7.1) and drain opener with natural ingredients (a=1.2889**)(Figure 7.2), thus lending support for H_1.



Significance level: *p<.05, **p<.01

Figure 7.1: Simple Mediation Model: Effect of Baseline vs. Green non-product-related attribute on Choice – Strong Product Category



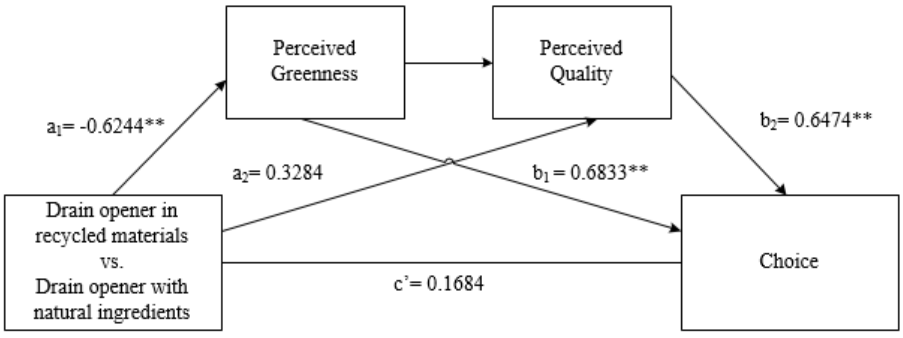
Significance level: *p<.05, **p<.01

Figure 7.2: Simple Mediation Model: Effect of Baseline vs. Green product-related attribute on Choice – Strong Product Category

The detailed processes behind the mediation when success is the dependent variable are very similar to when then the dependent variable is choice and are therefore not discussed further. The details can be found in Figure E7.1 and E7.2 in Appendix E7.

When comparing the two green attributes to each other, we did not find support for the serial multiple mediation model for either choice or success, as the sequential indirect effect through M_1 and M_2 was not significant ($effect_{choice}$=0.0679, 95% BootCI={-.0312, .2018}, $effect_{success}$=-0.0450, 95% BootCI={-.1488, .0195}). When the dependent variable was choice, the indirect effect of perceived greenness is significant (effect=-0.4267, 95% BootCI={-.8177, -.1221}), but not the indirect effect of perceived quality (effect=0.2126, 95% BootCI={-.0042, .4882}). When the dependent variable was success, the indirect effect of perceived greenness was not significant (effect=0.1561, 95% BootCI={-.0275, .4306}), and the indirect effect of perceived quality was significant (effect=- 0.1409, 95% BootCI={-.3170, -.0006}). Note that these negative values are only relative, and we can therefore infer that both perceived greenness and perceived quality positively affect the relationship between X and Y. Perceived greenness when Y=choice and perceived quality when Y=success. These results suggest that we have a simple mediation model for both Y-variables, and we do therefore not find support for H_{3b}. In addition, the total effect of green attribute type on both choice and success is not significant (c_{choice}=0.022, p=.93; $c_{success}$=0.167, p=0.43), indicating that some unidentified effects are cancelling out the positive effects of perceived quality and perceived greenness (Hayes, 2013).

The detailed processes behind the mediation effects for both choice and success (Figure 7.3 and Figure 7.4) reveal that respondents perceive drain opener in recycled materials to be less green than drain opener with natural ingredients (a_1=-0.6244**), but there is no significant difference regarding perceived quality (a_2=0.3284).



Significance level: *p<.05, **p<.01

Figure 7.3: Serial Multiple Mediation Model: Effect of Both Green Attributes on Choice – Strong Product Category

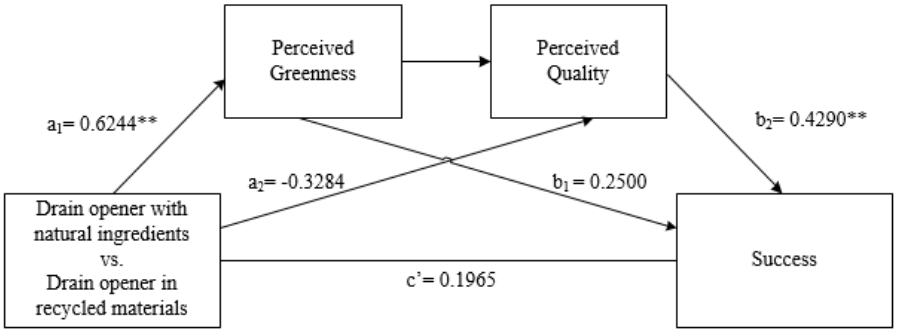


Figure 7.4: Serial Multiple Mediation Model: Effect of Both Green Attributes on Success – Strong Product Category

For the strong product category in total, we find no support for neither H_{3a} or H_{3b}.

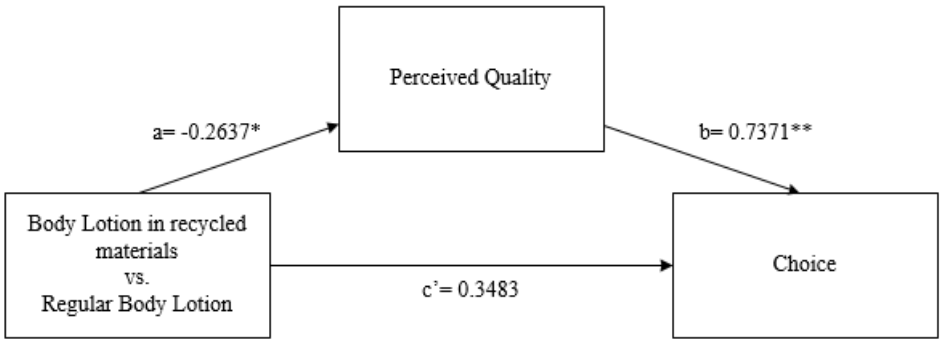
Gentle product category with choice as the dependent variable

The test of the relationship between the green non-product-related attribute and the non-green baseline on choice is also mediated by perceived quality (effect= -0.1944, 95% BootCI={-.4891, -.0114}). However, there is no total effect (c= 0.1538, p=.4296) or direct effect (c'=0.3483, p=.0543) of the condition on choice (cf. explanation above). Even though body lotion with recycled material is perceived as having lower quality than regular body lotion, the respondents seem to prefer it equally to regular body lotion. This is an indication that there exist effects within the total effect that are cancelling out the negative effect of having lower perceived quality. Since the indirect effect is cancelled out by some other unidentified effect and choice is therefore not significantly affected, does this not lend support for H_{3a}.

Next, when comparing the green product-related-attribute to the non-green baseline, we found a significant indirect effect on choice through perceived quality (effect=0.5449, 95% BootCI={.2470, .8965}). In addition, we found a significant direct effect (c'=0.8946, p<.0005), indicating that this is a partial mediated model. Since greenness is manipulated within the green condition, a significant direct effect can mean that the green manipulation also had a positive effect on choice. This result lends support for H_{3a}.

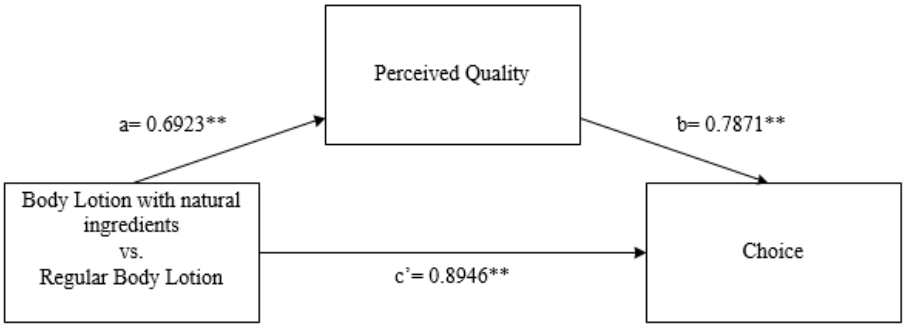
The detailed processes behind the mediation provide us with more insight regarding these results. From Figure 7.5 we find that body lotion in recycled materials is perceived to have lower quality than regular body lotion (a=-0.2637*) and that perceived quality has a significant effect on choice (b=0.7371**). Further, from Figure 7.6 we find that body lotion with natural ingredients is perceived to have higher quality than regular body lotion (0.6923**) and that perceived quality has a significant effect on choice (b=0.7871**). Since body lotion in

recycled materials is perceived as having lower quality than regular body lotion, but body lotion with natural ingredients is perceived as having higher quality than regular body lotion, we find partial support for H_1.



Significance level: *p<.05, **p<.01

Figure 7.5: Simple Mediation Model: Effect of Green non-product-related attribute vs. Baseline on Choice – Gentle Product Category



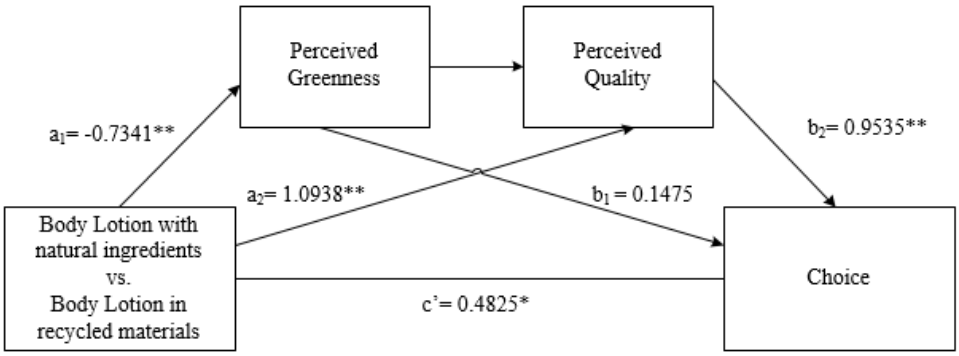
Significance level: *p<.05, **p<.01

Figure 7.6: Simple Mediation Model: Effect of Green product-related attribute vs. Baseline on Choice – Gentle Product Category

As mentioned before, the serial multiple mediation model is only applicable for the two green conditions as we are researching how the different levels of perceived greenness affect preference. However, we did not find support for the serial multiple mediation model where the condition affects choice through perceived greenness and perceived quality sequentially (effect= -0.1313, 95% BootCI={-.3174, .1296}). We did find the indirect effect through perceived quality to be significant (effect=1.0429, 95% BootCI={.5839, 1.4842}), and the direct effect to be significant as well (c'=0.4825, p=.0173). However, we did not find a significant indirect effect through perceived greenness (effect=-0.1083, 95% BootCI={-.3057,.0761}). These results suggest a simple mediation model, thus H_{3b} is not supported. The results indicate that body lotion with natural ingredients is chosen above body lotion in

recycled materials due to higher perceived quality and due to a direct effect of the manipulation.

Body lotion with natural ingredients is perceived to be significantly less green than body lotion with recycled materials (a_1=-0.7341**), but it is perceived as being significantly higher in quality (a_2=1.0938**), as seen from Figure 7.7 below. Perceived greenness does not have a significant effect on choice (b_1=0.1475), but perceived quality does (b_2=0.9535**), thus resulting in an indirect effect only through perceived quality.



Significance level: *p<.05, **p<.01

Figure 7.7: Serial Multiple Mediation Model: Effect of Both Green Attributes on Choice – Gentle Product Category

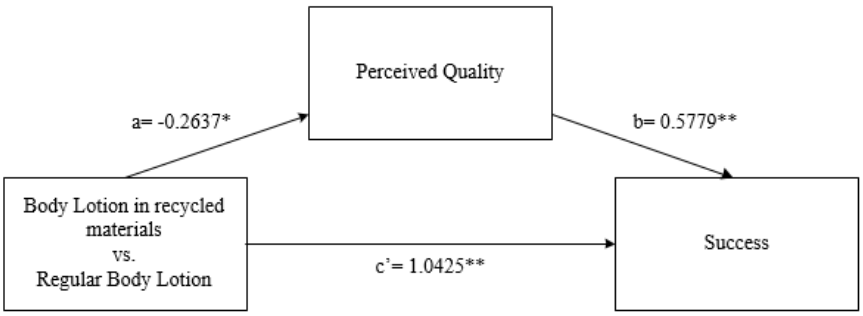
When choice is the dependent variable in the gentle product category, we find partial support for H_{3a} and no support for H_{3b}.

Gentle product category with success as the dependent variable

We found a significant indirect effect on success through perceived quality when comparing the green non-product-related attribute to the non-green baseline (effect= -0.1524, 95% BootCI={-.4057, -.0038}). Again, note that the negative value is only relative. Perceived quality has a positive mediating effect. However, because regular body lotion has a higher perceived quality than body lotion with recycled materials (a=-0.2637*)(Figure 7.8), perceived quality will have a relative negative effect on body lotion with recycled materials. We also found a significant direct effect (c'=1.0425, p<.0005), suggesting a partial mediation model. These results suggest that even though body lotion with recycled materials is perceived as having lower quality than regular body lotion, respondents still anticipate that it will have a higher chance of success. This can mean that the green manipulation within the condition

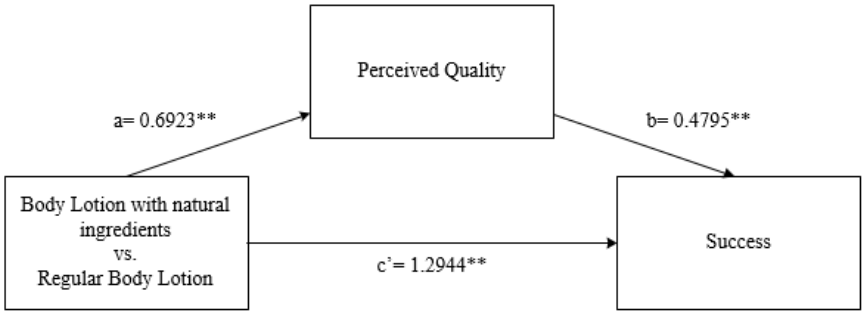
reverses the negative effect the lower perceived quality, so that body lotion in recycled materials is anticipated to have higher success in the market. This result lends support for H_{3a}.

The test of the comparison of the green product-related attribute and the non-green baseline, revealed a significant indirect effect on success through perceived quality (effect= 0.3320, 95% BootCI={.0718, .6355}), and a significant direct effect (c'=1.2944, p<.0005). Therefore, we suggest that the relationship between the condition and anticipated success is partially and positively mediated by perceived quality. This result lends support for H_{3a}. Since greenness only exists within the one condition, a significant direct effect can mean that the green manipulation also had a positive effect on anticipated success. In addition, we find that body lotion with natural ingredients has higher perceived quality than regular body lotion (a=0.6923**)(Figure 7.9).



Significance level: *p<.05, **p<.01

Figure 7.8: Simple Mediation Model: Effect of Green non-product-related attribute vs. Baseline on Success – Gentle Product Category



Significance level: *p<.05, **p<.01

Figure 7.9: Simple Mediation Model: Effect of Green product-related attribute vs. Baseline on Success – Gentle Product Category

The test of the serial multiple mediation model when comparing the two green attributes shows no support for the suggested sequential effect of both perceived greenness and perceived quality (effect= -0.0719, 95% BootCI={-.1730, .0788}). We consequently do not find support

for H_{3b}. Although, we did find an indirect effect through perceived quality (effect= 0.5706, 95% BootCI={.1948, .9450}), but not through perceived greenness (effect=-0.2616, 95% BootCI={-.4574, .0191}), suggesting a simple mediation model. The results also show a significant direct effect (c'=0.4991, p=.0151), suggesting that we have a partial mediation model.

Moreover, from Figure 7.10, we find that body lotion with natural ingredients is perceived as being less green than body lotion in recycled materials (a_1=-0.7341**). However, body lotion with natural ingredients is also perceived as having higher quality (a_2=1.0938**). We can therefore assume from these results that respondents believe that body lotion with natural ingredients will have a higher chance of succeeding in the market due to it having higher perceived quality. There is also a direct effect of the condition on success, but perceived greenness does not have a mediating effect.

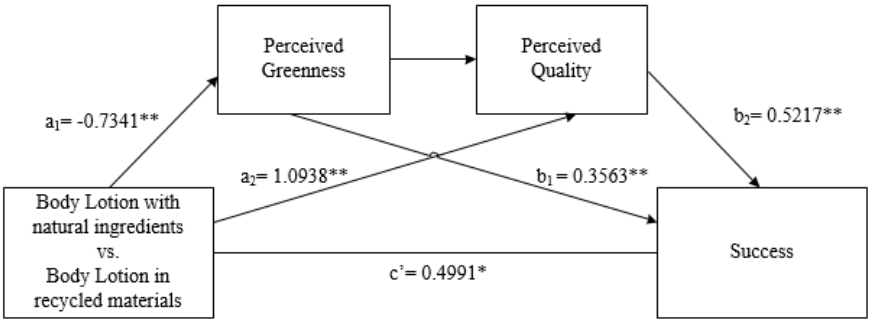


Figure 7.10: Serial Multiple Mediation Model: Effect of Both Green Attributes on Success – Gentle Product Category

When success is the dependent variable in the gentle product category, we find full support for H_{3a} and no support for H_{3b}.

A summarization of the results from both product categories reveal that we have partial support for H_{3a}, and no support for H_{3b}. We find that perceived quality has a positive mediating effect on both dependent variables (choice and success), for both product categories. Although, perceived greenness only has a mediating effect in the strong product category when Y=choice.

7.3.6 Additional Findings

Perceived Damage

To determine if there were any differences between the levels of damage the participants believed the different products had, we performed several one-way repeated measures ANOVAs on respondent's damage scores. First, we wished to compare how much damage the respondents believed that the product would have on the pipes/skin across the different conditions within each product category. The means and standard deviations are presented in Table 7.3 below. For the strong product category, we found a significant effect of the condition, Wilks' Lambda= .53, $F(2, 88)= 38.78$, $p<.0005$, multivariate partial eta squared = .47. For the gentle product category, we also found a significant effect of the condition, Wilks' Lambda=.61, $F(2, 89)=27.99$, $p<.0005$, multivariate partial eta squared = .39. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

For the strong product category, respondents believed that regular drain opener would do significantly more damage to the pipes than drain opener with natural ingredients ($p<.0005$) and drain opener in recycled materials ($p<.0005$). They also believed that drain opener in recycled materials would do significantly more damage than drain opener with natural ingredients ($p<.0005$). For the gentle product category, body lotion with natural ingredients scores significantly lower on believed damage than both body lotion in recycled materials ($p<.0005$) and regular body lotion ($p<.0005$). There is no significant difference between regular body lotion and lotion in recycled materials regarding believed damage ($p=.42$) (see Table E8.1 in appendix E8 for the pairwise comparisons).

Table 7.3: Descriptive Statistics for Perceived Damage to pipes/skin for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to pipes	90	$2.17^{a/b}$	1.376
	Recycled Material's damage to pipes	90	$3.50^{a/c}$	1.501
	Regular's damage to pipes	90	$4.28^{b/c}$	1.878
Body Lotion	Natural Ingredient's damage to skin	91	$1.92^{d/e}$	1.455
	Recycled Material's damage to skin	91	3.00^{d}	1.291
	Regular's damage to skin	91	3.22^{e}	1.604

Mean scores with matching alphabetic notation are significantly different at the $p<.05$ level.

Second, we compared how much damage the respondents believed that the product would have on their health across the different conditions within each product category. The means

and standard deviations are presented in Table 7.4 below. For the strong product category, we found a significant effect of the condition, Wilks' Lambda= .49, $F(2, 88)= 45.94$, $p<.0005$, multivariate partial eta squared = .51. For the gentle product category, we also found a significant effect of the condition, Wilks' Lambda=.61, $F(2, 89)=29.07$, $p<.0005$, multivariate partial eta squared = .40. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

For the strong product category, respondents believed that regular drain opener would do significantly more damage to their health than drain opener with natural ingredients ($p<.0005$) and drain opener in recycled materials ($p<.0005$). They also believed that drain opener in recycled materials would do significantly more damage than drain opener with natural ingredients ($p<.0005$). For the gentle product category, body lotion with natural ingredients scores significantly lower on believed damage than both body lotion in recycled materials ($p<.0005$) and regular body lotion ($p<.0005$). There is no significant difference between regular body lotion and lotion in recycled materials regarding the believed damage ($p=.23$) (see Table E8.2 in appendix E8 for the pairwise comparisons).

Table 7.4: Descriptive Statistics for Perceived Damage to health for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to health	90	2.34[a/b]	1.581
	Recycled Material's damage to health	90	3.71[a/c]	1.581
	Regular's damage to health	90	4.68[b/c]	1.695
Body Lotion	Natural Ingredient's damage to health	91	1.86[d/e]	1.304
	Recycled Material's damage to health	91	2.88[d]	1.298
	Regular's damage to health	91	3.14[e]	1.434

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Third, we compared how much damage the respondents believed that the product would have on the environment across the different conditions within each product category. The means and standard deviations are presented in Table 7.5 below. For the strong product category, we found a significant effect of the condition, Wilks' Lambda= .43, F(2, 88)= 48.10, p<.0005, multivariate partial eta squared = .57. For the gentle product category, we also found a significant effect of the condition, Wilks' Lambda=.68, F(2, 89)=21.47, p<.0005, multivariate partial eta squared = .33. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

For the strong product category, respondents believed that regular drain opener would do significantly more damage to the environment than both drain opener with natural ingredients (p<.0005) and drain opener in recycled materials (p<.0005). Drain opener in recycled materials is also believed to have significantly more damage on the environment than drain opener with natural ingredients (p<.0005). For the gentle product category, regular body lotion is believed to have significantly higher damage on the environment than both body lotion with natural ingredients (p<.0005) and body lotion in recycled materials (p<.0005). However, there is no difference in believed damage between the two green versions (p=.27) (see Table E8.3 in Appendix E8 for the pairwise comparisons).

Table 7.5: Descriptive Statistics for Perceived Damage to the environment (env) for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's damage to env	90	2.37[a/b]	1.554
	Recycled Material's damage to env	90	3.68[a/c]	1.661
	Regular's damage to env	90	5.06[b/c]	1.524
Body Lotion	Natural Ingredient's damage to env	91	2.70[d]	1.531
	Recycled Material's damage to env	91	2.36[e]	1.703
	Regular's damage to env	91	3.91[d/e]	1.631

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Needed Amount

To determine if the respondents believed that different amounts of the product versions were needed to unclog pipes and smooth dry skin, we performed yet another one-way repeated measures ANOVA. We compared the respondents' answers across the three different conditions for the strong product category, and compared the respondents ranking of the needed amount across the conditions for the gentle product category. The means and the standard deviations are presented in Table 7.6 For the strong product category, we found a significant effect of the condition on the believed needed amount, Wilks' Lambda=.85, F(2, 88)=7.7, p=.001, multivariate partial eta squared=.15. For the gentle product category, we also found a significant effect of the condition on the believed needed amount, Wilks' Lambda=.85, F(2, 58)=4.97, p=.010, multivariate partial eta squared=.15. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

For the strong product category, respondents believed that they would need significantly more of the drain opener with natural ingredients than of the regular drain opener (p=.069) and the drain opener in recycled materials (p=.001). There was no significant difference in the believed amount needed between regular drain opener and drain opener in recycled materials (p=1). For the gentle product category, the respondents rated that the needed amount of body lotion with natural ingredients was significantly lower than body lotion in recycled materials (p=.007), but not significantly different from the needed amount of regular body lotion (p=.087). The believed needed amount was not significantly different between body lotion in recycled materials and regular body lotion either (p=1) (see Table E8.4 in Appendix E8 for the pairwise comparisons).

Table 7.6: Descriptive Statistics for the believed needed amount of the product for both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener[7]	Amount needed of NI[8]	90	235[a/b]	121
	Amount needed of RM[9]	90	201[a]	95
	Amount needed of Reg[10]	90	206[b]	116
Body Lotion[11]	Amount needed of NI[8]	60	1.67[c]	0.877
	Amount needed of RM[9]	60	2.23[c]	0.698
	Amount needed of Reg[10]	60	2.10	0.775

Mean scores with matching alphabetic notation are significantly different at the p<.05 level.

Price

We also had the respondents rate the products according to price, where 1=cheapest and 3=most expensive. To test if the condition influenced the price ranking, we performed two more one-way repeated measures ANOVAs – one for each product category. The means and standard deviations are presented below in Table 7.7. For both product categories, we found a significant effect of the condition. The results from the strong category are as following: Wilks' Lambda=.27, F(2, 82)=111.21, p<.0005, partial eta squared =.73. The results from the gentle category are: Wilks' Lambda=.56, F(2, 80)=31.23, p<.0005, multivariate partial eta squared=.44. Both partial eta squared values indicate a large effect size (Cohen, 1988, p. 284-7).

For both product categories, respondents believe that the product with natural ingredients is the most expensive and that the regular product is the cheapest. All pairwise comparisons had a p-value below .0005 (see Table E8.5 in Appendix E8 for the pairwise comparisons).

[7] The mean values for drain opener are given in ml
[8] NI = Product Version with 100% Natural Ingredients
[9] RM = Product Version with 100% Recycled Materials
[10] Reg = Regular Product Version/Non-green Baseline
[11] The mean values for body lotion are the mean ranked scores where 1=least needed amount, 3=most need amount

Table 7.7: Descriptive Statistics for Price Ranking both Product Categories with Statistics Test Scores for each condition

Product Category	Condition	N	Mean	Standard Deviation
Drain Opener	Natural Ingredient's price ranking	84	2.77[a/b]	.499
	Recycled Material's price ranking	84	1.98[a/c]	.514
	Regular's price ranking	84	1.25[b/c]	.578
Body Lotion	Natural Ingredient's price ranking	82	2.56[d/e]	.722
	Recycled Material's price ranking	82	2.01[d/f]	.598
	Regular's price ranking	82	1.43[e/f]	.703

Mean scores with matching alphabetic notation are significantly different at the $p<.05$ level.

7.4 Summary of Results and Discussion

Table 7.8: Summary of Hypotheses and Results – Study 3

Hypothesis	Choice	Success	Total
H_1: Consumers associate higher functional quality with eco-friendly products in the gentle product category, and lower functional quality with eco-friendly products in the strong product category.	-	-	**Partial Support**
H_{2a}: The green alternative in the strong product category (gentle product category), will be rated lower (higher) on i) choice and ii) anticipated success, than the non-green alternative.	Partial Support	Partial Support	**Partial Support**
H_{2b}: The green product-related attribute results in lower (higher) preference measured by i) choice and ii) anticipated success, than the green non-product-related attribute in the strong product category (gentle product category).	Partial Support	Partial Support	**Partial Support**
H_{3a}: The effect postulated in H_{2a} is mediated by perceived quality.	Partial Support	Partial Support	**Partial Support**
H_{3b}: The effect postulated in H_{2b} is mediated by perceived greenness and perceived quality, sequentially.	No Support	No Support	**No Support**

Main Effects

The analysis of the results on preference revealed that there were no differences in preference, neither choice nor success, between the different conditions for the strong product category. The respondents seem to prefer the different product versions equally. This is interesting, as from the mediation analysis we find that there are differences in both perceived greenness and

perceived quality between the products. As quality is a strong predictor of preference (Newman et al., 2014), one would expect that regular drain opener would score significantly higher on preference compared to the others. This is not the case, suggesting that something else is affecting preference. It is therefore possible that perceived greenness weighs up for the lower quality of the two green products, resulting in increased preference.

The results for the gentle product category are different. When choice is the dependent variable, the respondents rate body lotion with natural ingredients the highest. However, there is no significant difference between the two other product versions regarding choice. When success is the dependent variable, body lotion with natural ingredients is rated the highest regarding success on the market, but now there is a significant difference between the two other product versions as well. Regular body lotion is anticipated to have the lowest chance of succeeding in the market, which is in line with our assumptions. Body lotion with natural ingredients is rated to have the highest perceived quality, and it is therefore reasonable that it is preferred the most (Newman et al., 2014).

The results from the gentle product category fully support H_{2a} and H_{2b}, but the results from the strong product category do not. This leads to partial support for both hypotheses.

Mediating Effects

The mediation analysis revealed that for the strong product category, there are significant indirect effects of the conditions on both choice and success, even though there are no total effects. As explained in the results section, can this be explained by other unexplained effects cancelling out the positive effect of quality, thus leading to an insignificant total effect (Hayes, 2009). When comparing the green and non-green versions, we find an indirect effect of the condition on preference through quality. Although, since the total effect is insignificant, can we not say that we have support for H_{3a}. Next, we do not find support for the serial multiple mediation model (H_{3b}) either. We only find support for a simple mediation model through perceived greenness when the dependent variable is choice, and a simple mediation model through perceived quality when the dependent variable is success.

The mediation analysis for the gentle product category reveals that when comparing the green and non-green product versions, there is an indirect effect of the condition on preference (choice and success), through quality, lending support for H_{3a}. Although, when comparing the green non-product-related attribute against non-green baseline effect on choice, there is no

total effect. This suggests that even though body lotion with recycled materials is of lower quality than regular body lotion, the respondents seem to prefer them equally. Meaning that there are other effects that cancel out the negative effect of having lower quality, e.g. the green manipulation. When the dependent variable was success, we found that the respondents anticipated that body lotion with recycled materials would have a higher chance of succeeding in the market. Thus, this indicates that the green manipulation within the condition reverses the negative effect the lower quality has on body lotion in recycled materials, and in that way reverses the total effect so that the green product version is believed to have higher success than regular body lotion.

The results also reveal no support for the serial multiple mediation model (H_{3b}). We only find support for the simple mediation model where the relationship between the condition and preference is positively mediated by perceived quality.

Findings from the detailed processes of the mediation analysis

For the strong product category, it is the product with the green product-related attribute that is perceived as being most green. Although, for the gentle product category, respondents rate the product with the green non-product-related attribute as most green. A possible explanation for this is that body lotion in recycled materials is perceived as being most green due to the prominent plastic problem (cf. discussion in chapter 6). However, drain opener with natural ingredients being perceived as the greenest, can possibly be explained by the fact that people do not expect drain opener to be made out of natural ingredients, as they know how strong the formula must be to unclog pipes. Therefore, when they are presented with such a product it is evaluated as very eco-friendly, thus creating a type of contrast effect.

We also find that regular drain opener is perceived to have the highest quality, while drain opener with natural ingredients is perceived to have the lowest quality, thus supporting H_1. In similarity to study 2, this is the opposite of what we find in study 1. This lends support for our arguments about consumers not being able to evaluate the greenness-quality trade-off when using system 1 processing. For the gentle product category, body lotion with natural ingredients is rated to have the highest quality, and body lotion in recycled materials is rated to have the lowest quality. Thus, lending partial support for H_1. The results for the strong product category are in line with our assumptions that adding green attributes to a product in the strong category will decrease the perceived quality (Luchs et al., 2010). For the gentle product category, these results are only partially in line with our assumptions. Based on Luchs

et al. (2010) we suggested that adding a green attribute would increase perceived quality, however this was only the case for the body lotion with natural ingredients. We believe that negative effect greenness had on the perceived quality of body lotion in recycled materials, can explained by consumers' beliefs about resource allocation (Newman et al., 2014)

In total, we find partial support for H_{3a} and no support for H_{3b}.

Additional Findings

The analysis of the measurements of perceived damage reveals that the product with natural ingredients, either it is drain opener or natural ingredients, is perceived to have the least damage on pipes/skin, health and the environment. However, for the gentle category, body lotion with recycled materials is perceived to have the least damage to the environment, also less than body lotion with natural ingredients (although this difference is not significant). These results are in line with the results on perceived greenness, where we found that the product with natural ingredients is perceived as being greenest in the strong product category, and the product in recycled materials is perceived as being greenest in the gentle product category. As the respondents believe that body lotion in recycled materials will have the least damage to the environment, does this lends support for our argument that body lotion with recycled materials is perceived as being greenest due to the prominent problem with plastic pollution. This can also be seen from the question about what the respondents identify as the greatest environmental challenge nowadays. 78.5 percent reported that they believe "packaging from products that end up in the nature and pollute the sea, rivers and lakes" is the greatest environmental challenge. Compared to 21.5 percent that stated that "chemicals from cosmetics and washing detergents that pollute the sea, rivers and lakes" is the greatest environmental challenge.

The analysis of the anticipated needed amount of the different products also supports the findings from the analysis on perceived quality. As seen from the mediation analysis, regular drain opener is perceived as having the highest quality in the strong product category, while body lotion with natural ingredients is perceived as having the highest quality in the gentle product category. This is in line with the results from what the respondents believe they need of each product. We can infer that when respondents believe they need a smaller amount of the regular drain opener, the perceived quality of the drain opener is higher. The respondents also answer that they believe they would need less of the body lotion with natural ingredients (even though this is not significantly different from the believed needed amount for regular

body lotion), supporting our findings that they believe body lotion with natural ingredients has the highest quality.

Finally, we can see from the descriptive statistics (Table E4.7 in Appendix E), the results from the questions regarding *believed trade-off*; "An environmentally friendly product has lower quality than a non-environmentally friendly product", *importance of eco-friendliness*; "It is important to me that the products I purchase are environmentally friendly", *recycling habits*; "I recycle as often as I can" and *sacrifice*; "I am willing to sacrifice quality for environmentally friendliness". It is interesting to compare these answers with the rest of our results, as we here ask them directly about their thoughts regarding eco-friendliness and quality. The most interesting result is that the mean score for the question regarding believed tradeoff is on the lower end of the scale (M=2.92, SD=1.71), indicating that when asked directly respondents answer that they do not believe that eco-friendly products have lower quality. However, as we have seen from the previous results, the green products are often rated as having lower quality than the regular option. This might therefore signal that this question is subject to social desirability bias.

Regarding the question about importance, we find that respondents tend to answer that they agree with the statement (M=4.69, SD=1.67), thus indicating that eco-friendliness is important for them. Again, this answer is highly threatened by social desirability bias, but it can also help us understand why e.g. drain opener with recycled materials scores equally on preference even though it scores lower on quality. If eco-friendliness is important for the respondents, can this result in them having preference for a product even though the quality is perceived as somewhat lower. The question regarding recycling (M=5.10, SD=1.69), gives us an indication to how eco-friendly people are, and can be seen in combination with the previous question, lending support to why an eco-friendly product in the strong product category is equally preferred as a non-eco-friendly product. On the other hand, Norwegians in general recycle their beverage containers just out of habit, resulting in this question not being a good measure for eco-friendliness for this sample. For the last question regarding if the respondents are willing to sacrifice quality for eco-friendliness or not, we find that they are indifferent (M=4.16, SD=1.70). Thus, not providing us with much insight.

8. General Discussion and Conclusions

8.1 General Discussion of Findings

The purpose of this research project was to explore the mechanisms behind a potential barrier in green consumption, and the effect it has on product preference. We identified the following research questions:

RQ_1: Is there a perceived trade-off between greenness and perceived quality and how does it affect product preference?

RQ_2: How does changing the centrality of an eco-friendly attribute affect the perceived greenness and quality of a product in a gentle vs. strong product category, and how does this affect preference for the product?

RQ_3: How does benefit congruity with the product category affect product preference?

We will begin our general discussion with a short summary of our main results. In study 1, we tested if respondents implicitly associated higher functional quality with eco-friendly products in the gentle product category and lower functional quality with eco-friendly products in the strong product category. We found that they implicitly associate functional quality with eco-friendliness in both categories. This does not support H_1, as we only expected this to be the case in the gentle product category. We argued that these results might stem from the respondents not being able to evaluate the potential trade-off between functional quality and eco-friendliness when only being able to use system 1 processing.

Next, the results from study 2 reveal that we have partial support for H_1, H_{2a} and full support for H_{2b}. We find that perceived greenness and perceived quality mediate the relationship between the two green attributes and preference, where preference is measured by both choice and anticipated success. However, they do so separately and not sequentially, leading to a rejection of the serial multiple mediation model (H_{3b}). When comparing a green product vs. a non-green product, and its effect on preference, we mostly found that the effect was mediated by perceived quality, lending partial support for H_{3a}.

The results from study 3 reveal partial support for H_1. In addition, we find full support for H_{2a} and H_{2b} in the gentle category, but not in the strong category. We therefore only find partial support for these hypotheses. Regarding the mediating effects, we find a mediating effect of

quality suggesting that we have support for H_{3a}, however we end up only finding partial support for the hypothesis since many of the total effects are insignificant. In neither product categories do we find support for the serial multiple mediation model and do therefore not find support for H_{3b}.

Because study 2 and 3 include different measures and have two different samples, the studies are not fully comparable. We will therefore not place too much weight on the differences between these studies, but more on what these results reveal about eco-friendliness, quality and product preference in total.

The results from study 1 reveal that when only being able to use system 1 processing, respondents do not believe that there is a trade-off between eco-friendliness and quality. This suggests that consumers might need to use cognitive resources for this perceived trade-off to be present. This could mean that consumers do not implicitly and automatically believe that eco-friendly products have lower functional quality than other non-eco-friendly products, rather the contrary. Businesses might use this to their advantage, as it may be easier to change the consumer's attitudes when the implicit attitudes are already in the right direction. Thus, making it easier to reduce the believed trade-off between quality and eco-friendliness with information about the product's quality. From study 2 and 3 we find that respondents do believe that eco-friendly products have lower quality than non-eco-friendly products in the strong product category when asked explicitly. These results in combination with the results from study 1 suggest that for the trade-off between quality and greenness to arise, consumers must use system 2 processing (Kahneman, 2013). Effortless and automatic processing of information is apparently not enough to consider this trade-off.

According to theory described in the literature review, and the results from Gershoff and Frels (2015), we expect a product to be evaluated as more or less green depending on whether the green attribute is product-related vs. non-product-related. A product with a green product-related attribute will be perceived as greener than a product with a green non-product-related attribute. Thus, we expected that the product with natural ingredients would be perceived as the most eco-friendly. What we found instead, was that is seems to be the importance and prominence of the environmental issue the product solves that determines the level of perceived greenness. For example, there is a lot of focus on plastic pollution and how this harms our planet. Chemicals in the waterways is equally harmful to the environment, but our experience is that it is not as widely discussed as plastic pollution. People might therefore

believe that a product with recycled material is more eco-friendly than a product with natural ingredients because it helps solve a "more important" issue.

As discussed in chapter 2, consumers sometimes use information that they have easily accessible in their minds to make judgments about a product they have limited information about (Dick et al., 1990; Feldman and Lynch, 1988; Lynch et al., 1988). This phenomenon is called inference-making and is a possible explanation to why the respondents rate the product in recycled material as the most green. It seems like the importance of the environmental impact overrides centrality theory. We assume that if we had communicated a more similar environmental benefit, or if plastic pollution had not been as prominent that it is today, the product with the green product-related attribute would have been perceived as the most environmentally friendly.

For the most part, we find that eco-friendly products are perceived to have lower quality than non-eco-friendly products in the strong product category, but higher quality in the gentle product category. However, our assumption regarding quality is that increased eco-friendliness leads to higher incongruity for the product in the strong category, consequently leading to lower perceived quality. For the product in the gentle category, the assumption is that increased eco-friendliness will lead to increased congruity, thus leading to higher perceived quality.

The product with recycled materials is rated the highest on eco-friendliness and rated lowest on quality in the gentle product category, thus contradicting our assumptions. It seems to be something else in addition to the increased congruity between attributes and benefits that explains the effect the condition has on perceived quality. A possible explanation is theory about resource allocation (Newman, 2014) which suggests that respondents believe that making the product more environmentally friendly, hence better on one dimension, will be at the expense of another dimension (Chernev and Carpenter, 2001).

The situation is slightly different for the strong product category as the product version with the green non-product-related attribute is still perceived as most green but is not rated the lowest on quality. This is not in line with our assumptions, as we expected it would be the high level of perceived greenness that would result in the product version being rated low on quality. A possible explanation for this can be that it is surprising to the respondents that a drain opener is made of 100% natural ingredients, and that they simply do not believe that it

will be as effective. On the other hand, the results from study 3 regarding the strong product category are in line with these assumptions. This difference might be due to the respondents in study 3 were exposed to actual products, making the situation more realistic.

As mentioned, we found some support for our hypotheses regarding preference. We mostly find that the respondents rate body lotion with natural ingredients the highest on both choice and success, and regular drain opener the highest on the same measurements, but these scores are in most cases not significantly different from the rest of the scores. An interesting, but not unexpected finding, is that there seems to be a strong connection between quality and preference. When a product is rated highly on quality, it is often rated high on preference as well. This is although not surprising as quality is a strong determiner of purchase intent and preference (Newman et al., 2014). However, we also find that two products can be rated differently regarding quality, but still be rated similarly regarding preference. This indicates that there is something else, e.g. the green manipulation that affects preference and cancels out the negative effect of one product having lower quality.

Congruence or incongruence between the product's category and eco-friendliness only determines the perceived quality of the product and thus its preference when the green attribute is product-related. Explanations of this can be that the respondents understand that there is not a direct connection between the material of the bottle and the quality of its contents, and that the prominence of plastic pollution "overrides" the effect of the green product-related attribute.

We proposed that the effect of the condition on preference would be mediated by both perceived greenness and perceived quality sequentially. However, we did not find support for this serial multiple mediation model, and thus no support for H_{3b}. Although, we did find partial support for H_{3a}. Since the green manipulation exists within our measurements of greenness and quality, we have already measured the effect of greenness. This can mean that quality *is* affected by the eco-friendliness of the product, but that this effect already exists within the "perceived quality" variable. Thus, when testing the mediating effect of both perceived greenness and perceived quality, we do not find a sequential effect because the effect of greenness has "already" affected quality. By including the perceived greenness measurement as its own variable in the mediation analysis (when comparing green vs. green), we can reveal if the difference in perceived greenness between the two green products has an effect on preference. We find that perceived greenness positively mediates the effect of the condition on preference and that the green manipulation affects the respondents' quality rating. This is

an indication that eco-friendliness has two different effects. It affects quality, either negatively or positively, depending on the product category, and it increases preference independent of the product category. An explanation for it having a positive indirect effect on preference can possibly be explained by the fact that eco-friendliness is becoming increasingly important for people both because it has become a trend to care about the environment (Olsen et al., 2014), and because people have started to see the importance of taking care of the planet.

In total, we find that communicating eco-friendliness is an asset in the gentle product category, if the green attribute is product-related. A green non-product-related attribute might have a negative effect on quality, and thus preference. Although, we do find that a green non-product-related attribute can have a positive effect on preference as well. Hence, our conclusions are ambiguous. For the strong product category, we find that there is a perceived trade-off between quality and eco-friendliness. It can therefore be less beneficial to communicate the eco-friendliness of strong products because it can result in lower perceived quality. However, we do find that if the perceived quality is at a certain level, eco-friendliness can increase preference even though the product might be perceived as having lower quality.

8.2 Theoretical Implications

Our findings contribute to research within the field of green consumption. Our first study documents consumers' implicit associations between eco-friendly products and functional quality across two different product categories. Luchs et al. (2010) find that consumers "implicitly associate higher ethicality with gentleness-related product attributes and lower ethicality with strength-related product attributes" (p. 21). To the best of our knowledge, we are the first to conduct an IAT on how consumers associate functional quality with eco-friendly products across two different product categories. Therefore, are we the first to find that consumers possibly do not implicitly associate lower functional quality with eco-friendliness in the strong product category, but instead need to use cognitive processing to make this assumption.

Our findings also support the research by Luchs et al. (2010) regarding whether eco-friendliness is an asset or not, depends on the type of benefit valued in the product category, thus that benefit congruity plays an important role in both quality assumptions and preference. Our research also expands their research because we focus on how the green benefit affects not only preference, but also quality. We find that eco-friendliness influences preference, but

that this effect is mediated by perceived quality. In addition, we find that which type of attribute (product-related vs. non-product-related) that is green has a sequential effect on quality and preference. This is different from Luchs' et al. (2010) research where they find a total effect of greenness, and that it is either a liability or an advantage only depending on the product category.

Further, we contribute to the findings of both Luchs et al. (2010) and Gershoff and Frels (2015), by combining the results from both studies to suggest that perceived quality and preference for eco-friendly products depend on the green attribute's centrality. Thus, being able to detect if there is a trade-off between quality and eco-friendliness, and if it is possible to reduce this trade-off by changing which attribute is eco-friendly. We find that a trade-off can arise in the gentle product category if the green attribute is non-product-related. For the strong product category, we find a trade-off between quality and greenness, but that this trade-off can be offset by an increase in preference if the green attribute is non-product-related. However, there exists a weakness to these results because we were not able to communicate an identical environmental benefit for both attribute types. Thus, it could be the prominence of plastic pollution that creates this effect instead of the attribute type by itself.

8.3 Managerial Implications

As our results imply many different courses of action, it is difficult to come up with concrete and straightforward advice for Orkla and marketers in general. However, some takeout's from our research are worth possessing some knowledge about. Our findings can contribute to development of strategies on how to reduce the perceived trade-off between eco-friendliness and quality. Thus, reducing a barrier to adoption of green products.

If product managers wish to increase preference for their eco-friendly products, they must ensure that their product meets a certain standard regarding quality. It seems that it is the combination between quality and eco-friendliness that results in preference for the products. If the product does not meet a certain standard regarding quality, the non-green version is preferred.

For products in the gentle product category, product managers can increase the perceived quality and thus the preference for their products by communicating eco-friendliness. However, our results reveal that communicating a green non-product-related attribute might

actually reduce quality and preference. It might therefore be safest to communicate a green product-related attribute.

For products in the strong product category, product managers can risk a loss in perceived quality if they communicate eco-friendliness. This is because there exists, as explained earlier, a believed trade-off between eco-friendliness and quality. Although, our results reveal that when the non-product-related attribute is green, the respondents prefer this version equally to the regular version. Thus, the perceived greenness seems to make up for the difference in quality, and it can therefore be profitable for product managers to communicate a green non-product-related attribute after all. It is important to emphasize that for eco-friendliness to have a positive effect on preference, a certain standard regarding quality must be met. This means that if the quality is perceived as being too low, as it is for drain opener with natural ingredients, the green benefit will not be enough to make up for the loss in quality.

8.4 Further Research

Although barriers to adopt environmentally friendly products is a widely explored field of research, there is little research, to the best of our knowledge, that focuses on how perceived quality mediates the effect of an eco-friendly attribute on product preference. One of our suggestions for further research is a replication of these studies on different and more heterogeneous populations, and with a slightly different research design. It would also be interesting to replicate these studies on a sample with conscious consumers, and a sample with non-conscious consumers, to compare the results to each other.

Moreover, we suggest further research regarding the dual-process view (Kahneman, 2013) and the greenness-quality trade-off. More studies should be executed to say with certainty that consumers do not perceive this trade-off when asked implicitly. There exist other programs than can perform IATs more accurately than Iatgen (Carpenter et al., 2018). However, Iatgen was easy to use and based on the well-known research by Greenwald and Banaji (1995) and was therefore suitable for our study. Although, we suggest that future studies use a more accurate program to either verify or discard our results.

We see the need for further research on how to increase the perceived quality of environmentally friendly products. What are possible strategies to reduce the trade-off between quality and eco-friendliness? This will be valuable information for product managers,

as they can obtain an understanding of how eco-friendliness can be communicated without sacrificing quality. Luchs' et al. (2010) results indicate that the negative effect of eco-friendliness can be reduced by emphasizing the product's strength. Based on this, we recommend further research into how including specific information about the product's quality can moderate the effect the three conditions (green product-related attribute, green non-product-related attribute and non-green baseline) have on perceived quality and preference. We further suggest more research on how a combination of the two green product attributes affect perceived greenness, perceived quality and preference.

A limitation to our study is that the environmental benefit of the two green attributes is not the same. Even though we tried removing the effect of the prominence of plastic pollution, we were not entirely successful. Therefore, we suggest a replication of our research, where the environmental benefit in both green product versions is the same. It would be interesting to see how these changes would affect the respondents' answers.

We argue that resource allocation (Newman et al., 2014) is a possible explanation for why body lotion in recycled materials is rated lower on quality than the other product versions. This is also an interesting theory to investigate further. Lastly, another interesting study would be how including the brand name influences the results. Does a well-known, high quality brand reduce the negative effect of eco-friendliness? Or will it only lead to suspicions about greenwashing (Lee, Bhatt and Suri, 2017)?

8.5 Limitations

We have identified possible limitations to our study related to the sample, the questionnaires and to how the field experiment was carried out. The focus is mainly on limitations regarding internal and external validity.

To identify possible limitations in empirical research, there are two key dimensions of validity that are commonly discussed – internal and external validity. Researchers want to choose a research approach that maximizes the validity. Validity refers to whether the research methods and observations provide a satisfying reflection of the truth (Roe and Just, 2009). In other words, if we can infer that the relationship from X to Y is responsible for the observed effects, determining a cause and effect relationship. Internal validity can be defined as "the ability of a researcher to argue that observed correlations are causal" (Roe and Just, 2009, p. 1266),

whereas external validity refers to "the ability to generalize the relationships found in a study to other persons, times, and settings" (Roe and Just, 2009, p. 1266). This definition implies that internal validity is not enough to achieve general validity; one must also be able to apply the findings to a real-world situation for the results to achieve external validity (Proctor, 2005, p. 256).

Since our measures are based on established measures from reliable resources, we indicate that there is a strong internal validity for both study 2 and study 3. This also gives support for the construct validity of the experiment as construct validity is referred to as "the extent to which an operationalization measures the concept which it purports to measure" (Zaltman, Pinson and Angelmar, 1977, p. 44). Furthermore, the use of an experimental design also gives support for validity since it enables the researcher to take control of the situation. To infer that the relationship from X to Y is responsible for the observed effects, we control for various extraneous variables. The only difference between the three conditions is the variation of the manipulation of the message on the packaging. This supports the internal validity of the experiment, as all else regarding the product versions is equal. Even though we have tried to control for all variables that can affect the relationship between X and Y, there might be some variables we have failed to control for, contributing to a weaker internal validity of the experiment.

Another aspect that might lead to less support for internal validity is if the respondents experienced technical difficulties during the experiment. In the field experiment, there were unfortunately some respondents that experienced minor technical difficulties when participating. As many people were elderly, some had issues using the computer mouse and asked for help. On the occasions where respondents reached out to us, we were able to fix the problems quickly. However, this might have caused distractions for the respondents and might have influenced their ability to concentrate. Even though this was the case for very few respondents, it might be a factor that weakens the internal validity of our experiment. For the online experiment, we do not know whether the respondents experienced any technical issues. However, it is reasonable to believe that anyone who experienced issues would have most likely terminated the study due to impatience. In that case, they have been removed from the data due to incomplete answers and is therefore not a problem we have to consider.

Conducting the field experiment at a shopping mall might have negatively influenced the internal validity, as shopping malls are noisy places with many distractions. People at shopping

malls are often busy, running from one place to another. However, since we told prospective respondents that the study would take approximately 10 minutes, most of the people who agreed to participate had 10 minutes to spare. We tried to remove as many distractions as possible by having the experiment within stalls that isolated the participants from the noise around them. There is reason to believe that some of the questions might have been misunderstood by the respondents, as we received inquiries about the meaning of the questions. This might also affect the answers given and weaken the support for the internal validity of the experiment.

Since we developed the survey for study 2 prior to the survey in study 3, we were able to adjust the survey before initiating study 3. In the online experiment, we only included two measures of greenness. When developing the survey for the field experiment, we included three more measures of greenness to more accurately resemble previous literature. In study 3 the respondents were exposed to actual products in contrast to study 2 where they only saw descriptions of the products. Furthermore, the survey for the field experiment was answered in a controlled environment unlike study 2. The fact that the two surveys were different from each other, can be seen as a limitation. If the questions in the two surveys had been identical, it would make comparisons between the two studies easier.

"Generalizability refers to the extent to which one can generalize from the observations at hand to a universe of generalizations" (Malhotra and Birks, 2006, p. 316), in other words to be able to infer the results from the sample to the target population and thus achieve external validity. For this to be the case, the sample must be as similar to the population as possible. For study 2, due to randomization and the large sample size (*n=436*), we can infer that the respondents in the different groups (gentle vs. strong product category) are statistically similar according to observable and unobservable traits. The same applies for study 3, where we also randomized the sample, and the sample size was reasonably large (*n=181).* However, the distribution of gender was not optimal. In study 1 and 2, there was a clear overweight of men who completed the study due to the sample being derived from a business school were the majority of the students are male (NHH, 2017, p.13). In study 3, the majority of the respondents were female. A possible explanation is that women usually take longer maternity leaves than men (VG, 2010), and therefore have more spare time to spend in the shopping malls during daytime. One can also assume that more women than men work in malls and are more interested in shopping on a general basis. The fact that the two samples differ slightly

from the population is a possible limitation to our study as it makes the results less generalizable.

Furthermore, one can argue that the two samples were taken from homogenous groups. The sample in study 1 and 2, which was derived from the Norwegian School of Economics, is homogenous in the sense that it consisted of business students only. The school requires a high GPA, which might attract a specific type of people. One can also assume that the sample in study 3 taken from the shopping mall, is a rather homogenous group as there is a certain kind of people who spend time at shopping malls during the daytime; retirees, women/men in maternity leave, people in health professions that work a lot of night shifts, unemployed people etc. Thus, weakening the external validity. However, we were at the shopping mall during the afternoon and on a Saturday, making the sample more representative of the general population.

8.6 Conclusion

The purpose of this thesis was to explore a potential barrier consumers face when deciding to adopt environmentally friendly products, namely perceived quality. More precisely, we researched how changing the centrality of the green attribute changes the perceived greenness and perceived quality across two different product categories, respectively a gentle and strong product category. Further, we wished to find out how perceived greenness and perceived quality affect preference for the product, to understand what affects preference for green products. We wished to determine if there exists a believed trade-off between eco-friendliness and quality. In addition, we wanted to see if consumers believe that they have to choose between the two benefits, and how this varies between the two product categories. By answering these questions, we lay the foundation for further research on strategies for how this trade-off can be reduced.

Study 1 revealed that consumers implicitly associate functional quality with eco-friendly products in both product categories.

The results from *study 2* reveal that perceived quality and perceived greenness have mediating effects in both product categories, but only as a parallel mediation and not sequentially. Furthermore, respondents do not perceive the product version with natural ingredients to be the most green, but they perceive the product version in recycled materials to be so. We found that respondents perceived regular drain opener as having the highest quality, and the drain

opener with natural ingredients to have the lowest quality. For body lotion, respondents were indifferent to the perceived quality of regular body lotion and body lotion with natural ingredients, but rated body lotion in recycled materials to have the lowest quality. Further, we also found a preference for regular drain opener and the least preference for drain opener with natural ingredients. For body lotion, the version with natural ingredients was preferred the most and the version in recycled materials the least.

Study 3 reveals that preference for eco-friendly products is positively mediated by perceived quality, suggesting a simple mediation model. Moreover, respondents perceive the version with natural ingredients to be greener than the version in recycled materials, but this is only for the strong product category. Regarding quality, regular drain opener is still perceived as having highest quality and drain opener with natural ingredients as having lowest quality. Although, for the gentle category, respondents believe that body lotion with natural ingredients has the highest quality. We do not find any differences regarding preference for the products in the strong product category, but for the gentle category, respondents seem to prefer body lotion with natural ingredients the most.

In conclusion, the results show that communicating eco-friendliness is an asset in the gentle product category, as long as the green attribute is product-related because it increases both perceived quality and perceived greenness. A green non-product-related attribute might have a negative effect on quality, and thus preference. Although, we also find that a green non-product-related attribute can have a positive effect on preference. Hence, our conclusions are ambiguous. For the strong product category, we find that there is a believed trade-off between quality and eco-friendliness. It can therefore be less beneficial to communicate the eco-friendliness of strong products because it can result in lower perceived quality. However, we do find that if the perceived quality is at a certain level, eco-friendliness can increase preference even though the product might be perceived as having lower quality.

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Appendices

Contents

Appendix A: Literature Review

Appendix A1: IV Message Appeals Table 1

IV: Message appeals	Mediators	Moderators	DVs	Findings	Method	Source
Green ads vs green	Motive	Ads for products vs.	Attitudes			Reich and Soule (2016) *JA*
Quantity vs. valience		Product type (virtue/vice)	Chance in brand attitude	Fewer green messages influence the effect of eco-friendly products on brand		Olsen et al (2014) *JM*
Endorsement (scientific test results of quality)			The relationship between green and regular product on	The increased effect of green products on usage is moderated by endorsement		Lin & Chang (2012), *JM*
Fear vs. Non-fear appeal				Results revealed that a fear appeal in a green ad negatively affected Aad and		Shin et al. (2017) *JMC*
Strong green claim, weak green claim, Cause-related			Ad credibility, att.ad, brand att.	Very few differences between the claims		Tucker et al. (2012), *JA*
Positive vs negative ecological message			The relationship between willingness to pay and green purchase	No moderating effect		Ayadi and Lapeyre (2014), *JMC*
Type of advertisement (personal benefit,		Environmental affect	Purchase intentions	No main effect, partial moderation of the individual difference factor	Quantitative	Grimmer and Woolley (2014), *JMC*
Level of green claim: low, moderate, high (1-3 arguments)		Ambivalence against green products		Ambivalent participants are motivated to engage in high effort processing by greater levels of discomfort		Chang (2011), *JA*
Numerical precision (more or less precise numbers - e.g. 10.2% vs 10%)	Perceived trustworthiness	Advertising skepticism	Company competence	It turns out that the company is perceived as more competent by low sceptics when the numerical information is more precise. For high sceptics, there		Xie and Kronrod (2012)
Eco-seals (certification cues)		Brand familiarity (manipulated: known vs unknown). Environmental concern	Attitudes and purchase intentions	Eco-seals has no effect when concern is low, regardless of brand familiarity. On the other hand, eco-seals have positive effects for brand familiarity when concern is high, and negative effects for		Bickart and Ruth (2012), *JA*
Green New Product Introductions (GNPI)		Message framing (quantity and valence), source credibility (environmental legitimacy and brand longevity), product type	Brand attitude	The following elements influence the extent to which green new products change brand attitude: quantity of green messages, product type and their source credibility		Olsen et.al. (2014)

Appendix A2: IV Message Appeals Table 2

IV: Message appeals	Mediators	Moderators	DVs	Findings	Method	Source
Study 1: descriptive norms: general vs. provincial and construal level: high vs. low	Level of construal message paired with the norms	(Construal level)	Consumers' sustainable behaviors	Provincial and superior norms compared: provincial effective participation in sustainability campaign, provincial not superior to general norms regarding		Ryoo, Hyun & Sung (2017)
Study 2: different combinations of the descriptive norms: general vs. provincial and construal level: high vs. low	Level of construal message paired with the norms	(Construal level)	Consumers' sustainable behaviors	Findings confirmed that the superiority of provincial norms over general norms disappears and even becomes reversed when they are inappropriately matched with construal-level messages	Quantitative	Ryoo, Hyun & Sung (2017)
Study 1: Green messages ('why' construal vs. concrete 'how' construal) and environmental conciousness (high vs. low)	Perceived Effectiveness of Green Products	Environmental Conciousness (attitudinal scale)	Brand Attitude	In exposure of a an abstract why construal message, concious consumers were more positive to this message than to a concrete message. Less conscious consumers were indifferent between	Quantitative	Chen & Chiu (2016)
Study 2: Green message (a distant temporal construal message/10 years vs. a proximal temporal construal	Perceived Effectiveness of Green Products	Environmental Conciousness (behavioral scale)	Brand Attitude	Temporal construal positive for manipulation of green messages	Quantitative	Chen & Chiu (2016)
Internal reference price, Financial perceived risk,	Consumers' WTP	Ecological Message framing & Price framing	Purchase intention	Mediating effect of WTP on relationship consumers' perceptions/purchase	Quantitative	Ayadi & Lapeyre (2014)
3 Studies:					Quantitative	Elgaaied-Gambier et al
1: Presence vs absence of descriptive norm	Ad credibility	Descriptive norm valence, (gender, age, environmental concern -->	Intention to purchase non-overpackaged products	Ad credibility influences intention to buy non-overpackaged products, descriptive norm moderates this		Elgaaied-Gambier et al (2017)
2: Presence vs. absence of endorser & similarity	Ad credibility	Gender, age, environmental concern	Intention to purchase non-overpackaged	Endorser in an ad has a positive effect on intent to purchase non-overpackaged		Elgaaied-Gambier et al (2017)
3: Celebrity vs. non celebrity endorser & Celebrity's connection to environmental	Ad credibility	Gender, age, environmental concern	Intention to purchase non-overpackaged products	Celebrity endorser little effect on ad credibility, and also on purchase intention for non-overpackaged products		Elgaaied-Gambier et al (2017)

Appendix A3: IV Message Appeals Table 3

IV: Message appeals	Mediators	Moderators	DVs	Findings	Method	Source
Product color	Perceived efficacy	Supplementary environmental cues (1. study: Eco-label, 2.study: category prime)	Purchase intentions	Leading to lower purchase intention: lack of supporting cues which leads to uncertainty about the product's efficacy. Eco-label might reduce this effect		Pancer, McShane, Noseworthy (2015)
Study 1: Benefit type & Price ending			Perceived price & perceived quality	The product with the highest perceived quality and the highest perceived price are the product with an environmental appeal. Personal benefit rated slightly	Quantitative	Royne et al (2012)
Study 2: Benefit type & Price ending		Environmental skepticism	Perceived price & perceived quality	Environmental skepticism moderates perceptions of the message appeal	Quantitative	Royne et al. (2012)
3 Studies:					Quantitative	Kareklas et al 2014
1: Egoistic factors & alturistic factors		Organic food beliefs & organic food attitude	Organic food purchase intent	Egoistic and altruistic factors affected consumers' attitudes and desire to buy	Quantitative	Kareklas et al 2014
2: Green vs. conventional products			Personal impact & societal impact	Personal factors also affect desire to buy organic products, but social factors play	Quantitative	Kareklas et al. 2014
3: Ad claims (egoistic vs. alturistic vs. egoistic and alturistic)			Attitude toward the brand, attitude toward the company, purchase	Ad with egoistic and altruistic appeals resulted in more favorable attitudes toward the firm, and higher intention to	Quantitative	Kareklas et al. 2014
1: Appeal type (abstract appeal vs. Concrete appeal) x benefit association (other-benefit vs. Self-benefit)			Purchase intention	Participants more inclined to purchase green products when the attributes associate with the benefit of other. Participants do not show sign. Different when attribute of green products	Quantitative	Yang et al. 2015

Appendix A4: IV Drivers/Barriers Table 1

IV: Drivers/Barriers for attitudes/behavior	Mediators	Moderators	DVs	Findings	Method	Source
Trust		System vs personal	Green buying	After controlling for buying intentions and perceived	Quantitative	Nuttavuthisit &
Care for environmental consequences: green self-identity, moral obligations, perceived personal	Intention to purchase	Green vs non-green consumers	Purchase	Ego-centric motives proved to be very important in motivations to buy green products. Green-self identity has the largest effect.	Quantitative	Barbarossa and De Pelsmacker (2016)
It is too hard to be green - green stigma and green reservations			Attitude towards green consumption (barriers)	1: "It's too hard to be green" - perceptions amongst the consumers making it hard to engage in green buying behavior. 2: "Green stigma" - some consumers' less than favorable perceptions of green consumption. 3: "Green reservations" - People do not believe in the differenve conscious consumption has the for planet	Qualitative	Johnstone and Tan (2015)
(1) Green and egoistic product attributes, (2) green product attributes and values, and (3) egoistic product attributes and values			Purchase intentions	If a product has low price, is a well known brand (self-serving motives) it affects intention to buy more than when a product lack these motives	Quantitative	Schuitema and De Groot (2015)
Air pollution			Sales of fuel-inefficient cars	Sales of fuel efficient cars is negatively affected by air pollution	Quantitative	Li et al (2017)
Poor perceptions of quality, lack of green product availability and brand loyalty to conventional products			The intention-behavior gap		Qual + Quant	Li et al (2017)
Value image, strategic image and trajectory image			Green product choice	Results show that the elements that affect behavior are the following: value image, trajectory image and strategic image.		Li et al (2017)
WTP, personal norms, attitudes			Green purchasing behavior	Results show that the there is an attitude behavior gap. WTP was the most important factor for green behavior, after that, personal norms	Quantitative	Moser (2015)
Environmental attitude, Eco-label, man-nature orientation		Premium price, education, gender	Green purchasing behavior	Results showed the following as the most contributing factors to green purchase intention: eco label, environmental attitude and cultural value. Price was proved to not be one of the main barriers.	Quantitative	Chekima et.al. (2015)
Product-trial, explicit beliefs	Arousal, pleasure, expectancy value-experience, expectancy value-search, environmental values		Purchase intentions, attitudes toward green product, positive Word of Mouth	Identifying quality concern and grouping customers based on environmental values, can contribute to higher sales of green products and more WOM	Quantitative	Ashley, Oliver et al. (2016)
Attribute trade-off	Purchase intention (PI), price they would expect to pay (PE)	Green vs. utilitarian needs	Value-action gap	When trade-offs are taken into account, preference toward green products decreases. When the trade-off is not visible, the consumers have strong preference towards eco-friendly products	Quantitative	Olson (2012)

Appendix A5: IV Drivers/Barriers Table 2

IV: Drivers/Barriers for attitudes/behavior	Mediators	Moderators	DVs	Findings	Method	Source
Time, money, fun to drive, beautiful, comfortable, efficient gas mileage, safety, technology features			Green purchase behavior	Same arguments for buying green vehicles as non-green vehicles	Qualitative	Cohn & Vaccaro (2013)
Consumers' understandings, attitudes, social norms and behaviors			Pro-environmental behavior	Portraying green products as «normal» can be an important part of green marketing to get more consumers to engage in green behavior	Qualitative	Rettie, Burchell & Barnham (2014)
1. Consumer confusion: generational differences (general skepticism towards environmental claims). 2. Trust, credibility and consumer resistance. 3. Compatibility: savings, practical utility, habits, and modernity			Green consumer behavior	Barriers to adoption of green products: consumer confusion, compatability, credibility and trust	Qualitative	Carrete, Castano et al (2012)
4 Studies:						Gershoff & Frels (2015)
1: Attribute (constant), environmental benefit (constant), Structural importance (manipulated)	1:Perceived centrality		1: Green evaluations/perceptions of product greenness	Centrality of green attribute might influence the degree to which the entire product is evaluated as green	Quantitative	Gershoff & Frels (2015)
2: Product category (manipulated) & Green feature (manipulated)	2: Perceived centrality	Perceived firm motivation	2: Green evaluations/perceptions of product greenness	Same component in the same product as more or less central depending on product category. When the same environmental benefit was associated with the more central component, the respoindents perceived the product as more green	Quantitative	Gershoff & Frels (2015)
3: Compontent centrality (high vs. low),		Integrated design (integrated vs. non-integrated)	3: Green evaluations/perceptions of product greenness	Less central green attribute affect the overall perceived greenness when it was adjusted to fit with other components	Quantitative	Gershoff & Frels (2015)
4: Attribute centrality (high vs. low) & consumer importance of attribute (high vs. low) & attribute importance (covariate)		Perceived firm motivation	4: Green evaluations/perceptions of product greenness	The green component's centrality is not tied to a green component's importance in consumers' mind	Quantitative	Gershoff & Frels (2015)
4 experiments:					Quantitative	Newman, Gorlin & Dhar (2014)
1: Intended vs. unintended green enhancement (& control) => firm intentions	Serial mediation model: resource allocation --> quality		Purchase intent	Respondents have a tendency to believe that of the product has an intended environmental benefit, the company has diverted resources away from product quality. However, when the environmental benefit is unintended, they get the positive effect as expected	Quantitative	Newman, Gorlin & Dhar (2014)
3: Firm intentions	Resource reallocation, product quality & liking of the firm	Inherent benefit (green benefit) vs. Separate benefit (fair trade)	Purchase interest	Perceptions about quality mediated the influence of firm intentions on intention to purchase for the green benefit	Quantitative	Newman, Gorlin & Dhar (2014)
4: Firm intentions	Resource reallocaton & Product quality		Purchase interest	The study showed that consumers were more likely to rate the ice cream as tasty if the positive health benefit was not intentional. Same results as for study 1	Quantitative	Newman, Gorlin & Dhar (2014)

Appendix A6: IV Drivers/Barriers Table 3

IV: Drivers/Barriers for attitudes/behavior	Mediators	Moderators	DVs	Findings	Method	Source
5 Studies:					Quantitative	Luchs et al. (2010) JM
1: Gentleness-related attributes vs. strength-related attributes			Associated high vs. low ethicality	The study shows that respondents implicitly associate higher ethicality with gentleness-related product attributes and lower ethicality with strength related product attributes.	Quantitative	Luchs et al. (2010) JM
2: Level of sustainability (superb vs. average)		Type of benefit	Product prefences	Participants in the market to buy a baby shampoo, value gentleness-related attributes (ref. study 1). Therefore, these participants had a higher preference for the green baby shampoo than for green car shampoo	Quantitative	Luchs et al. (2010) JM
3: Level of sustainability	Brand familiarity (no effect)	Type of benefit	Product prefences	However, when the participants value strength-related attributes, there might be greater preference for the non-green brand	Quantitative	Luchs et al. (2010) JM
4: Level of sustainability		Strength guarantee vs. availability guarantee	Guarantee type (strength vs. availability)	Less green car tires will sell better than green car tires. The negative effect of greenness can be reduced if the green product is described by explicit information of knowledge strength	Quantitative	Luchs et al. (2010) JM
5: Level of sustainability	Social norm (being observered or not)	Type of benefit	Choice of product	Greenness is a liability for product choice when strength is valued. Consumers are not likely to reveal their preference if they know they are being observed	Quantitative	Luchs et al. (2010) JM
Self-interested beliefs, environmental beliefs, animal welfare, decision making heuristic			Budget share of organic products, coverage of organic products and purchasing intensity of organic products	75 % of the variance in decision-making heuristic for organic products can be explained by beliefs. A prediction of variance in buying behavior up to 20 %		Moser (2016)
3 Studies:					Qualit + quantit	Gleim et al (2013)
1: Price, quality, expertise, trust, availability, apathy, brand loyalty and a miscellaneous category			Green vs. non-green purchase behavior	There are several barriers in the consuption of sustainable products	Qualitative	Gleim et al (2013)
2			Green vs. non-green purchase behavior	Barriers: Social norms, willingness to comply with social norms, personal norms, perceived consumer effectiveness, price sensitivity, value, quality, expertise, awareness, availability, inertia, advertising trust, organizational trust, satisfaction, purchase intentions	Quantitative	Gleim et al (2013)
3: Information form (Numerical vs. verbal), information quantity, information detail	Expertise		Purchase intention	Verbal information is more effective for perceived expertise than simple verbal or numerical formats	Quantitative	Gleim et al (2013)
Study 1: Environmental reputation (excellent vs. poor) and length of commitment to ecological protection (long vs. short)			Consumers' motive attributions (consumers' perception of businesses' green marketing strategy)	When the brand has an excellent environmental reputation, participants were less inclined to attribute exploitative motives for green demarketing than when the environmental reputation was poor		Soule & Reich (2015)
Study 2: Environmental reputation (excellent vs. poor), length of commitment to ecological protection (long vs. short), brand purchase pattern (habitual vs. non-habitual)	Strategic move attributions, altruistic motive attributions, exploitative motive attributions		Attitude towards brand			Soule & Reich (2015)

Appendix A7: IV Drivers/Barriers Table 4

IV: Drivers/Barriers for attitudes/behavior	Mediators	Moderators	DVs	Findings	Method	Source
Price sensitivity, attitude toward brand, convenience of use of the packaging, green packaging, label and product design			Consumer preference for green packaging in consumers' product choices	The results revealed that product label and product design are the only two factors that influence product choice. The factors that turned out not to affect consumer product choice, were green packaging, brand, price and convenience of use	Quan/Qual	Isa & Yao (2013)
Social identification			Brand knowlegde, brand attitude, buying behavior	Being aware of one's social identity concerning sustainability, leads to consumers feeling more attached to other consumers who buy green products	Quantitative	Bartes & Hoogendam (2010)
CAB vs. TRA & basic vs. extended version:			Which model best predicts green purchase?	The results show that respondents who possess more knowledge about sustainable products, are more likely to engage in green consumer behavior	Quantitative	Liu, Sigev, Villar (2017)
Attitude, Subjective norm & perceived behavioral control		Country of origin & price sensitivity	Purchase intention of green skincare products	Positive interaction effect between COO, attitude and price sensitivity on purchase intention	Quantitative	Hsu, Change, Yansritakul (2016)
Environmental concern	Attitude, Subjective norm, perceived behavioral control, purchase intention		Purchase intention	The extended TBP model is a better model to predict sustainable product purchase intention than TPB and TRA (in India)	Quantitative	Paul, Modi & Patel (2015)
Intention	Implementation intention (plans)	Actual behavioural control (ABC), situational context, environmental involvement	Pro-environmental consumer behavior	The Carrington et al. (2010) model is partially supported. Mediator: plans. Moderator: behavioral control and environmental involvement.	Quantitative	Grimmer & Miles (2017)
Price conciousness, value conciousness, environmental conciousness, social consciousness	Price fairness		Purchase intentions	The study shows that social consciousness, price and value are not directly associated with green purchase intentions. The only thing that is directly associated with green purchase intentions, is environmental consciousness	Quantitative	Iyer, Davari, Paswan (2016)
Social influence, environmental concern, concern for self-image, perceived environmental responsibility & affective commitment			Green purchase intention	Drivers of sustainable consumption are proved to be: «perceived environmental responsibility», «social influence» and «concern for self-image». The authors also identified some factors that are positively related to the usage of recycle bags	Quantitative	Choshaly (2017)

Appendix A8: IV Drivers/Barriers Table 5

IV: Drivers/Barriers for attitudes/behavior	Mediators	Moderators	DVs	Findings	Method	Source
4 studies:					Quantitative	Lee et al (2018)
1: Green vs. greenwashed			Perception of greeness & WTP	Two conditions are explored; green condition and greenwashed condition. Products in green condition the most green. Purchase intention was also higher for these products	Quantitative	Lee et al (2018)
2: Motivation (low vs. high) and greenness (green vs. greenwashed)			Perceptions of monetary sacrifice	Two printers were compared, the high price of the printers were perceived as high in monetary sacrifice when motivation to process information was high. When motivation was low, the price of the green printer was rated as much lower than the greenwashed printer	Quantitative	Lee et al (2018)
3A: Green vs. greenwashed			Ethical vs. less ethical	When consumers evaluate greenwashed products, ethicality concerns arise according to results from the IAT	Quantitative	Lee et al (2018)
3B: Green vs. Greenwashed	Ethicality		Perceptions of monetary sacrifice		Quantitative	Lee et al (2018)
Attributes (Brand, packaging, resealability, price)			Consumer choice	When consumers choose to buy functional drink products, the eco-friendly packaging was preferred	Quantitative	Rokka & Uusitalo (2008)
2 Studies:					Qualitative + quantitative	Gleim & Lawson 2014
1: Price, quality, convenience and brand loyalty			Green consumption		Qualitative	Gleim & Lawson 2014
2: Price sensitivity, social norms, willingness to comply with social norms, value, quality, PCE, advertising trust, availability, intertia, personal norms, organizational trust and expertise			Green purchasing behavior	The most prominent reason for the green gap is price. Thereafter follows poor perceptions of quality, brand loyalty to conventional products and lack of green product availability. The type of product sought is also important	Quantitative	Gleim & Lawson 2014
Environmentalist identity/anti-environmentalist identity		Social visibility	Pro-Environmental behavior	There is a positive effect of eco-friendly identity on self-reported behavior. Moderated by visibility	Quantitative	Brick et al. 2017

Appendix B: Pretest

Appendix B1: Questionnaire

Spørreundersøkelse

Spørreundersøkelsen nedenfor er en del av et eksperiment og utføres i tråd med vår masteroppgave på NHH.

Tusen takk for din tid!

Se for deg at du skal kjøpe en avløpsrens. På en skala fra 1-7, hvor viktig er følgende egenskaper for deg i kjøp av avløpsrens? *1 = ikke viktig, 7 = viktig*
(Med avløpsrens menes et produkt som brukes til å åpne tette sluk, tette rør og avløp fra vask, badekar og dusj)

Skånsom

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Mild

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Intens

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Aggressiv

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Myk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Sterk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Snill

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Hard

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Se for deg at du skal kjøpe en body lotion. På en skala fra 1-7, hvor viktig er følgende egenskaper for deg i kjøp av body lotion? *1 = ikke viktig, 7 = viktig*

Skånsom

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Mild

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Intens

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Aggressiv

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Myk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Sterk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Snill

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Hard

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Se for deg at du skal kjøpe en sjampo. På en skala fra 1-7, hvor viktig er følgende egenskaper for deg i kjøp av sjampo? *1 = ikke viktig, 7 = viktig*

Skånsom

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Mild

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Intens

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Aggressiv

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Myk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Sterk

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Snill

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Hard

1 - Ikke viktig i det hele tatt	2	3	4	5	6	7 - Svært viktig
○	○	○	○	○	○	○

Appendix B2: Results

Table B2.1 *Factor analysis*
Pattern Matrix for PCA with Oblimin Rotation of items

Item	Pattern Coefficients	
	Component 1	Component 2
Skånsom		.654
Mild		.731
Intens	.822	
Aggressiv	.800	
Myk		.694
Sterk	.906	
Snill		.962
Hard	.876	
Cronbach's Alpha	.905	.871

Table B2.2
Tukey HSD Multiple Comparisons Pretest

Product Category	(I) Category	(J) Category	Mean Difference (I - J)	Standard Deviation
Drain Opener	Lotion	Shampoo	0.93939*	0.29796
		Drain cleaner	3.00000*	0.29796
	Shampoo	Drain cleaner	2.06061*	0.29796
Body Lotion	Lotion	Shampoo	-0.23485	0.25058
		Drain cleaner	-3.05303*	0.25058
	Shampoo	Drain cleaner	-2.81818*	0.25058

* The mean difference is significant at the .05 level

Table B2.3
Tukey HSD for Gentle, means for groups in homogeneous subsets are displayed

Category	N	1	2	3
Lotion	33	2,500		
Shampoo	33		4,561	
Drain Cleaner	33			5,500
Sig.		1,000	1,000	1,000

Table B2.4
Tukey HSD for Strong, means for groups in homogeneous subsets are displayed

Category	N	1	2
Lotion	33	2,424	
Shampoo	33	2,659	
Drain Cleaner	33		5,477
Sig.		0,618	1,000

Appendix C: Study 1, IAT

Appendix C1: Invitation

Invitation to participate in an experimental survey. Win a Bose QC35 II.

Dear student,

We would like to invite you to participate in an experimental survey as part of our master thesis at NHH. The survey will take about 7 minutes to complete and can only be taken on a computer with a keyboard. By finishing the survey and submitting your email address, you are in the running of winning a Bose QC35 II at a value of approximately 4000 NOK.

Your answers are completely anonymous. If you submit your email address it will not be tied to your answers and you will therefore remain anonymous. IP addresses are routinely recorded, but are completely confidential.

By proceeding, you give your consent that your answers can be used in further research.

Follow this link to participate in the survey:
https://nhh.eu.qualtrics.com/jfe/form/SV_9XngVvEkcUxhz2l

If you have any questions regarding this survey please contact Ellen Bjorvatn at ebjorvatn@gmail.com or Åsta Bjarnadottir at aastabjarnadottir@gmail.com

Thank you for your time,

Åsta & Ellen

Appendix C2: IAT Introduction

This study is a part of our master thesis at NHH and we thank you for participating.

NOTE: The study must be taken on a computer with a keyboard and will not function on tablets and smart phones.

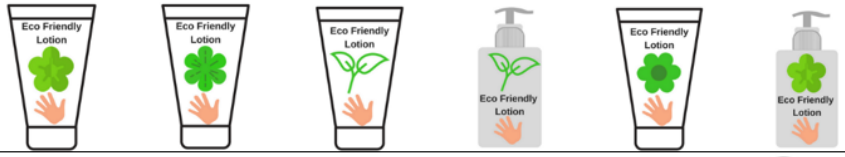
In this study you will complete an Implicit Association Test (IAT) where you will be asked to sort words and pictures into groups as fast as you can. In addition to the IAT, you will be asked some questions about your beliefs, attitudes and some standard demographic questions. Your answers are anonymous. The study should take about 7 minutes to complete.

This study will test your associations to the product category **body lotion/drain opener**.

Please read the instructions carefully.

Appendix C3: IAT Instructions with images and words to be categorized, Gentle category

Next, you will use the "E" and "I" computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

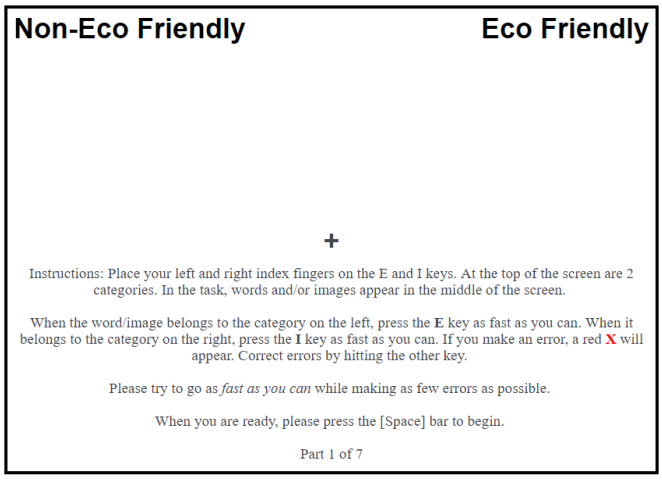
Category	Items
Powerful	Effective, Efficient, Gets the job done, Sufficient, Productive, Strong
Weak	Ineffective, Inefficient, Soft, Incapable, Gentle, Unproductive
Eco Friendly Product	
Non-Eco Friendly Product	

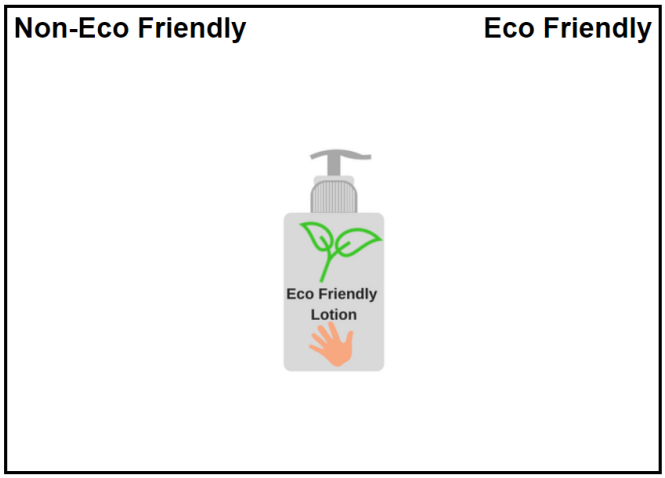
Appendix C4: IAT Instructions with images and words to be categorized, Strong category

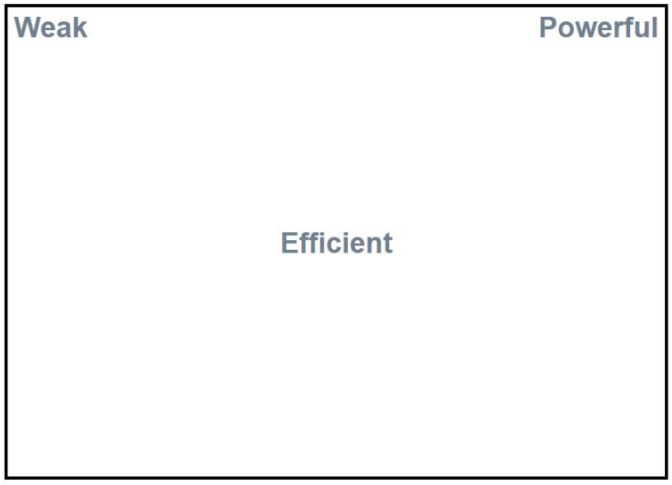
Next, you will use the "E" and "I" computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

Category	Items
Powerful	Effective, Efficient, Gets the job done, Sufficient, Productive, Strong
Weak	Ineffective, Inefficient, Soft, Incapable, Gentle, Unproductive
Eco Friendly Product	
Non-Eco Friendly Product	

Appendix C5: IAT Example




Non-Eco Friendly
Eco Friendly
Eco Friendly
Lotion


Weak
Powerful
Efficient

Appendix C6: IAT Results printed from Iatgen, Gentle Category

Number of Participants Who Completed IAT
228

Timeout Rate
0.0002894460726

Participants Dropped Due to Excessive Speed
6

Error Rate
0.09226

Reliability
0.9171

D-Score Mean
0.36676

D-Score SD
0.55202

t-test
9.89939

df
221

p-value
< 0.00001

95% CI
0.29375 0.43978

Cohen's *d*
0.6644

Appendix C7: IAT Results printed from Iatgen, Strong Category

Number of Participants Who Completed IAT
218

Timeout Rate
0.0002661799376

Participants Dropped Due to Excessive Speed
5

Error Rate
0.09389

Reliability
0.89494

D-Score Mean
-0.359

D-Score SD
0.5118

t-test
-10.23728

df
212

p-value
< 0.00001

95% CI
-0.42813 -0.28987

Cohen's *d*
-0.70145

Appendix D: Study 2, Online Experiment

Appendix D1: Questionnaire, Gentle Category

You've just finished the Implicit Association Test. You will in the next section be asked to answer some questions about your beliefs, attitudes and some standard demographic questions. Your answers are still anonymous.

Imagine that you are going to buy a body lotion, and you may choose between the three options below:

- A body lotion for dry skin that is made of 100% natural ingredients
- A body lotion for dry skin in a bottle made of 100% recycled material
- A regular body lotion for dry skin

State your level of agreement with these following statements. Where 1 = Strongly disagree & 7 = Strongly agree

	Body lotion made of 100% Natural ingredients							Body lotion in a bottle made of 100% recycled material							Regular body lotion						
	1 Strongly disagree	2	3	4	5	6	7 Strongly agree	1 Strongly disagree	2	3	4	5	6	7 Strongly agree	1 Strongly disagree	2	3	4	5	6	7 Strongly agree
Buying this product is a good environmental choice	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A person who cares about the environment would buy this product	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

How would you rate the ability of these products to moisturize dry skin? Where 1= Low ability & 7= High ability

	1 - Low ability	2	3	4	5	6	7 - High ability
Body lotion made of 100% Natural ingredients	○	○	○	○	○	○	○
Body lotion in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular body lotion	○	○	○	○	○	○	○

Please rate the likelihood that you would choose each of the different alternatives if you were in the need for a lotion for dry skin. Where 1 = Not likely at all & 7 = Very likely

	1 - Not likely at all	2	3	4	5	6	7 - Very Likely
Body lotion made of 100% Natural ingredients	○	○	○	○	○	○	○
Body lotion in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular body lotion	○	○	○	○	○	○	○

Please rate the likelihood that each alternative will be a success in the market. Where 1 = Not a success at all & 7 = Major success

	1 - Not a success at all	2	3	4	5	6	7 - Major success
Body lotion made of 100% Natural ingredients	○	○	○	○	○	○	○
Body lotion in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular body lotion	○	○	○	○	○	○	○

Please rate the level of damage you think these products will have on your skin, your health and the environment. Where 1 = No damage & 7 = Very much damage

	Body lotion made of 100% Natural ingredients							Body lotion in a bottle made of 100% recycled material							Regular body lotion						
	1 - No damage	2	3	4	5	6	7 - Very much damage	1 - No damage	2	3	4	5	6	7 - Very much damage	1 - No damage	2	3	4	5	6	7 - Very much damage
Skin	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Health	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Environment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

State your level of agreement with the following statements. Where 1 = Strongly disagree & 7 = Strongly agree

	1 - Strongly Dissagree	2	3	4	5	6	7 - Strongly Agree
An environmentally friendly product has lower quality than a non-environmentally friendly product	○	○	○	○	○	○	○
I am willing to sacrifice quality for environmentally friendliness	○	○	○	○	○	○	○
It is important to me that the products I purchase are environmentally friendly	○	○	○	○	○	○	○

Standard demographic questions

Lastly, we want to ask you some questions about yourself.

Gender:

- ○ Female
- ○ Male

Age:

What is the highest degree or level of school you have completed? (If you're currently enrolled in school, please indicate which degree or level you are currently taking)

- ○ Lower Secondary School (Ungdomsskole)
- ○ High School (Videregående)
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ PhD

Housing:

- ○ Single
- ○ With roommates
- ○ With a partner
- ○ With my family

Who has the main responsibility for grocery shopping in your household?

- ○ I do
- ○ Someone else
- ○ Shared responsibility

Thank you for participating, your answers are valuable to our research.

Enter your email for a chance to win a Bose QC35 II

Appendix D2: Questionnaire, Strong Category

You've just finished the Implicit Association Test. You will in the next section be asked to answer some questions about your beliefs, attitudes and some standard demographic questions. Your answers are still anonymous.

Imagine that you are going to buy a drain opener, and you may choose between the three options below:

- A drain opener that is made of 100% natural ingredients
- A drain opener in a bottle made of 100% recycled material
- A regular drain opener

State your level of agreement with these following statements. Where 1 = Strongly disagree & 7 = Strongly agree

	Drain opener made of 100% Natural ingredients							Drain opener in a bottle made of 100% recycled material							Regular drain opener						
	1 Strongly disagree	2	3	4	5	6	7 Strongly agree	1 Strongly disagree	2	3	4	5	6	7 Strongly agree	1 Strongly disagree	2	3	4	5	6	7 Strongly agree
Buying this product is a good environmental choice	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A person who cares about the environment would buy this product	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

How would you rate the ability of these products to open clogged pipes? Where 1 = Low ability & 7 = High ability

	1 - Low ability	2	3	4	5	6	7 - High ability
Drain opener made of 100% natural ingredients	○	○	○	○	○	○	○
Drain opener in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular drain opener	○	○	○	○	○	○	○

Please rate the likelihood that you would choose each of the different alternatives if you were in the need for a drain opener. Where 1 = Not likely at all & 7 = Very likely

	1 - Not likely at all	2	3	4	5	6	7 - Very Likely
Drain opener made of 100% Natural ingredients	○	○	○	○	○	○	○
Drain opener in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular drain opener	○	○	○	○	○	○	○

Please rate the likelihood that each alternative will be a success in the market. Where 1 = Not a success at all & 7 = Major success

	1 - Not a success at all	2	3	4	5	6	7 - Major success
Drain opener made of 100% Natural ingredients	○	○	○	○	○	○	○
Drain opener in a bottle made of 100% recycled material	○	○	○	○	○	○	○
Regular drain opener	○	○	○	○	○	○	○

Please rate the level of damage you think these products will have on your pipes, your health and the environment. Where 1 = No damage & 7 = Very much damage

	Drain opener made of 100% Natural ingredients							Drain opener in a bottle made of 100% recycled material							Regular drain opener						
	1 - No damage	2	3	4	5	6	7 - Very much damage	1 - No damage	2	3	4	5	6	7 - Very much damage	1 - No damage	2	3	4	5	6	7 - Very much damage
Pipes	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Health	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Environment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

State your level of agreement with the following statements. Where 1 = Strongly disagree & 7 = Strongly agree

	1 - Strongly Dissagree	2	3	4	5	6	7 - Strongly Agree
An environmentally friendly product has lower quality than a non-environmentally friendly product	○	○	○	○	○	○	○
I am willing to sacrifice quality for environmentally friendliness	○	○	○	○	○	○	○
It is important to me that the products I purchase are environmentally friendly	○	○	○	○	○	○	○

Standard demographic questions

Lastly, we want to ask you some questions about yourself.

Gender:

- ○ Female
- ○ Male

Age:

What is the highest degree or level of school you have completed? (If you're currently enrolled in school, please indicate which degree or level you are currently taking)

- ○ Lower Secondary School (Ungdomsskole)
- ○ High School (Videregående)
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ PhD

Housing:

- ○ Single
- ○ With roommates
- ○ With a partner
- ○ With my family

Who has the main responsibility for grocery shopping in your household?

- ○ I do
- ○ Someone else
- ○ Shared responsibility

Thank you for participating, your answers are valuable to our research.

Enter your email for a chance to win a Bose QC35 II

Appendix D3: Descriptive Statistics

Table D3.1: Descriptive Statistics, Mediators in the Strong Product Category

Mediating Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Perceived greeness measure 1 (NI)	212	5,57	1,505	-0,982	0,167	0,265	0,333
Perceived greeness measure 2 (NI)	212	5,75	1,334	**-1,079**	0,167	0,646	0,333
Perceived greeness measure 1 (RM)	212	5,97	1,206	**-1,115**	0,167	0,858	0,333
Perceived greeness measure 2 (RM)	212	5,97	1,174	**-1,178**	0,167	**1,262**	0,333
Perceived greeness measure 1 (Reg)	212	2,82	1,222	0,442	0,167	0,152	0,333
Perceived greeness measure 2 (Reg)	212	2,79	1,275	0,410	0,167	-0,402	0,333
Perceived quality (NI)	212	4,25	1,355	0,054	0,167	-0,032	0,333
Perceived quality (RM)	212	5,33	1,319	-0,265	0,167	-0,851	0,333
Perceived quality (Reg)	212	5,86	1,125	**-1,058**	0,167	**1,258**	0,333

Note: Values in bold are violations of the normality assumption

Table D3.2: Descriptive Statistics, Mediators in the Gentle Product Category

Mediating Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Perceived greeness measure 1 (NI)	224	4,90	1,497	-0,494	0,163	-0,032	0,324
Perceived greeness measure 2 (NI)	224	5,22	1,360	-0,608	0,163	0,113	0,324
Perceived greeness measure 1 (RM)	224	6,04	1,104	**-1,020**	0,163	0,351	0,324
Perceived greeness measure 2 (RM)	224	6,18	1,049	**-1,242**	0,163	0,759	0,324
Perceived greeness measure 1 (Reg)	224	3,17	1,132	0,036	0,163	0,248	0,324
Perceived greeness measure 2 (Reg)	224	3,15	1,156	-0,080	0,163	-0,463	0,324
Perceived quality (NI)	224	5,36	1,312	-0,597	0,163	0,113	0,324
Perceived quality (RM)	224	4,70	1,377	-0,207	0,163	0,170	0,324
Perceived quality (Reg)	224	5,22	1,206	-0,289	0,163	-0,027	0,324

Note: Values in bold are violations of the normality assumption

Table D3.3: Descriptive Statistics, Dependent Variables in the Strong Product Category

Dependent Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Choice (NI)	212	4,24	1,555	-0,063	0,167	-0,570	0,333
Choice (RM)	212	5,02	1,387	-0,400	0,167	-0,274	0,333
Choice (Reg)	212	5,30	1,368	-0,784	0,167	0,545	0,333
Success (NI)	212	4,49	1,241	-0,023	0,167	-0,139	0,333
Success (RM)	212	5,04	1,213	-0,066	0,167	-0,533	0,333
Success (Reg)	212	5,29	1,196	-0,548	0,167	-0,106	0,333

Note: Values in bold are violations of the normality assumption

Table D3.4: Descriptive Statistics, Dependent Variables in the Gentle Product Category

Dependent Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Choice (NI)	224	5,10	1,545	-0,703	0,163	-0,043	0,324
Choice (RM)	224	4,50	1,491	-0,352	0,163	-0,260	0,324
Choice (Reg)	224	4,98	1,396	-0,438	0,163	-0,015	0,324
Success (NI)	224	5,39	1,147	-0,850	0,163	0,962	0,324
Success (RM)	224	4,75	1,232	-0,418	0,163	0,047	0,324
Success (Reg)	224	4,93	1,192	-0,502	0,163	0,661	0,324

Note: Values in bold are violations of the normality assumption

Table D3.5: Descriptive Statistics, Control Variables in the Strong Product Category

Control Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Damage pipes (NI)	212	2,66	1,352	0,661	0,167	-0,023	0,333
Damage health (NI)	212	2,50	1,326	0,979	0,167	0,806	0,333
Damage environment (NI)	212	2,78	1,438	0,916	0,167	0,300	0,333
Damage pipes (RM)	212	3,75	1,382	-0,181	0,167	-0,283	0,333
Damage health (RM)	212	3,79	1,372	-0,166	0,167	-0,329	0,333
Damage environment (RM)	212	3,33	1,461	0,368	0,167	-0,626	0,333
Damage pipes (Reg)	212	4,53	1,503	-0,503	0,167	-0,218	0,333
Damage health (Reg)	212	4,78	1,434	-0,401	0,167	-0,307	0,333
Damage environment (Reg)	212	5,28	1,311	-0,655	0,167	0,088	0,333
Tradeoff	212	3,75	1,599	-0,223	0,167	-0,895	0,333
Sacrifice	212	4,01	1,518	-0,074	0,167	-0,576	0,333
Importance	212	4,31	1,393	-0,104	0,167	-0,372	0,333

Note: Values in bold are violations of the normality assumption

Table D3.6: Descriptive Statistics, Control Variables in the Gentle Product Category

Control Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Damage skin (NI)	224	2,02	1,303	**1,601**	0,163	**2,200**	0,324
Damage health (NI)	224	2,03	1,300	**1,524**	0,163	**2,178**	0,324
Damage environment (NI)	224	3,27	1,306	0,215	0,163	-0,205	0,324
Damage skin (RM)	224	2,63	1,333	0,521	0,163	-0,419	0,324
Damage health (RM)	224	2,57	1,300	0,463	0,163	-0,442	0,324
Damage environment (RM)	224	2,57	1,276	**1,108**	0,163	**1,434**	0,324
Damage skin (Reg)	224	2,87	1,311	0,206	0,163	-0,599	0,324
Damage health (Reg)	224	2,92	1,345	0,240	0,163	-0,496	0,324
Damage environment (Reg)	224	4,40	1,365	-0,204	0,163	-0,264	0,324
Tradeoff	224	2,96	1,580	0,383	0,163	-0,766	0,324
Sacrifice	224	3,43	1,463	0,164	0,163	-0,594	0,324
Importance	224	4,17	1,411	-0,322	0,163	-0,151	0,324

Note: Values in bold are violations of the normality assumption

Appendix D4: Merging of Measurements

Table D4.1 *Cronbach's Alpha, Combined Measure of Greenness*

Measurement	Cronbach's Alpha	Inter-Item Correlation Mean
Greenness Body Lotion NI[12]	.66	.50
Greenness Body Lotion RM[13]	.68	.52
Greenness Body Lotion Reg.[14]	.67	.50
Greenness Drain Opener NI[1]	.69	.53
Greenness Drain Opener RM[2]	.78	.64
Greenness Drain Opener Reg.	.67	.50

[12] NI = Product Version with 100% Natural Ingredients
[13] RM = Product Version in 100% Recycled Materials
[14] Reg= Regular Product Version/Non-Green Basline

Appendix D5: Results – Main Effects

Table D5.1
Pairwise Comparisons for Measurements on Choice for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Std. Error
Drain Opener	Product-Related Attribute – Non-Product Related Attribute	-0,78*	0,102
	Product-Related Attribute – Non-Green Baseline	-1,07*	0,159
	Non-Product Related Attribute – Non-Green Baseline	-0,28	0,136
Body Lotion	Product-Related Attribute – Non-Product Related Attribute	0,60*	0,116
	Product-Related Attribute – Non-Green Baseline	0,13	0,146
	Non-Product Related Attribute - Non-Green Baseline	-0,48*	0,128

* The mean difference is significant at the .05 level

Table D5.2
Pairwise Comparisons for Measurements of Success for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Std. Error
Drain Opener	Product-Related Attribute – Non-Product Related Attribute	-0,55*	0,092
	Product-Related Attribute – Non-Green Baseline	-0,80*	0,121
	Non-Product Related Attribute – Non-Green Baseline	-0,25	0,110
Body Lotion	Product-Related Attribute – Non-Product Related Attribute	0,65*	0,095
	Product-Related Attribute – Non-Green Baseline	0,46*	0,102
	Non-Product Related Attribute – Non-Green Baseline	-0,18	0,104

* The mean difference is significant at the .05 level

Appendix D6: Results – Mediating Effects

Explanation of the abbreviations:

- Reg = Non-Green Baseline (Regular)
- RM = Green non-product-related attribute (Recycled Material)
- NI = Green product-related attribute (Natural Ingredients)

Table D6.1 *Simple Mediation Model Analysis – Strong Product Category*

Dependent variable $Y_a - Y_b$	Mediator $M_a - M_b$	Total effect		Direct effect		Indirect effect	
		Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% BootCI (LL, UP)
Choice (Reg - RM)	Quality (Reg - RM)	**0.2830**	.0150, .5511	0.0434	-.2300, .3167	**0.2397**	.1167, .3919
Choice (Reg – NI)	Quality (Reg – NI)	**1.0660**	.7529, 1.3792	1.1042	-.2701, .4784	**0.9619**	.6543, 1.2816
Choice (RM – NI)	Quality (RM – NI)	**0.7830**	.5814, .9847	**0.3782**	.1442, .6121	**0.4049**	.2341, .5835
Choice (RM – NI)	Greenness (RM -NI)	**0.7830**	.5814, .9847	**0.6893**	.4928, .8858	**0.0938**	.0230, .1994
Success (Reg –RM)	Quality (Reg –RM)	**0.2500**	.0323, .4677	0.0587	-.1639, .2813	**0.1913**	.0682, .3651
Success (Reg –NI)	Quality (Reg – NI)	**0.8019**	.5636, 1.0402	0.2596	-.0384, .5576	**0.5423**	.2867, .8537
Success (RM –NI)	Quality (RM – NI)	**0.5519**	.3696, .7342	**0.3856**	.1610 .6101	**0.1663**	.0032, .3271
Success (RM –NI)	Greenness (RM -NI)	**0.5519**	.3696, .7342	**0.4671**	.2896, .6447	**0.0848**	.0252, .1621

Note: The values in **bold** are significant at a 95% significance level

Table D6.2 *Serial Multiple Mediation Model Analysis – Strong Product Category*
(Table D6.3 is a continuation of this table)

	Dependent variable $Y_a - Y_b$	Mediator $M_{1a} - M_{1b}$	Mediator $M_{2a} - M_{2b}$	Total effect		Direct effect	
				Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
1	Choice (RM – NI)	Greenness (RM – NI)	Quality (RM – NI)	**0.7830**	.5814, .9847	**.3007**	.0759, .5255
2	Success (RM – NI)	Greenness (RM – NI)	Quality (RM – NI)	**0.5519**	.3696, .7342	**0.3166**	.0996, .5335

Note: The values in **bold** are significant at a 95% significance level

Table D6.3 *Continuation of the Table D6.3 above*

	Indirect effect 1[15]		Indirect effect 2[16]		Indirect effect 3[17]	
	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)
1	**0.0930**	.0231, .1861	**0.3859**	.2263, .5519	0.0034	-.0126, .0254
2	**0.0849**	.0256, .1603	**0.1491**	.0031, .2959	0.0013	-.0053, .0111

Note: The values in **bold** are significant at a 95% significance level

[15] Indirect effect 1: $x \rightarrow M_{1diff} \rightarrow Y_{diff}$
[16] Indirect effect 2: $x \rightarrow M_{2diff} \rightarrow Y_{diff}$
[17] Indirect effect 3: $x \rightarrow M_{1diff} \rightarrow M_{2diff} \rightarrow Y_{diff}$

Table D6.4 *Simple Mediation Model Analysis – Gentle Product Category*

Dependent variable $Y_a - Y_b$	Mediator $M_a - M_b$	Total effect		Direct effect		Indirect effect	
		Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% BootCI (LL, UP)
Choice (NI - Reg)	Quality (NI - Reg)	0.1250	-.1627, .4127	0.0154	-.2403, .2712	0.1096	-.0231, .2579
Choice (Reg –RM)	Quality (Reg –RM)	**0.4777**	.2249, .7305	0.2024	-.0629, .4676	**0.2753**	.1350, .4247
Choice (NI – RM)	Quality (NI – RM)	**0.6027**	.3749, ,8305	**0.2287**	.0058, .4517	**0.3739**	.2290, .5382
Choice (NI – RM)	Greenness (NI – RM)	**0.6027**	.3749, .8305	**0.8451**	.5613, 1.129	**-0.2425**	-.4306, -.0557
Success (NI – Reg)	Quality (NI – Reg)	**0.4643**	.2633, .6653	**0.4197**	.2277, .6118	0.0445	-.0087, .1180
Success (Reg –RM)	Quality (Reg –RM)	0.1830	-.0221, .3882	-.0537	-.2648, .1573	**0.2368**	.1049, .3822
Success (NI – RM)	Quality (NI – RM)	**0.6473**	.4605, .8342	**0.3285**	.1470, .5099	**0.3189**	.1931, .4623
Success (NI – RM)	Greenness (NI – RM)	**0.6473**	0.4605, .8342	**0.7007**	.4621, .9394	-0.0534	-.1999, .1006

Note: The values in **bold** are significant at a 95% significance level

Table D6.5 *Serial Multiple Mediation Model Analysis – Gentle Product Category*
(Table D6.6 is a continuation of this table)

	Dependent variable $Y_a - Y_b$	Mediator $M_{1a} - M_{1b}$	Mediator $M_{2a} - M_{2b}$	Total effect		Direct effect	
				Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
1	Choice (NI – RM)	Greenness (NI – RM)	Quality (NI – RM)	**0.6027**	.3749, .8305	**0.4685**	.1954, .7415
2	Success (NI - RM)	Greenness (NI – RM)	Quality (NI – RM)	**0.6473**	.4605, .8342	**0.3634**	.1368, .5900

Note: The values in **bold** are significant at a 95% significance level

Table D6.6 *Continuation of the Table D6.5 above*

	Indirect effect 1[18]		Indirect effect 2[19]		Indirect effect 3[20]	
	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)
1	**-0.2262**	-.4050, -.0542	**0.3858**	.2142, .5946	-0.0254	-.1102, .0510
2	-0.0348	-.1648, .0926	**0.3412**	.1984, .5094	-0.0225	-.0913, .0466

Note: The values in **bold** are significant at a 95% significance level

[18] Indirect effect 1: $x \rightarrow M_{1diff} \rightarrow Y_{diff}$
[19] Indirect effect 2: $x \rightarrow M_{2diff} \rightarrow Y_{diff}$
[20] Indirect effect 3: $x \rightarrow M_{1diff} \rightarrow M_{2diff} \rightarrow Y_{diff}$

Appendix D7: Additional Findings

Table D7.1
Pairwise Comparisons for Measurements of Perceived Damage to pipes/skin for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI[21] - RM[22]	-1.094*	.103
	NI - Reg[23]	-1.868*	.134
	RM - Reg	-0.774*	.096
Body Lotion	NI - RM	-0.607*	.079
	NI - Reg	-0.848*	.090
	RM - Reg	-0.241*	.064

* The mean difference is significant at the .05 level

Table D7.2
Pairwise Comparisons for Measurements of Perceived Damage to Health for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI[9] – RM[10]	-1.288*	.103
	NI – Reg[11]	-2.283*	.131
	RM - Reg	-0.995*	.100
Body Lotion	NI - RM	-0.536*	.069
	NI - Reg	-0.893*	.089
	RM - Reg	-0.357*	.066

* The mean difference is significant at the .05 level

Table D7.3
Pairwise Comparisons for Measurements of Perceived Damage to the environment for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI[9] – RM[10]	-0.547*	.118
	NI – Reg[11]	-2.500*	.139
	RM - Reg	-1.953*	.115
Body Lotion	NI - RM	0.701*	.092
	NI - Reg	-1.125*	.108
	RM - Reg	-1.826*	.109

* The mean difference is significant at the .05 level

[21] NI = Product Version with 100% Natural Ingredients
[22] RM = Product Version in 100% Recycled Materials
[23] Reg = Regular Product Version/Non-Green Baseline

Appendix E: Study 3, Field Experiment

Appendix E1: Manipulations

Appendix E2: Questionnaire, Gentle Category

Hei!

Denne undersøkelsen utføres som en del av vår masteroppgave ved Norges Handelshøyskole og vil ta ca. 10 minutter å gjennomføre. Vi setter stor pris på din deltakelse - dine svar er verdifulle for oss! Du vil motta et sentergavekort på 70 kr etter å ha fullført denne undersøkelsen.

Du vil straks få beskjed om å åpne en eske og ta ut innholdet for å studere det. Følg instruksene nøye. Du skal bare åpne den esken du får beskjed om å åpne. I esken finner du ulike produkter, og vi kommer til å stille deg noen enkle spørsmål om hva du synes om produktene. Dersom du opplever tekniske problemer underveis i undersøkelsen, må du bare ta kontakt.

Svarene er helt anonyme og alle opplysninger du oppgir vil bli behandlet konfidensielt.

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

Dersom du bekrefter at du har lest informasjonen over, og gir samtykke til å frivillig delta i undersøkelsen, klikk «Ja».

- ○ Ja, jeg ønsker å delta
- ○ Nei, jeg ønsker ikke å delta

Åpne esken til venstre for deg som er merket med tallet 1 og studer produktene du finner. Husk at produktene er under utvikling og derfor kan se litt uferdige ut. I de neste stegene vil vi spørre deg noen spørsmål angående disse produktene.

Trykk på pilen nederst til høyre på denne siden når du er klar til å gå videre.

Forestill deg at du skal kjøpe en body lotion, og at du kan velge blant de tre alternativene som du fant i esken.

- **En body lotion laget av 100% naturlige ingredienser**
- **En body lotion i 100% resirkulert emballasje**
- **En vanlig body lotion**

I hvor stor grad mener du produktene har egenskapene som er listet i tabellene nedenfor?
1 = I svært liten grad og 7 = I svært stor grad

	Body lotion laget av 100% naturlige ingredienser						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

	Body lotion i 100% resirkulert emballasje						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

	En vanlig body lotion						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

Vi lurer på hvor miljøvennlig du tror de ulike produktene er. Hvor enig eller uenig er du i påstandene i tabellene nedenfor? 1 = Svært uenig og 7 = Svært enig

	Body lotion laget av 100% naturlige ingredienser						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	○	○	○	○	○	○	○

	Body lotion i 100% resirkulert emballasje						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	○	○	○	○	○	○	○

	Vanlig body lotion						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	◉	○	○	○	○	○	○

På en skala fra 1 til 7, hvordan vil du rangere produktets evne til å mykgjøre huden?
1 = Svært lite god og 7 = Svært god

	1 Svært lite god	2	3	4	5	6	7 Svært god
Body lotion laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Body lotion i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig body lotion	○	○	○	○	○	○	○

Se for deg at du har tørr hud og derfor trenger en body lotion. Hva er sannsynligheten for at du vil velge disse produktene? 1 = Svært usannsynlig og 7 = Svært sannsynlig

	1 - Svært usannsynlig	2	3	4	5	6	7 - Svært sannsynlig
Body lotion laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Body lotion i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig body lotion	○	○	○	○	○	○	○

Hvor sannsynlig tror du det er at disse alternativene vil bli en suksess på markedet, der 1 = Svært usannsynlig og 7 = Svært sannsynlig

	1 - Svært usannsynlig	2	3	4	5	6	7 - Svært sannsynlig
Body lotion laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Body lotion i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig body lotion	○	○	○	○	○	○	○

Hvor stor eller liten skade tror du disse produktene vil ha på huden din, helsen din og miljøet? 1 = Svært liten skade og 7 = Svært stor skade.

	Body lotion laget av 100% naturlige ingredienser						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Hud	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

	Body lotion i 100% resirkulert emballasje						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Hud	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

	Vanlig body lotion						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Hud	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

Det har blitt gjort tester i laboratorium på hvor store mengder av disse produktene som skal til for å mest mulig effektivt gjøre huden myk. Vi vet derfor hvor mye som trengs av hvert produkt.

Tror du det er en forskjell i mengden som trengs av hvert produkt for å effektivt mykgjøre huden? Dersom du svarer rett på dette spørsmålet er du med i trekningen av to kinobilletter.

- ○ Nei, det er ingen forskjell
- ○ Ja, det er forskjell

Hvis ja, ranger produktene etter minst behøvd mengde til mest behøvd mengde, der 1 er minst mengde, 2 er middels mengde og 3 er mest mengde.

	1	2	3
Body lotion laget av 100% naturlig ingredienser	○	○	○
Vanlig body lotion	○	○	○
Body lotion i 100% resirkulert emballasje	○	○	○

Hvor enig er du i påstandene nedenfor, der 1 = Svært uenig og 7 = Svært enig

	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Et miljøvennlig produkt har lavere kvalitet enn et ikke-miljøvennlig produkt	○	○	○	○	○	○	○
Det er viktig for meg at de produktene jeg kjøper er miljøvennlige	○	○	○	○	○	○	○
Jeg resirkulerer så ofte jeg har muligheten til det	○	○	○	○	○	○	○
Jeg er villig til å ofre kvalitet til fordel for miljøvennlighet	○	○	○	○	○	○	○

Av de to alternativene nedenfor, hvilken mener du er den største miljøutfordringen mennesker står overfor?

- ○ Kjemikalier fra kosmetikk og vaskemidler som forurenser havet, elver og innsjø.
- ○ Emballasje fra produkter som havner i naturen og forurenser havet, elver og innsjø.

Tror du det er prisforskjeller mellom de tre produktene i denne undersøkelsen?

- ○ Ja
- ○ Nei

Dersom du svarte "ja" på det forrige spørsmålet, ranger produktene nedenfor fra det du tror er billigst til dyrest. Der 1 er billigst, 2 er nest dyrest og 3 er dyrest.

	1	2	3
Body lotion i 100% resirkulert emballasje	○	○	○
Body lotion laget av 100% naturlige ingredienser	○	○	○
Vanlig body lotion	○	○	○

Til slutt ønsker vi å stille deg noen få spørsmål om deg selv. Svarene dine er fortsatt helt anonyme.

Kjønn:

- Kvinne
- Mann

Alder:

Nasjonalitet:

- Norsk
- Annet, vennligst spesifiser:

Hva er høyeste nivå av utdanning du har fullført? (Hvis du er i utdanning per dags dato, vennligst oppgi påbegynt nivå).

- Ungdomsskole
- Videregående
- Bachelorgrad
- Mastergrad
- PhD

Yrke:

- Student
- Pensjonist
- Yrkesaktiv
- Ikke i jobb

Årlig inntekt:

- Mindre enn 250.000 NOK
- Mellom 250.000 og 500.000 NOK
- Mellom 500.00 og 750.000 NOK
- Mellom 750.000 og 1 mill NOK
- Mer enn 1 mill NOK

Sivilstatus:

- Gift
- Ugift
- Samboer
- Skilt
- Enke/enkemann

Har du barn som bor hjemme?

- Ja, vennlist oppgi antall:
- Nei

Hvem har hovedansvaret for handling av dagligvarer i husholdningen din?

- Hovedsaklig meg
- Hovedsaklig en annen
- Delt ansvar

Skriv inn epost-adressen din for å være med i trekningen av to kinobilletter. *Du vil fortsatt forbli helt anonym da denne vil kun brukes til trekking av vinner og vil ikke bli koblet opp mot svarene dine.*

Appendix E3: Questionnaire, Strong Category

Hei!

Denne undersøkelsen utføres som en del av vår masteroppgave ved Norges Handelshøyskole og vil ta ca. 10 minutter å gjennomføre. Vi setter stor pris på din deltakelse - dine svar er verdifulle for oss! Du vil motta et sentergavekort på 70 kr etter å ha fullført denne undersøkelsen.

Du vil straks få beskjed om å åpne en eske og ta ut innholdet for å studere det. Følg instruksene nøye. Du skal bare åpne den esken du får beskjed om å åpne. I esken finner du ulike produkter, og vi kommer til å stille deg noen enkle spørsmål om hva du synes om produktene. Dersom du opplever tekniske problemer underveis i undersøkelsen, må du bare ta kontakt.

Svarene er helt anonyme og alle opplysninger du oppgir vil bli behandlet konfidensielt.

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

Dersom du bekrefter at du har lest informasjonen over, og gir samtykke til å frivillig delta i undersøkelsen, klikk «Ja».

- ○ Ja, jeg ønsker å delta
- ○ Nei, jeg ønsker ikke å delta

Åpne esken til høyre for deg som er merket med tallet 2 og studer produktene du finner. Husk at produktene er under utvikling og derfor kan se litt uferdige ut. I de neste stegene vil vi spørre deg noen spørsmål angående disse produktene.

Trykk på pilen nederst til høyre på denne siden når du er klar til å gå videre.

Forestill deg at du skal kjøpe en avløpsåpner, og at du kan velge blant de tre alternativene som du fant i esken.

- **En avløpsåpner laget av 100% naturlige ingredienser**
- **En avløpsåpner i 100% resirkulert emballasje**
- **En vanlig avløpsåpner**

I hvor stor grad mener du produktene har egenskapene som er listet i tabellene nedenfor?
1 = I svært liten grad og 7 = I svært stor grad

	Avløpsåpner laget av 100% naturlige ingredienser						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

	Avløpsåpner i 100% resirkulert emballasje						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

	En vanlig avløpsåpner						
	1 - I svært liten grad	2	3	4	5	6	7 - I svært stor grad
Miljøvennlig	○	○	○	○	○	○	○
Bærekraftig	○	○	○	○	○	○	○
Effektiv	○	○	○	○	○	○	○
Sterk	○	○	○	○	○	○	○

Vi lurer på hvor miljøvennlig du tror de ulike produktene er. Hvor enig eller uenig er du i påstandene i tabellene nedenfor? 1 = Svært uenig og 7 = Svært enig

	Avløpsåpner laget av 100% naturlige ingredienser						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	○	○	○	○	○	○	○

	Avløpsåpner i 100% resirkulert emballasje						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	○	○	○	○	○	○	○

	Vanlig avløpsåpner						
	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Dette produktet burde bli merket som miljøvennlig	○	○	○	○	○	○	○
Å kjøpe dette produktet er et miljøbevisst valg	○	○	○	○	○	○	○
En miljøbevisst person vil sannsynligvis kjøpe dette produktet	○	○	○	○	○	○	○

På en skala fra 1-7, hvordan vil du rangere produktets evne til å løse opp tette rør?
1 = Svært lite god og 7 = Svært god

	1 Svært lite god	2	3	4	5	6	7 Svært god
Avløpsåpner laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Avløpsåpner i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig avløpsåpner	○	○	○	○	○	○	○

Se for deg at du har tette rør på badet og derfor trenger en avløpsrens. Hva er sannsynligheten for at du vil velge disse produktene? 1 = Svært usannsynlig og 7 = Svært sannsynlig

	1 - Svært usannsynlig	2	3	4	5	6	7 - Svært sannsynlig
Avløpsåpner laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Avløpsåpner i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig avløpsåpner	○	○	○	○	○	○	○

Hvor sannsynlig tror du det er at disse alternativene vil bli en suksess på markedet, der 1 = Svært usannsynlig og 7 = Svært sannsynlig

	1 - Svært usannsynlig	2	3	4	5	6	7 - Svært sannsynlig
Avløpsåpner laget av 100% naturlige ingredienser	○	○	○	○	○	○	○
Avløpsåpner i 100% resirkulert emballasje	○	○	○	○	○	○	○
Vanlig avløpsåpner	○	○	○	○	○	○	○

Hvor stor eller liten skade tror du disse produktene vil ha på rørene, helsen din og miljøet?
1 = Svært liten skade og 7 = Svært stor skade.

	Avløpsåpner laget av 100% naturlige ingredienser						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Rør	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

	Avløpsåpner i 100% resirkulert emballasje						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Rør	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

	Vanlig avløpsåpner						
	1 - Svært liten skade	2	3	4	5	6	7 - Svært stor skade
Rør	○	○	○	○	○	○	○
Helse	○	○	○	○	○	○	○
Miljø	○	○	○	○	○	○	○

Nå kan du finne frem begrene som i lå esken sammen med flaskene med avløpsåpner. Disse skal du bruke til å måle opp hvor mye avløpsåpner som trengs av hvert produkt til å åpne fullstendig tette avløp.

Det har blitt gjort tester i laboratorium på hvor mye som trengs av hver av disse produktene for å åpne fullstendig tette avløp innen 15 minutter. Vi vet derfor hvor mye som trengs av hvert produkt og vil gjerne la deg gjette denne mengden. Personen som kommer nærmest den riktige mengden på alle tre produktene vil vinne to kinobilletter.

Bruk nå begrene til å måle opp produktet og noter mengden i ml i nedenfor. Dersom du lurer på noe angående oppmåling, er det bare å si ifra. 100ml = 1dl.

Mengde i ml

0 50 100 150 200 250 300 350 400 450 500

Avløpsåpner, 100% naturlige ingredienser

Avløpsåpner, 100% resirkulert emballasje

Vanlig avløpsåpner

Hvor enig er du i påstandene nedenfor, der 1 = Svært uenig og 7 = Svært enig

	1 - Svært uenig	2	3	4	5	6	7 - Svært enig
Et miljøvennlig produkt har lavere kvalitet enn et ikke-miljøvennlig produkt	○	○	○	○	○	○	○
Det er viktig for meg at de produktene jeg kjøper er miljøvennlige	○	○	○	○	○	○	○
Jeg resirkulerer så ofte jeg har muligheten til det	○	○	○	○	○	○	○
Jeg er villig til å ofre kvalitet til fordel for miljøvennlighet	○	○	○	○	○	○	○

Av de to alternativene nedenfor, hvilken mener du er den største miljøutfordringen mennesker står overfor?

- ○ Kjemikalier fra kosmetikk og vaskemidler som forurenser havet, elver og innsjø.
- ○ Emballasje fra produkter som havner i naturen og forurenser havet, elver og innsjø.

Tror du det er prisforskjeller mellom de tre produktene i denne undersøkelsen?

- ○ Ja
- ○ Nei

Dersom du svarte "ja" på det forrige spørsmålet, ranger produktene nedenfor fra det du tror er billigst til dyrest. Der 1 er billigst, 2 er nest dyrest og 3 er dyrest.

	1	2	3
Avløpsåpner i 100% resirkulert emballasje	○	○	○
Vanlig avløpsåpner	○	○	○
Avløpsåpner laget av 100% naturlige ingredienser	○	○	○

Til slutt ønsker vi å stille deg noen få spørsmål om deg selv. Svarene dine er fortsatt helt anonyme.

Kjønn:

- Kvinne
- Mann

Alder:

Nasjonalitet:

- Norsk
- Annet, vennligst spesifiser:

Hva er høyeste nivå av utdanning du har fullført? (Hvis du er i utdanning per dags dato, vennligst oppgi påbegynt nivå).

- Ungdomsskole
- Videregående
- Bachelorgrad
- Mastergrad
- PhD

Yrke:

- Student
- Pensjonist
- Yrkesaktiv
- Ikke i jobb

Årlig inntekt:

- Mindre enn 250.000 NOK
- Mellom 250.000 og 500.000 NOK
- Mellom 500.00 og 750.000 NOK
- Mellom 750.000 og 1 mill NOK
- Mer enn 1 mill NOK

Sivilstatus:

- Gift
- Ugift
- Samboer
- Skilt
- Enke/enkemann

Har du barn som bor hjemme?

- Ja, vennlist oppgi antall:
- Nei

Hvem har hovedansvaret for handling av dagligvarer i husholdningen din?

- Hovedsaklig meg
- Hovedsaklig en annen
- Delt ansvar

Skriv inn epost-adressen din for å være med i trekningen av to kinobilletter. *Du vil fortsatt forbli helt anonym da denne vil kun brukes til trekking av vinner og vil ikke bli koblet opp mot svarene dine.*

Appendix E4: Descriptive Statistics

Table E4.1: Descriptive Statistics, Mediators in the Gentle Product Category

Mediating Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Perceived greeness measure 1 (NI)	91	4,96	1,591	-0,739	0,253	0,032	0,500
Perceived greeness measure 2 (NI)	91	5,03	1,464	-0,558	0,253	-0,041	0,500
Perceived greeness measure 3 (NI)	91	4,97	1,552	-0,673	0,253	0,223	0,500
Perceived greeness measure 4 (NI)	91	4,90	1,476	-0,525	0,253	0,006	0,500
Perceived greeness measure 5 (NI)	91	5,26	1,332	-0,673	0,253	-0,180	0,500
Perceived greeness measure 1 (RM)	91	5,99	1,070	**-1,147**	0,253	**1,373**	0,500
Perceived greeness measure 2 (RM)	91	5,46	1,302	-0,794	0,253	0,539	0,500
Perceived greeness measure 3 (RM)	91	5,71	1,385	**-1,035**	0,253	0,536	0,500
Perceived greeness measure 4 (RM)	91	5,69	1,314	**-1,031**	0,253	0,968	0,500
Perceived greeness measure 5 (RM)	91	5,93	1,237	**-1,315**	0,253	**1,677**	0,500
Perceived greeness measure 1 (Reg)	91	3,45	1,440	0,124	0,253	-0,815	0,500
Perceived greeness measure 2 (Reg)	91	3,49	1,486	0,219	0,253	-0,553	0,500
Perceived greeness measure 3 (Reg)	91	2,81	1,679	0,906	0,253	0,311	0,500
Perceived greeness measure 4 (Reg)	91	2,57	1,351	0,771	0,253	0,390	0,500
Perceived greeness measure 5 (Reg)	91	2,69	1,554	**1,148**	0,253	**1,133**	0,500
Perceived quality (NI)	91	5,21	1,261	-0,507	0,253	0,415	0,500
Perceived quality (RM)	91	4,25	1,503	-0,163	0,253	-0,335	0,500
Perceived quality (Reg)	91	4,52	1,456	-0,254	0,253	-0,442	0,500

Note: Values in bold are violations of the normality assumption

Table E4.2: Descriptive Statistics, Mediators in the Strong Product Category

Mediating Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Perceived greeness measure 1 (NI)	90	5,46	1,537	-0,882	0,254	0,081	0,503
Perceived greeness measure 2 (NI)	90	4,91	1,474	-0,360	0,254	-0,216	0,503
Perceived greeness measure 3 (NI)	90	5,41	1,848	**-1,075**	0,254	0,146	0,503
Perceived greeness measure 4 (NI)	90	5,54	1,670	**-1,196**	0,254	0,796	0,503
Perceived greeness measure 5 (NI)	90	5,71	1,531	**-1,459**	0,254	**1,875**	0,503
Perceived greeness measure 1 (RM)	90	4,91	1,667	-0,586	0,254	-0,419	0,503
Perceived greeness measure 2 (RM)	90	4,89	1,502	-0,396	0,254	-0,379	0,503
Perceived greeness measure 3 (RM)	90	4,49	1,909	-0,433	0,254	-0,843	0,503
Perceived greeness measure 4 (RM)	90	4,62	1,660	-0,461	0,254	-0,352	0,503
Perceived greeness measure 5 (RM)	90	5,00	1,572	-0,727	0,254	-0,004	0,503
Perceived greeness measure 1 (Reg)	90	2,86	1,569	0,477	0,254	-0,657	0,503
Perceived greeness measure 2 (Reg)	90	3,12	1,339	0,001	0,254	-0,853	0,503
Perceived greeness measure 3 (Reg)	90	2,48	1,602	0,837	0,254	-0,268	0,503
Perceived greeness measure 4 (Reg)	90	2,41	1,571	**1,047**	0,254	0,381	0,503
Perceived greeness measure 5 (Reg)	90	2,50	1,651	**1,042**	0,254	0,321	0,503
Perceived quality (NI)	90	4,36	1,425	0,108	0,254	-0,469	0,503
Perceived quality (RM)	90	4,79	1,503	-0,463	0,254	-0,277	0,503
Perceived quality (Reg)	90	5,64	1,284	-0,965	0,254	**1,027**	0,503

Note: Values in bold are violations of the normality assumption

Table E4.3: Descriptive Statistics, Dependent Variables in the Gentle Product Category

Dependent Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Choice (NI)	91	5,38	1,569	-0,964	0,253	0,239	0,500
Choice (RM)	91	4,10	1,832	-0,160	0,253	**-1,058**	0,500
Choice (Reg)	91	3,95	1,702	-0,037	0,253	-0,758	0,500
Success (NI)	91	5,46	1,214	-0,918	0,253	0,537	0,500
Success (RM)	91	4,73	1,359	-0,626	0,253	0,053	0,500
Success (Reg)	91	3,84	1,470	0,120	0,253	-0,369	0,500

Note: Values in bold are violations of the normality assumption

Table E4.4: Descriptive Statistics, Dependent Variables in the Strong Product Category

Dependent Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Choice (NI)	90	4,72	1,878	-0,366	0,254	-0,972	0,503
Choice (RM)	90	4,74	1,876	-0,413	0,254	-0,982	0,503
Choice (Reg)	90	4,98	1,799	-0,665	0,254	-0,645	0,503
Success (NI)	90	4,83	1,630	-0,409	0,254	-0,631	0,503
Success (RM)	90	4,67	1,649	-0,478	0,254	-0,183	0,503
Success (Reg)	90	4,41	1,600	-0,298	0,254	-0,696	0,503

Note: Values in bold are violations of the normality assumption

Table E4.5: Descriptive Statistics, Control Variables in the Gentle Product Category

Control Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Damage skin (NI)	91	1,92	1,455	**1,753**	0,253	**2,261**	0,500
Damage health (NI)	91	1,86	1,304	**1,714**	0,253	**2,228**	0,500
Damage environment (NI)	91	2,70	1,531	0,763	0,253	0,003	0,500
Damage skin (RM)	91	3,00	1,291	0,095	0,253	-0,563	0,500
Damage health (RM)	91	2,88	1,298	0,198	0,253	-0,584	0,500
Damage environment (RM)	91	2,36	1,703	**1,359**	0,253	**1,151**	0,500
Damage skin (Reg)	91	3,22	1,604	0,458	0,253	-0,265	0,500
Damage health (Reg)	91	3,14	1,434	0,483	0,253	0,189	0,500
Damage environment (Reg)	91	3,91	1,631	0,145	0,253	-0,508	0,500
Difference in needed amount	91	1,56	0,499	-0,248	0,253	**-1,983**	0,500
Amount (NI)	60	1,67	0,877	0,717	0,309	**-1,322**	0,608
Amount (RM)	60	2,23	0,698	-0,355	0,309	-0,876	0,608
Amount (Reg)	60	2,10	0,775	-0,177	0,309	**-1,296**	0,608
Price difference	91	1,10	0,300	**2,732**	0,253	**5,588**	0,500
Price (NI) (1=cheapest, 3=most expensive)	82	2,56	0,722	**-1,329**	0,266	0,257	0,526
Price (Reg)	82	1,43	0,703	**1,358**	0,266	0,405	0,526
Price (RM)	82	2,01	0,598	-0,004	0,266	-0,106	0,526

Note: Values in bold are violations of the normality assumption

Table E4.6: Descriptive Statistics, Control Variables in the Strong Product Category

Control Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Damage pipes (NI)	90	2,17	1,376	0,990	0,254	-0,028	0,503
Damage health (NI)	90	2,34	1,581	**1,070**	0,254	0,338	0,503
Damage environment (NI)	90	2,37	1,554	**1,072**	0,254	0,472	0,503
Damage pipes (RM)	90	3,50	1,501	-0,051	0,254	-0,502	0,503
Damage health (RM)	90	3,71	1,581	0,212	0,254	-0,176	0,503
Damage environment (RM)	90	3,68	1,661	0,199	0,254	-0,852	0,503
Damage pipes (Reg)	90	4,28	1,878	-0,341	0,254	-0,998	0,503
Damage health (Reg)	90	4,68	1,695	-0,568	0,254	-0,275	0,503
Damage environment (Reg)	90	5,06	1,524	-0,699	0,254	-0,219	0,503
Amount (NI)	90	234,711	121,282	0,389	0,254	-0,589	0,503
Amount (RM)	90	200,867	94,999	0,817	0,254	**1,196**	0,503
Amount (Reg)	90	205,989	116,358	0,953	0,254	0,511	0,503
Price difference	90	1,06	0,230	**3,947**	0,254	**13,884**	0,503
Price (NI) (1=cheapest, 3=most expensive)	84	2,77	0,499	**-2,178**	0,263	**4,079**	0,520
Price (RM)	84	1,98	0,514	-0,039	0,263	0,940	0,520
Price (Reg)	84	1,25	0,578	**2,227**	0,263	**3,770**	0,520

Note: Values in bold are violations of the normality assumption

Table E4.7: Descriptive Statistics, Control Variables both categories

Control Variables	N	Mean	Std. Dev	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Tradeoff	181	2,92	1,706	0,613	0,181	-0,577	0,359
Importance	181	4,69	1,665	-0,255	0,181	-0,816	0,359
Recycle	181	5,10	1,691	-0,577	0,181	-0,721	0,359
Sacrifice	181	4,16	1,710	-0,091	0,181	-0,892	0,359
Environmental Challenge	181	1,78	0,412	**-1,396**	0,181	-0,053	0,359

Note: Values in bold are violations of the normality assumption

Appendix E5: Factor Analysis

Table E5.1

Pattern Matrix for PCA with Oblimin Rotation of items in the green product-related attribute condition, in the gentle product category

Item	Pattern Coefficients	
	Component 1	Component 2
Perceived greenness measure 1	.820	
Perceived greenness measure 2	.766	
Perceived greenness measure 3	.835	
Perceived greenness measure 4	.833	
Perceived greenness measure 5	.713	
Perceived quality		.740
Choice		.846
Success		.922
Cronbach's Alpha*	.861	

*(all 5 green measures)

Table E5.2

Pattern Matrix for PCA with Oblimin Rotation of items in the green non-product-related attribute condition, in the gentle product category

Item	Pattern Coefficients	
	Component 1	Component 2
Perceived greenness measure 1	.790	
Perceived greenness measure 2	.522	
Perceived greenness measure 3	.893	
Perceived greenness measure 4	.890	
Perceived greenness measure 5	.824	
Perceived quality		.846
Choice		.849
Success		.756
Cronbach's Alpha*	.860	

*(all 5 green measures)

Table E5.3

Pattern Matrix for PCA with Oblimin Rotation of items in the non-green baseline condition, in the gentle product category

Item	Pattern Coefficients		
	Component 1	Component 2	Component 3
Perceived greenness measure 1			-0,918
Perceived greenness measure 2			-0,950
Perceived greenness measure 3	.840		
Perceived greenness measure 4	.917		
Perceived greenness measure 5	.912		
Perceived quality		.869	
Choice		.834	
Success		.730	
Cronbach's Alpha*	.858		

*(all 5 green measures)

Table E5.4

Pattern Matrix for PCA with Oblimin Rotation of items in the green product-related attribute condition, in the strong product category

Item	Pattern Coefficients	
	Component 1	Component 2
Perceived greenness measure 1	.759	
Perceived greenness measure 2	.821	
Perceived greenness measure 3	.806	
Perceived greenness measure 4	.846	
Perceived greenness measure 5	.816	
Perceived quality		.883
Choice		.868
Success		.803
Cronbach's Alpha*	.872	

*(all 5 green measures)

Table E5.5

Pattern Matrix for PCA with Oblimin Rotation of items in the green non-product-related attribute condition, in the strong product category

Item	Pattern Coefficients		
	Component 1	Component 2	Component 3
Perceived greenness measure 1			.936
Perceived greenness measure 2			.937
Perceived greenness measure 3	.847		
Perceived greenness measure 4	.892		
Perceived greenness measure 5	.893		
Perceived quality		.772	
Choice		.728	
Success		.761	
Cronbach's Alpha*	.868		

*(all 5 green measures)

Table E5.6

Pattern Matrix for PCA with Oblimin Rotation of items in the non-green baseline condition, in the strong product category

Item	Pattern Coefficients	
	Component 1	Component 2
Perceived greenness measure 1	.698	
Perceived greenness measure 2	.766	
Perceived greenness measure 3	.933	
Perceived greenness measure 4	.945	
Perceived greenness measure 5	.890	
Perceived quality		.737
Choice		.828
Success		.831
Cronbach's Alpha*	.902	

*(all 5 green measures)

Appendix E6: Results – Main Effects

Table E6.1

Pairwise Comparisons for Measurements on Choice for the Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Body Lotion	Product-Related Attribute – Non-Product Related Attribute	1.29*	.211
	Product-Related Attribute – Non-Green Baseline	1.44*	.222
	Non-Product Related Attribute – Non-Green Baseline	0.15	.194

* The mean difference is significant at the .05 level

Table E6.2

Pairwise Comparisons for Measurements on Success for the Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Body Lotion	Product-Related Attribute – Non-Product Related Attribute	0.74*	.170
	Product-Related Attribute – Non-Green Baseline	1.63*	.194
	Non-Product Related Attribute – Non-Green Baseline	0.89*	.188

* The mean difference is significant at the .05 level

Appendix E7: Results – Mediating Effects

Explanation of the abbreviations:

- Reg = Non-Green Baseline (Regular)
- RM = Green non-product-related attribute (Recycled Material)
- NI = Green product-related attribute (Natural Ingredients)

Table E7.1 *Simple Mediation Model Analysis – Strong Product Category*

Dependent variable $Y_a - Y_b$	Mediator $M_a - M_b$	Total effect		Direct effect		Indirect effect	
		Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% BootCI (LL, UP)
Choice (Reg - RM)	Quality (Reg - RM)	0.2333	-.2845, .7512	-0.4194	-.9436, .1049	**0.6527**	.3079, 1.074
Choice (Reg – NI)	Quality (Reg – NI)	0.2556	-.3822, .8933	**-1.0056**	-1.652, -.359	**1.2612**	.7880, 1.7848
Choice (RM – NI)	Quality (RM – NI)	0.0222	-.4791, .5236	-0.2148	-.6955, .2660	**0.2370**	.0445, .4999
Choice (RM – NI)	Greenness (RM -NI)	0.0222	-.4791, .5236	0.4234	-.0799, .9266	**-0.4011**	-.7647, -.1039
Success (RM - Reg)	Quality (RM - Reg)	0.2556	-.1721, .6833	**0.6667**	.2078, 1.1255	**-0.4111**	-.7032, -.1163
Success (NI – Reg)	Quality (NI – Reg)	0.4222	-.0642, .9086	**1.1927**	.6549, 1.7305	**-0.7705**	-1.113, -.4383
Success (NI – RM)	Quality (NI – RM)	0.1667	-.2549, .5882	0.3366	-.0742, .7473	**-0.1699**	-.3605, -.0286
Success (NI – RM)	Greenness (NI – RM)	0.1667	-.2549, .5882	0.0082	-.4462, .4626	0.1584	-.0464, .4241

Note: The values in **bold** are significant at a 95% significance level

Table E7.2 *Serial Multiple Mediation Model Analysis*
(Table E7.3 is a continuation of this table)

	Dependent variable $Y_a - Y_b$	Mediator $M_{1a} - M_{1b}$	Mediator $M_{2a} - M_{2b}$	Total effect		Direct effect	
				Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
1	Choice (RM – NI)	Greenness (RM – NI)	Quality (RM – NI)	0.0222	-.4791, .5236	0.1684	-.2919, .6287
2	Success (NI – RM)	Greenness (NI – RM)	Quality (NI – RM)	0.1667	-.2549, .5882	0.1965	-.2392, .6321

Note: The values in **bold** are significant at a 95% significance level

Table E7.3 *Continuation of the Table E7.2 above*

	Indirect effect 1[24]		Indirect effect 2[25]		Indirect effect 3[26]	
	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)
1	**-0.4267**	-.8177, -.1221	0.2126	-.0042, .4882	0.0679	-.0312, .2018
2	0.1561	-.0275, .4306	**- 0.1409**	-.3170, -.0006	-0.0450	-.1488, .0195

Note: The values in **bold** are significant at a 95% significance level

[24] Indirect effect 1: x → M_{1diff} → Y_{diff}
[25] Indirect effect 2: x → M_{2diff} →Y_{diff}
[26] Indirect effect 3: x → M_{1diff} → M_{2diff} → Y_{diff}

***Table E7.4**, gentle product category – simple mediation model analysis*

Dependent variable $Y_a - Y_b$	Mediator $M_a - M_b$	Total effect		Direct effect		Indirect effect	
		Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% BootCI (LL, UP)
Choice (NI - Reg)	Quality (NI - Reg)	**1.4396**	.9992, 1.8799	**0.8946**	.4862, 1.303	**0.5449**	.2470, .8965
Choice (RM - Reg)	Quality (RM - Reg)	0.1538	-.2313, .5390	0.3483	-.0066, .7031	**-0.1944**	-.4891, -.0114
Choice (NI – RM)	Quality (NI – RM)	**1.2857**	.8666, 1.7049	0.3282	-.0120, .6685	**0.9575**	.5674, 1.378
Choice (NI – RM)	Greenness (NI – RM)	**1.2857**	.8666, 1.7049	**1.5254**	1.047, 2.004	-0.2397	-.5329, .1386
Success (NI – Reg)	Quality (NI – Reg)	**1.6264**	1.2403, 2.0125	**1.2944**	.8950, 1.694	**0.3320**	.0718, .6355
Success (RM - Reg)	Quality (RM - Reg)	**0.8901**	.5157, 1.2645	**1.0425**	.6828, 1.402	**-0.1524**	-.4057, -.0038
Success (NI – RM)	Quality (NI – RM)	**0.7363**	.3978, 1.0747	0.2168	-.1382, .5718	**0.5195**	.2088, .8664
Success (NI – RM)	Greenness (NI – RM)	**0.7363**	.3978, 1.0747	**1.0697**	.6895, 1.450	-0.3335	-.5388, .0333

Note: The values in **bold** are significant at a 95% significance level

***Table E7.5**, gentle product category – multiple serial mediation model analysis* (Table E7.6 is a continuation of this table)

	Dependent variable $Y_a - Y_b$	Mediator $M_{1a} - M_{1b}$	Mediator $M_{2a} - M_{2b}$	Total effect		Direct effect	
				Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
1	Choice (NI – RM)	Greenness (NI – RM)	Quality (NI – RM)	**1.2857**	.8666, 1.7049	**0.4825**	.0872, .8777
2	Success (NI - RM)	Greenness (NI – RM)	Quality (NI – RM)	**0.7363**	.3978, 1.0747	**0.4991**	.0991, .8991

Note: The values in **bold** are significant at a 95% significance level

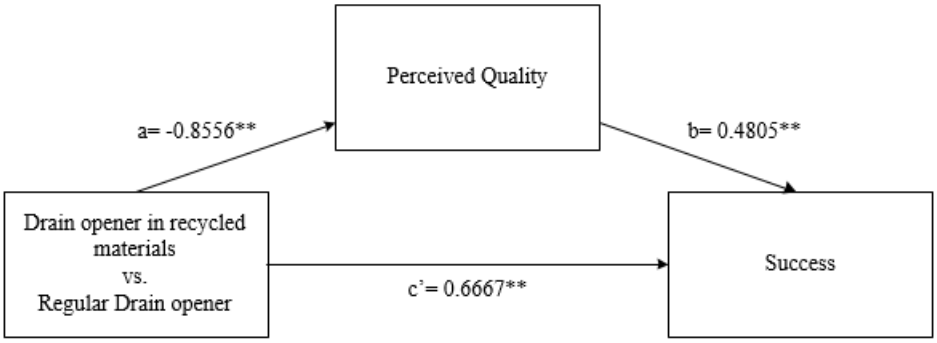
Table E7.6, continuation of the table above

	Indirect effect 1[27]		Indirect effect 2[28]		Indirect effect 3[29]	
	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)	Effect	95% BootCI (LL, UP)
1	-0.1083	-.3057, .0761	**1.0429**	.5839, 1.4842	-0.1313	-.3174, .1296
2	-0.2616	-.4574, .0191	**0.5706**	.1948, .9450	-0.0719	-.1730, .0788

Note: The values in **bold** are significant at a 95% significance level

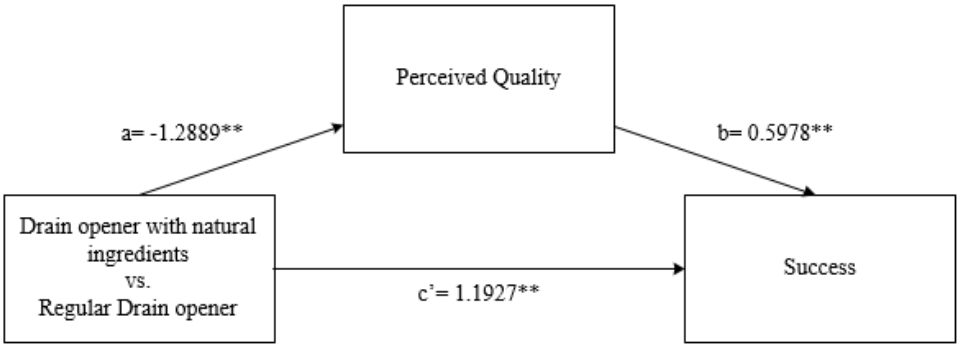
[27] Indirect effect 1: x → M_{1diff} → Y_{diff}
[28] Indirect effect 1: x → M_{1diff} → Y_{diff}
[29] Indirect effect 1: x → M_{1diff} → Y_{diff}

Figure E7.1*: Simple Mediation Model: Effect of Green non-product-related attribute vs. Baseline on Success – Strong Product Category*



Significance level: *p<.05, **p<.01

Figure E7.2: *Simple Mediation Model: Effect of Green product-related attribute vs. Baseline on Success – Strong Product Category*



Significance level: *p<.05, **p<.01

Appendix E8: Additional Findings

Table E8.1
Pairwise Comparisons for Measurements of Perceived Damage to pipes/skin for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI - RM	1.333*	.192
	NI - Reg	-2.111*	.242
	RM - Reg	-0.778*	.183
Body Lotion	NI - RM	-1.077*	.161
	NI - Reg	-1.297*	.187
	RM - Reg	-0.220	.148

* The mean difference is significant at the .05 level

Table E8.2
Pairwise Comparisons for Measurements of Perceived Damage to health for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI - RM	-1.367*	.228
	NI - Reg	-2.333*	.245
	RM - Reg	-0.967*	.228
Body Lotion	NI - RM	-1.022*	.155
	NI - Reg	-1.286*	.180
	RM - Reg	-0.264	.147

* The mean difference is significant at the .05 level

Table E8.3
Pairwise Comparisons for Measurements of Perceived Damage to the environment for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI - RM	-1.311*	.236
	NI - Reg	-2.689*	.258
	RM - Reg	-1.378*	.184
Body Lotion	NI - RM	0.341	.200
	NI - Reg	-1.209*	.204
	RM - Reg	-1.549*	.257

* The mean difference is significant at the .05 level

Table E8.4

Pairwise Comparisons of the believed needed amount of the product for both Product Categories

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI - RM	34*	8.654
	NI - Reg	29*	12.426
	RM - Reg	-5	9.002
Body Lotion	NI - RM	-.567*	.178
	NI - Reg	-.433	.194
	RM - Reg	.133	.153

* The mean difference is significant at the .05 level

Table E8.5

Pairwise Comparisons for Measurements of Price Ranking for the Strong and Gentle Product Category

Product Category	Condition I - J	Mean Difference	Standard Error
Drain Opener	NI - RM	0.798*	.091
	NI - Reg	1.52*	.104
	RM - Reg	0.726*	.106
Body Lotion	NI - RM	0.549*	.124
	NI - Reg	1.13*	.143
	Reg – RM	-0.585*	.120

* The mean difference is significant at the .05 level