Norwegian School of Economics

Bergen, Fall, 2018

Addressing Gender Differences in Green Consumption

Does Communication of Effectiveness Make a Difference?

Siri Rygh Jerndahl and Synne Helletun Næss

Supervisor: Lars Jacob Tynes Pedersen

Master thesis, Strategy and Management and

Energy, Natural Resources and the Environment

NORWEGIAN SCHOOL OF ECONOMICS

Preface

Centre for Service Innovation (CSI)

This master thesis is one of a series of papers and reports published by the Centre for Service Innovation (CSI). Centre 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 obtained status as a Centre for Research-based Innovation (SFI).

Abstract

Purpose: Existing literature has established that, to consumers, there are several drivers and barriers behind the adoption of environmentally friendly products. We explore gender differences in perceived environmental friendliness, effectiveness and choice of product for a strong and gentle product category when the centrality of green attributes is altered. Further, we investigate whether the degree of explicitness in communication of effectiveness can break down the barrier of perceived effectiveness and if the perception of the communication is different for men and women.

Methodology: To explore gender differences in the barriers to adopt environmentally friendly products, we perform a set of analyses on secondary data. By conducting a field experiment where the communication of effectiveness of a drain opener is manipulated, we aim to explain how different degrees of explicitness increase perceived effectiveness and, thus, increase the probability of choosing a green product.

Results: We find that there are differences in how men and women perceive environmental friendliness and quality of green products and that this impacts which product they choose. The results show that women are more positive to environmentally friendly products than men, and there are more differences for the strong product category. Further, we find that the perceived effectiveness of a product in the strong product category impacts the probability of choosing a green product, and the effect is stronger for men than women. However, the degree of explicitness in communication is not the factor which impacts the perceived effectiveness.

Discussion: The perception of the effectiveness of green products is important for the choice of green products. Men especially need to be assured of the performance of green products to be more likely to purchase green products, as women are more positive to such products than men. Further research on communication of effectiveness is needed to address this issue to ensure that green attributes does not make a product less attractive to consumers.

Keywords: Green products, Environmentally Friendly, Effectiveness, Gender, Explicit Communication, Implicit Communication, Product Attributes

Acknowledgements

This master thesis is written as a part of the master programme MSc in Economics at the Norwegian School of Economics (NHH) and is a joint effort by students majoring in Strategy and Management, and Energy, Natural Resources and the Environment.

This partnership came together through the common interest of sustainability. Both of us believe that there is a need for change and that companies play an important part in making that change happen. To be part of a larger research project with NHH and Orkla and being able to contribute to knowledge creation within this field, is a great honour for us. Going in depth with this topic has been a challenging, fun and educational experience.

First, we would like to thank our supervisor Lars Jacob Tynes Pedersen for valuable support during this project. He has challenged us in developing our framework and narrative for this thesis. We would also like to thank Siv Skard, our SPSS Wonder Woman, who has been an important support in our statistical analysis and the use of SPSS. As our paper is a part of a research collaboration between Orkla and NHH, we would like to thank Orkla for giving us the opportunity to dive into this project. Especially, we want to thank for the contribution of free sample products that we could give as gifts to the participants in our field experiment. The Centre of Service Innovation has supported our project financially enabling us to perform our field experiment, which we are truly thankful for. We would also like to thank Irene Sande, centre manager at Åsane Storsenter for letting us perform our field experiment at the centre and facilitating the process.

Bergen, December 2018

Siri Rygh Jerndahl and Synne Helletun Næss

Table of Content

List of Figures

List of Tables

List of Illustrations

1. Introduction

1.1 Background

The concept of sustainable business is not a new phenomenon. On a winter day in 1999, then Secretary-General of the United Nations, Kofi Annan made an important speech at the World Economic Forum in Davos, Switzerland. He addressed the business leaders gathered to initiate a global compact of shared values and principles (United Nations, 1999). In his speech, he addressed an important problem: the fragility of globalisation. He said:

> *The problem is this. The spread of markets outpaces the ability of societies and their political systems to adjust to them, let alone to guide the course they take. History teaches us that such imbalance between the economic, social and political realms can never be sustained for very long*. (United Nations, 1999)

His solution was two-folded. The first solution involved using the international policy arena and encourage governments to support the UN institutions in fulfilling their mission. The second part of the solution was directed to the corporate sphere. Companies should strive to improve labour conditions, human rights and environmental quality by improving their own corporate practices. Through this speech, Kofi Annan invited the businesses to join solve the global social and environmental challenges and "planted the seeds for the modern corporate sustainability movement" (Kell, 2018). Many companies have listened to his call for collaboration and change. Today more than 9500 companies are a part of the UN Global Compact (United Nations Global Compact, n.d.), showing that many companies agree they have to be a part of the change.

The sustainability movement also presents a market opportunity for companies with positive social and environmental impact. New generations of customers are demanding more sustainable products and voice their opinion through their purchasing power (Rogers, 2013). A recent global study by Nielsen (The Nielsen Company, 2015) showed that millennials are the most willing to pay extra for products and services from companies committed to positive social and environmental impact. MIT Sloan Management Review has together with Boston Consulting Group conducted an extensive research project with the objective of determining how the challenges and opportunities introduced by the sustainability movement will impact businesses. They found that sustainability will become increasingly important

for the corporate sphere in the coming years and the risks of failing to act are increasing accordingly (Berns, et al., 2009). According to their surveys, the main drivers for sustainability investments in companies are government legislation, consumer concern and employee interest in sustainability (Berns, et al., 2009).

Even though there is a growth in the demand for green products, a UNEP report from 2005 shows that the market size is still low, only 4 % of the total market (UNEP, 2005). At the same time, many countries are improving their economy, leading to an increase in purchasing power and overall consumption (WEF, 2014). Further, emissions of carbon dioxide are increasing, reaching an all-time high in 2017 (Chestney, 2018).

Based on the findings from the UN Intergovernmental Panel on Climate Change, moving towards green production and consumption can have a substantial impact in mitigating environmental degradation (Sachdeva, Jordan, & Mazar, 2015). Consumers can reduce their own impact by adopting more environmentally friendly consumer behaviours. In addition, they can create systemic policy changes leading to large-scale environmental benefits by using their purchasing power to influence companies to move in a green direction. Consumers can be drivers for green production, because they represent more than 60 % of the final consumption in OECD countries (Tan, Johnstone, & Yang, 2016). If they changed their behaviour and bought more environmentally friendly products, they could have a major impact on green growth and the global commitment to protect the planet.

However, the shift towards a more sustainable global economy driven by consumer engagement is neither going at high enough speed or at right scale (WEF, 2014). There are barriers preventing consumers' adoption of green consumer behaviour. Choosing green products can often be seen as a dilemma. Consumers can feel that by choosing a product that benefits the environment they compromise their own benefit (Sachdeva, 2015). This slow shift is also a barrier for companies with the aim of reaching full market potential of green products and contribute positively to the environmental challenge. To create more sustainable markets, there is a need for companies to better understand the consumers and the barriers preventing consumers' adoption of green consumer behaviour. For instance, there is a gender difference in the adoption of green consumer behaviour. Women are more positive to green consumerism compared to men who have higher barriers towards green consumption (Brough, Wilkie, Ma, Isac, & Gal, 2016).

Investigating the barriers is a win-win-win situation for consumers, companies and the global community. Consumers will benefit by contributing with a reduction in their negative environmental impact. It is a win for companies that can monetise on their green products. Finally, it is a positive situation for the global community as a whole, as an economy based on sustainability can help target the environmental and social challenges the world is facing.

1.2 Purpose

The purpose of this study is to investigate the barriers of green consumer behaviour, with a special focus on gender differences. This knowledge can help companies in the development of green product and marketing strategies. By adapting the strategies to the consumer preferences, companies are more likely to create and deliver value for the consumers. This will enable companies to profit from developing a more sustainable offer to the consumer. In addition to making profits, companies can also contribute to solve the global environmental challenge if they manage to respond to the demand for green products in the right way.

Previous research on green consumer behaviour shows that female consumers tend to have a more positive attitude towards environmentally friendly consumption and buy more sustainable products (e.g. Brough et al., 2016). It seems as the barriers for green consumer behaviour are stronger for men. To increase the potential market for green products, companies need to understand how to engage male consumers and address the barriers preventing men from adapting a more environmentally friendly consumer behaviour. Therefore, this study aims at investigating gender differences in attitudes and behaviour to green consumerism.

To narrow the overall purpose of investigating the gender differences in green consumption, we will look closer at gender differences in the dimensions perceived environmental friendliness, effectiveness and choice of product. In addition, we will look at products where the green attribute is represented in different ways. The green attributes will have different centrality, meaning that one will be related to the product and the content of the product, while the other will not be related to the product itself, but the packaging. We will also separate between two different product categories, strong and gentle, to see if the product category has an impact on the evaluation of green products. This leads to the following research question for the first part of our study:

RQ1: *Are there gender differences in perceived environmental friendliness, effectiveness and choice of products in the evaluation of...*

... products with different centrality of the green product attribute?

... products in both strong and gentle product category?

Based on what we discover in the first part of the thesis, we will develop another research question for the second part. The purpose of our second study will be to investigate potential strategies for addressing the barriers and gender differences in green consumption. A further elaboration of the purpose of Study 2 can be found in chapter 4.1.

1.3 Structure

The structure of this master thesis has a clear division, Study 1 and Study 2. Before separating, there will be a section presenting the theoretical and conceptual framework for both studies. Then we continue by presenting Study 1 and Study 2, respectively.

Study 1 will be an explorative study in the sense that we use secondary data from previous master theses to investigate potential gender differences in the evaluation of green products. We start by explaining the use of secondary data analysis before giving a brief presentation of the essentials of the datasets used. The next section explains our methods for analyses and is followed by a presentation of the results and possible limitations. The results will be discussed at the end of Study 1 and will be used to develop the design and framework for Study 2.

In Study 2, we address the gender differences discovered in Study 1 and focus on one specific barrier towards adopting green products. To investigate this, we will conduct an artificial field experiment. The presentation of Study 2 will start with the purpose and research question for the study followed by the hypotheses and research model. Next, we will give an elaborate description of the experimental design used for collecting the data, before presenting the statistical methods for data analyses. To finalise Study 2, we will present the results and possible limitations before we discuss the findings.

The final part of our master thesis will consist of a general discussion of the findings from Study 1 and 2 and their theoretical and managerial implications. Then we will present

suggestions for further research discovered through the research process, before making a conclusion for the entire master thesis.

2. Theoretical Framework

In our theoretical framework, we will give a presentation of research on theoretical concepts used in the paper. First, we will define green consumption, before presenting a critical view on the concept. Then we move to the barriers towards green consumption, where we present the main barriers identified by previous research. The next section of the theoretical framework will build on the barriers already presented and address communication strategies for reducing the barriers. As this paper aims at investigating the gender differences in green consumption, the final section will address that field of research.

2.1 Defintions – Green Consumption and Marketing

In recent years, a wide variety of concepts such as green consumption, sustainable marketing, responsible consumerism etc. have become more common in the vocabulary of business. These concepts have been used both distinctively and interchangeably, making it difficult to define the concepts and separate them. As the concepts of green, sustainable, ethical and responsible consumption intertwine to a large extent, there has been a lack of clarity in their usage in the literature (Tan, Johnstone, & Yang, 2016). Green consumption is consumer behaviour associated with the preservation of natural and environmental protection (Tan et al., 2016). There are additional dimensions often connected to the concept, such as consumer social consciousness and responsibility or reduction of consumption. In this paper, green consumption will refer to consumers' willingness to and actual purchase of products with environmentally friendly product attributes. The concept green marketing is closely linked to green consumption, just as the general consumption and marketing are linked. This paper will define green marketing as strategies and initiatives by companies to facilitate green consumption.

2.2 Literature Reviews of Green Consumption and Marketing

Green consumption and marketing have increasingly become a field of interest for researchers. There has been a rapid growth in number of studies in these fields the last ten years (Dangelico & Vocalelli, 2017). In their literature review of green marketing research, Dangelico & Vocalelli (2017) categorised the studies included in their review in four

different categories: definitions of green marketing and related concepts, green marketing strategies and green marketing mix. The definition of green of green marketing has developed from a focus on global environmental problems to a more holistic focus on sustainability, including economy and society in the definitions (Dangelico & Vocalelli, 2017). The research on marketing strategy, has identified that traditional market segmentation is not suitable for green marketing. Psychographic segmentation is more effective than demographic segmentation (Dangelico & Vocalelli, 2017). Regarding targeting, the research has developed from a focus on targeting green consumers with green products to a broader approach, targeting consumers with products where the green attribute is just one of the product attributes (Dangelico & Vocalelli, 2017). A selection of the studies has investigated positioning and differentiation, with focus on the use of sustainability activities to strengthen corporate reputation and brand image (Dangelico & Vocalelli, 2017). The research on green marketing mix has focused on the 4Ps in the traditional marketing mix; product, price, place and promotion (Dangelico & Vocalelli, 2017). The research in the review illustrates that green products have definitely entered the market. However, there are challenges connected to the perception of product performance and information asymmetry that creates barriers for the consumers (Dangelico & Vocalelli, 2017).

Where the literature review by Dangelico & Vocalelli (2017) had a general approach to green marketing, Sachdeva, Jordan and Mazar (2015) have performed literature review of green consumerism in a consumer psychology perspective. More specifically, they reviewed literature investigating the factors that lead consumers to buy environmentally friendly products and engage in other types of green consumerism. They divide the reviewed studies in three levels. The first level is the endogenous factors, the internal psychological processes that influence an individual's green consumer behaviour such as values, attitudes and identity. The review shows that much of the research on the endogenous factors discover a gap between values and consumer behaviour (Sachdeva et al., 2015). Consumers value environmental proctection, but do not neceassarily have a behaviour following this value. In addition, cognitive perception of the individual's impact on the environment and the perception of hopelessness influences green consumerism. The second level of the review is research investigating exogenous factors (Sachdeva et al., 2015). Social norms and peer group behaviour have been identified to play important roles in encouraging green consumerism. People adjust their behaviour to adapt to normative standards set by the social context (Sachdeva et al., 2015). Green consumption has also been identified to be used as a

mean to gain a certain social status (Sachdeva et al., 2015). The final level of the literature review is structural factors facilitating or creating barriers for green consumption. Several studies focus on the impact of financial incentives and penalities, where others have looked at the choice architecure and ways of affecting the decision-making processes (Sachdeva et al., 2015).

Both the review by Dangelico & Vocalelli (2017) and Sachdeva et al. (2015) looks at green marketing in consumption using a general appraoch. However, Liobikene & Bernatoniene (2017) argue that in research on green consumption and marketing, it is necessary to focus on a specific product category. In their review of green consumption, they investigated studies of green purchase for different product categories. The review showed that there were inconsistencies in the results in the analysis of green purchase behaviour. This would suggest consumers have different consumer behaviour for different green products and that different factors influence the purchase of separate products differently.

Luchs, Naylor, Irwin, & Raghunathan (2010) support this and argue that attributes are valued differently for various product categories and that ethicality or green attribute will therefore be valued positively for some product categories and negatively for others. In their research, Luchs et al. (2010) found that the green attribute is positively associated with gentleness-related attributes, while negatively associated with strength-related attributes. Adding a green attribute in products categories associated with gentleness, such as facial soaps and body lotion will increase the preference of those products by the consumers. Similarly, adding a green attribute in products associated with strength, such as detergents and drain openers, will create a mismatch between the attributes preferred for that specific product category and thereby decrease the preference.

In addition to product category, Gershoff & Frels (2015) suggest that the perception of a product's attribute or feature can have an impact on the total perception of the product (Gershoff & Frels, 2015). For green products, this would imply that the perception of a green attribute influences the overall perception of the green product. One of the elements that can affect the attribute perception is the centrality of the product attribute. Sloman, Love & Ahn (1998, p.190) define feature centrality or attribute centrality as "the degree to which the feature is integral to the mental representation of an object, the degree to which it lends conceptual coherence". One can separate between product-related attributes and non-product-related attributes (Keller, 1993). Product-related attributes are attributes that relate to

the physical composition of the product and elements that are necessary for delivering the value the product is designed to deliver (Keller, 1993). Non-product-related attributes are features that are not related to the core value proposition of the product, but rather relate to the purchase or consumption of the product (Keller, 1993). There are four main categories of non-product-related attributes: price, packaging/product appearance, user imagery and usage imagery (Keller, 1993). Central product attributes are more important in the overall perception of the product than more peripheral product attributes (Gershoff & Frels, 2015). Therefore, a product with a green product-related attribute will be experienced as more environmentally friendly than a product where the green attribute is non-product-related (Bjorvatn & Bjarnadottir, 2018).

All though many researchers investigate how to increase green consumption, some criticise the responsibility put on the consumers' shoulders. Moisander (2007) argues that green consumer behaviour often involves motivational conflicts, as an incompatibility can occur between consumers' personal interests and the collective goals of environmental protection (Moisander, 2007). These motivational conflicts can result in a free-rider problem. In addition, she presents external constraints such as cultural, infrastructural, political and economic circumstances, making green consumption even more complex. The result is a heavy burden for the consumers in their decision-making. For this reason, Moisander (2007) argues that the focus of attention needs to be shifted from the individual consumer to whole communities of consumers in environmental policy

2.3 Barriers Towards Green Consumption

There have been many research projects targeting the attitude-behaviour gap presented in the literature review by Sachdeva et al. (2015) (e.g. Peattie, 2010; Tanner & Wölfing Kast, 2003; Borin, Lindsey-Mullikin, & Krishnan, 2013; Bray, Johns, & Kilburn, 2011). An example is the research by Gleim, Smith, Andrews & Cronin Jr. (2013). They argue that the barriers can be put in the following eight categories; price, quality, expertise, trust, availability, apathy, brand loyalty and miscellaneous. Green products are often associated with higher prices. There are also other economic costs related to the purchase situation, such as effort searching for and evaluating the products. In addition, consumers can find it difficult to evaluate the quality of a new product and can therefore be unwilling to purchase the product. Evaluating a product with environmentally friendly attributes requires different

expertise, which the consumers might not have. This lack of expertise can result in consumers having difficulties trusting the companies' claims about the environmental friendliness of products. In addition, there could be a lack of trust in the firms' motivations for making green products. Buying green products has not been perceived as convenient, either because green products were not available or that the green products were only available through inconvenient points of purchase. Apathy, in the sense of lack of concern about the environment or awareness about green products, was also identified as a barrier to buying green products. The final category, miscellaneous, consisted of reasons such as lack of belief in climate change, lack of recognition of green products and the perception of shortage of green product options (Gleim et al, 2013).

Gabler, Butler & Adams (2013), add two more barriers that can prevent consumers from adapting a more environmentally friendly consumer behaviour. The first barrier is that social pressure from society is not strong enough to make consumers act on their environmentally conscious beliefs. The other barrier is a lack of perceived impact, meaning that the actions of one person could not have impact on the environment (Gabler et al., 2013).

Tan et al. (2016) presents five dimensions of consumers' green perceptions that affect their adoption of green consumer behaviour. The first dimension is product perception. Consumers did not perceive the environmentally friendly products to be high performing and they questioned the trustworthiness of the products performance claims (Tan et al., 2016). Green stigma is the second dimension. Green consumption was to some extent identified as unnormal behaviour, and consumers would distance themselves from this kind of behaviour to avoid negative influence on their self-identity (Tan et al., 2016). The third dimension was readiness to be green (Tan et al., 2016). Some consumers do not perceive climate change as an urgent issue but something they can commit to at a later stage, when they are ready. Difficulties in adoption was identified as the fourth dimension. Consumers can also experience that making green choices is difficult and thereby argue that it is too hard to adopt to a green consumer behaviour. The final dimension was perceived sense of responsibility. Consumers do not necessarily feel responsible for environmental deterioration or believe that their action can help reduce this process. This increases their apathy towards environmentally friendly products (Tan et al., 2016).

2.4 Strategies for Addressing the Barriers

In their research investigating the barriers towards green consumption, Gleim et al. (2013) also looked at marketing strategies that can be used in addressing the barriers. The specifically looked at how information can increase consumers' perception of their own expertise regarding a green product. The results suggest that a high number of detailed verbal cues have a positive impact on green purchase intentions (Gleim et al. 2013). Therefore, retailers with a purpose of promoting green products should include "detailed verbal informational messages that communicate attribute-level information regarding green products" (Gleim, et al., 2013, p. 58). As lack of expertise is a barrier, the they argue product communication needs to be more educational and inform about what makes the product environmentally friendly (Gleim et al. 2013).

Their results also identified perceptions of perceived lower product quality as another barrier (Gleim et al. 2013). Therefore, Gleim et al. (2013) argue green products should not only focus on the green product attribute in the promotion of the product. To make it comparable to other products, the green attribute should be a complementary attribute of the product. Though having identified information as needed to increase green consumption, they call for more research on what type of messages the consumers need to increase their expertise and to increase the positive perception of green products (Gleim et al. 2013).

Gabler et al. (2013) suggest three main areas of interest for managers who want to make their green product more attractive to consumers. First, managers need to provide more information, so the consumers learn about the green attribute of the products and the impact it has on the environment (Gabler et al., 2013). In addition, managers need to distinguish the benefits of product types. Products need other benefits than the green attribute to attract non-environmentally conscious consumers, for instance by communicating improved performance of products (Gabler et al., 2013). The final area of interest is the balancing of quality and pricing. Consumers do not want to pay significantly more for green products which they often perceive to have lower quality (Gabler et al., 2013). Therefore, managers need to present the quality of their product at the same level as the non-green alternatives in a trustworthy manner.

2.4.1 Level of Explicitness in Communication

Both Gleim et al. (2013) and Gabler et al. (2013) suggest adjusting product communication and information as potential strategies to address the green consumption barrier.

Luchs et al. (2010) suggest mentioning the strength of a product explicitly, as this can decrease the negative effect of the green attribute have on the perception of quality. By explicitness, we mean to which extent the conclusions are stated or implied (Skard, 2010). Explicit communication includes a direct statement of a conclusion, while implicit communication uses an implied set of arguments to guide the receiver of the message toward the intended conclusion (Ahearne, Gruen, & Saxton, 2000).

Though Luchs et al. (2010) suggest using explicit communication, the overall research on explicitness in messages is divided and show inconsistency in the findings. Traditionally, explicit communication has been seen as the most effective, as it reduces the chances of misinterpretation (Skard, 2010). However, more recent studies have shown that implicit communication of conclusion has its advantages. Implicit communication requires that the receivers interpret the message and generate a conclusion of their own, resulting in more positive attitudes (Ang & Lim, 2006; McQuarrie & Phillips, 2005; Sengupta & Gorn, 2002; Sawyer & Howard, 1991). As these conclusions are self-generated, they are easier to retrieve from memory, more persistent over time and more resistant to counter argumentation (Moore, Reardon, & Durso, 1986; Kardes, 1988; Kardes & Sanbonmatsu, 1993; Phillips, 1997).

O'Keefe (1997) adds to the criticism of explicit communication, arguing that explicit communication offers more claims that the consumer can be critical to. An implicit communication will have a smaller disagreement space, as the interpretation is done by the receiver (O'Keefe, 1997). He also suggests a potential "boomerang" effect of explicit communication, meaning that the opinion by the receiver will be reversed of the intended opinion by the sender. This effect could occur because the receivers found the message too obvious and would therefore be offended (O'Keefe, 1997). Receivers of the explicit message may experience increased coerciveness which have a negative impact on the consumers' evaluation of the sender's credibility (Martin, Lang, & Wong, 2003).

However, research has also identified possible challenges with using messages with implicit conclusions. Two risks identified by Sawyer and Howard (1991) are that consumers may be

unable to form a conclusion, or they might form a conclusion different from the one intended. Therefore, research on implicit communication has argued that the effectiveness of this kind of communication may be restricted by conditions related to the characteristics of the audience, such as level of involvement (Sawyer & Howard, 1991). There are also factors related to the message itself that can impact the effectiveness of implicit communication (Skard, 2010).

2.5 Gender Differences in Green Consumption

In addition to the gap between concern about the environment and green consumer behaviour, researchers have identified a gender gap in green consumerism. Several studies find that women are more likely to engage in environmentally friendly consumer behaviour than men (Davidson & Freudenburg, 1996).

Past research has looked closer at the gender gap and identified several personality differences between men and women that can explain the differences in green consumer behaviour. Zelezny & Bailey (2006) suggest that explanation of gender differences in green consumer behaviour can be explained by socialisation theory and the learned universal gender roles. Women are socialised to be more interdependent, nurturing, care-giving and helpful, while men are socialised to be more independent and competitive (Zelezny & Bailey, 2006). The gender difference in emphatic behaviour towards others influences the green consumer behaviour. International studies showed that women have a significantly higher general environmental concern than men and have a higher participation in pro-environmental behaviour (Zelezny & Bailey, 2006).

Through their research, Brough et al. (2016) found that green products often are perceived as more feminine than non-green products by both genders. This can create a stereotype that green consumers are more feminine. If the association of femininity and greenness is strong enough, it may have an impact on self-perception and social judgements, meaning how consumers see themselves and others. Gender-identity maintenance theory suggests that people avoid behaviour that is inconsistent with their own gender identity, the perception of being feminine or masculine (Brough et al., 2016). There are gender differences in the sensitivity to maintaining gender-identity. Research has shown that men tend to be more involved in maintaining their gender identity compared to women, mainly because they face greater penalties for gender-inconsistent behaviour (Brough et al., 2016). Brough et al.

(2016) suggests that gender maintenance is present in green consumer behaviour. Through several studies, they found that the feminine association with green products is more likely to affect men's willingness to engage in green behaviour and make them more reluctant than women to choose green products (Brough et al., 2016).

2.6 Identified Research Gap

Based on the research presented in the section above, we have identified a research gap we would like to address through this master thesis. Research on barriers has not focused on gender differences, while research on gender differences has focused on the personal characteristics that potentially can explain the differences. This leaves a gap in the link between gender differences and barriers. Do the genders have different perceptions of green products leading to different experiences of the general barriers already known? In addition, previous research suggests an increased focus on how to address the barriers identified in further research. They specifically suggest communication as a potential tool to address the barriers. Therefore, it is necessary to investigate how communication can be used to increase green consumption. This is the theoretical motivation for this master thesis.

3. Study 1: Analysis of Gender Differences in Existing Data

In this section, we will present Study 1 of our master thesis where we investigate gender differences in existing data on green consumer behaviour. We start by presenting the research design for the study. Then we will give an introduction to the datasets used, where we present the most important elements in conceptual framework, research design, purpose, data collection and sampling. The next section will explain how we explore and analyse gender differences in each dataset. This will be followed by a presentation of the results from each of datasets. As we are using existing data, we will discuss the potential limitations of the secondary data analysis. The final section will include a discussion of the results, which will create a framework for the second study of this master thesis, Study 2.

3.1 Research Design

The purpose of this master thesis is to investigate gender differences in green consumer behaviour. As most research on the topic focus on the personal characteristics behind the difference in behaviour and not the behaviour itself, we wanted to address the subject with a broad focus. For this reason, Study 1 uses an explorative approach to the study of gender differences in green consumer behaviour.

Previous master theses, also published by Centre of Service Innovation, have recently researched green consumer behaviour. However, they have not looked at potential gender differences in their analysis. This means that there was already collected data on green consumer behaviour available for analyses. Using secondary data for the first part of our thesis, made it possible for us to conduct our own Study 2, where we investigated further the findings from Study 1. The secondary data used in this thesis was collected through experiments by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018) for their master theses.

3.2 Conceptual framework Study 1

All three datasets used in the previous master theses by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018) are from experiments using products based on the same conceptual framework. The conceptual framework was developed based on a review of literature on research on green consumption. As presented in the theoretical framework for our master thesis, both product category and the centrality of the green product attribute can have an impact on the perception of the green products. Therefore, Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018) separate between strong and gentle product category and different centralities of green product attributes, with a green product-related attribute and a green non-product-related attribute in their common conceptual framework for the experiments.

Bjorvatn & Bjarnadottir (2018) decided to use a body lotion to represent the gentle product category and a drain opener to represent the strong product category in their experiments. Handeland & Skogholt (2018) chose to only use the drain opener to focus on the strong product category.

In regard to centrality of green attribute, both Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018), used a product-related green attribute and a non-product-related green attribute. The product-related green attribute is represented by a label stating that the product contains 100 % natural ingredients. The non-product-related green attribute has a different label, stating that the packaging is made of 100 % recycled material.

3.2.1 Visualisation of Products in Previous Experiments

Based on the two dimensions, strong/gentle product category and product-related/non-product-related attribute, Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018) created mock-ups of a body lotion and a drain opener with different labels to use in their experiments. Below is a picture of the products to give an illustration of how they looked.

Illustration 1: Illustration of the Products Used in the Master Theses by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018)

3.3 Presentation of Data Sets for Secondary Data Analysis

3.3.1 Dataset 1: Field Experiment by Bjorvatn & Bjarnadottir (2018)

In their master thesis, Bjorvatn & Bjarnadottir (2018) conducted several studies with the purpose of investigating perceived quality as a barrier to the adoption of green consumer behaviour. The third study they conducted was an artificial field experiment. An artificial field experiment is an experiment that differs from the traditional laboratory experiment and is conducted in an artifical context (Harrison & List, 2004). In this experiment the artificial context was the mock-up products and an unnatural setting for the experiments, as the respondents were asked to evaluate products outside of the purchase situation. The respondents had to assess quality, eco-friendliness and product preference of two mock-up

products across two different product categories. The data from this artificial field experiment is referred to as dataset 1 in this explorative secondary data analysis.

In their study, the researchers wanted to find out how changing the centrality of a green attribute changes the perceived greenness and perceived quality for strong and gentle products (Bjorvatn & Bjarnadottir, 2018). The product categories in their study were represented by a drain opener and a body lotion with different centrality of the green product attributes; a green product-related attribute (100 % natural ingredients), a green non-product-related attribute (100 % recycled material) and a non-green baseline. A visualisation of the products used is presented in the conceptual framework in the section above. The research design was a mixed between-within subjects design, where the product category was measured between subjects and the different green attributes were measured within subjects. The respondents were exposed to three versions of either the drain opener or the body lotion, each version representing one of the centrality levels of the green product attribute.

The artificial field experiment was conducted at a shopping mall in Bergen. There were 181 respondents who completed the experiment, and the sample consisted of 120 males and 61 females. When separating the sample by the product categories the participants were exposed to, 91 (female n = 59, male n = 32) were exposed to the body lotion category, while 90 (female n = 61, male n = 29) were exposed to the drain opener.

3.3.2 Dataset 2: Experiment with Mirror Manipulation by Handeland & Skogholt (2018)

Dataset 2 is data from an artificial field experiment performed by Handeland & Skogholt (2018). The study by Handeland & Skogholt (2018) had a similar purpose and design as Bjorvatn & Bjarnadottir (2018). They also had a mixed study research design, with a combination of between and within subject factors. An important difference between the two experiments was that the experiment by Handeland & Skogholt (2018) included a mirror to create a manipulation of self-consciousness. The purpose of adding the mirror was to investigate if increased self-consciousness would influence the evaluation of the green products. They chose to focus on one product category, the strong product category, represented by a mock-up drain opener. The respondents were exposed to three different versions of the drain opener, representing a green product-related attribute (100 % natural ingredients), a green non-product-related attribute (packaging with 100 % recycled material)

and a non-green baseline, exactly similar as in the artificial field experiment by Bjorvatn & Bjarnadottir (2018). For a visualisation of the products, see section 3.2.1.

The data for experiment 2 was also collected at a shopping centre in Bergen. There were 205 respondents in total, where 103 of the respondents were exposed to the mirror, and 102 were not exposed to the mirror. Respondents were randomly assigned to either the mirror group or the control group to minimise systematic error of the results and increase the internal validity. The sample consisted of 121 women and 84 men.

3.3.3 Dataset 3: Online Experiment by Bjorvatn & Bjarnadottir (2018)

The final dataset we used as secondary data for our master thesis, referred to as dataset 3, was collected using an online survey conducted by Bjorvatn & Bjarnadottir (2018). The purpose of this study was also to explore how perceived quality and perceived eco-friendliness in different product categories changed with different centrality of the green product attribute. The respondents were given a questionnaire where they had to evaluate products with different centralities of the green attribute. They were either exposed to a picture of a drain opener representing the strong product category or a picture of a body lotion, representing the gentle product category. The products had different centralities of the green product attribute, similar to the experiment presented above. Since the respondents were exposed to products with different centralities of the green product attribute, but only for one product category, the study had a mixed between-within subjects design.

Some of the items in the questionnaire used in the survey for dataset 3 differ from the surveys used in the artificial experiments in dataset 1 and dataset 2, because it was performed prior to the artificial field experiment in dataset 1. The respondents were recruited from the student mass at Norwegian School of Economics. In total 446 respondents participated in the experiment. The different product categories were randomly assigned to the respondents. There were 228 respondents (female n = 85, male n = 139) who were exposed to the gentle product category and 218 respondents (female n = 85, male n = 127) who were exposed to the strong product category. As this study was conducted at a university, the age of the sample was relatively young, with a mean age of 23.78 (SD = 2.91).

3.4 Constructs and Measures

Before presenting the statistical analyses and results, the table below gives an overview of the constructs and measures used in the different datasets. These constructs and measures are used as point of departure when investigating gender differences.

Table 1: Overview of Constructs and Measures Used in Study 1

Construct	Measures*	Used in
Effectiveness	*To what extent do you believe that the products are effective?*	Dataset 1, Dataset 2
Perceived greenness: Environment	*To what extent do you believe that the products are environmentally friendly?*	Dataset 1, Dataset 2
Perceived greenness: Sustainability	*To what extent do you believe that the products are sustainable?*	Dataset 1, Dataset 2
Environmentally friendly choice	*To what extent do you agree that buying the product is a good environmental choice?*	Dataset 3
Environmentally concern	*To what extent do you agree that a person who cares about the environment would buy the product?*	Dataset 3
Green labeling	*To what extent do you agree that this product should be labeled as environmentally friendly?*	Dataset, 1, Dataset 2
Green choice	*To what extent do you agree that buying this product is environmentally conscious choice*	Dataset, 1, Dataset 2
Preferred product by environmentally conscious consumer	*To what extent do you agree that an environmentally conscious person will probably buy this product?*	Dataset, 1, Dataset 2
Choice of product	*How likely is it that you would choose each of the different alternatives if you were in need of a drain opener/ body lotion for dry skin?*	Dataset, 1, Dataset 2, Dataset 3
Market success	*How likely do you think it is that each alternative will be a success in the market?*	Dataset, 1, Dataset 2, Dataset 3
Ability	*How would you the the product's ability to open drains/moisturise skin?*	Dataset, 1, Dataset 2, Dataset 3
Perceived damage on pipes	*What level of damage do you think the products will have on the pipes?*	Dataset, 1, Dataset 2, Dataset 3
Perceived damage on skin	*What level of damage do you think the products will have on your skin?*	Dataset, 1, Dataset 3
Perceived damage on health	*What level of damage do you think the products will have on your health?*	Dataset, 1, Dataset 2, Dataset 3
Control variables		
Quality	*To what extent do you agree that an environmentally friendly product has lower quality than a non-environmentally friendly product?*	Dataset, 1, Dataset 2, Dataset 3
Recycle	*To what extent do you agree that you recycle as often as possible?*	Dataset 1, Dataset 2
Sacrifice	*To what extent do you agree that you are willing to sacrifice quality for environmentally friendliness*	Dataset, 1, Dataset 2, Dataset 3
Important	*To what extent do you agree that it is important to you that the products you purchase are environmentally friendly*	Dataset, 1, Dataset 2, Dataset 3
Guilt	*To what extent do you agree that you would feel guilty if you chose the least environmentally friendly alternative?*	Dataset 2
Boycott	*To what extent do you agree that you would feel better if you boycott products that are harmful for the environment?*	Dataset 2
Brand confirming self-image	*To what extent do you agree that you look for products saying something about your identity when shopping?*	Dataset 2
Choice in social viewpoint	*To what extent do you agree that it is important to you that others know which brands you choose?*	Dataset 2

**The measures are rephrased to better suit this table presentation. Some measures are also translated from Norwegian to English.*

3.5 Statistical Analyses

This section will give a presentation of the statistical analyses used to explore the gender differences in the three datasets. Before performing the analyses, the datasets were separated into the two product categories, strong and gentle, to analyse them independently.

The analyses started by investigating potential differences in mean scores in the three datasets. We were particularly interested in exploring how men and women rated the dependent variables for effectiveness, perceived greenness and choice of product when exposed to different product categories and centralities of the green attribute. Therefore, we conducted independent sample t-tests using SPSS to uncover differences in mean scores in rating of the variables.

To investigate the details of potential gender differences, mixed ANOVAs were conducted in SPSS. It allowed us to pairwise compare respondents' responses on measures with different centralities of green attributes and test for gender differences in responses simultaneously. The within-subjects factor was the rating of effectiveness, perceived greenness and choice of product related to the different green product attributes, and the between-subjects factor was gender.

In addition, we conducted tests on the control variables in each dataset. First, we performed independent sample t-tests in SPSS to identify possible gender differences in the attitudes and beliefs connected to green consumerism. Further, a one-way ANCOVA was conducted on the control variables in dataset 1 and 2. This was done to check if any significant results from the previously conducted independent sample t-tests were still upheld when controlling for the effects of the covariates on the dependent variables. The one-way ANCOVA was not conducted on dataset 3, as this dataset originated from an online survey targeting students from the same university, meaning that the impact of control variables would not be likely to be representative of the population.

3.6 Results from Analysis of Gender Differences

In this section, we will present the result from the statistical analyses presented above. We will start by presenting all the results from dataset 1, before moving over to dataset 2 and dataset 3. Due to the explorative nature of the analyses, resulting in a large number of tables, all tables with results will be found in the appendices A-C.

3.6.1 Dataset 1: T-test

Gentle Category - Body Lotion

The results from the independent sample t-test (Appendix A, table A1.1), show that women rate body lotion with a green product-related attribute higher than men do for only a few of the variables in the dataset. For instance, we see that women believe that environmentally conscious consumers would choose this product (mean diff. = .59, p = .04). Women are also more likely than men to choose a body lotion with a green product-related attribute when shopping (mean diff. = .78, p = .022)

Most of the findings from the independent sample t-tests are not significant, meaning that the difference between men and women on how they rate body lotion with different attributes is quite small. However, the overall tendency shows that women rate body lotion with a green product-related attribute higher than men.

Strong Category - Drain Opener

The independent sample t-test conducted for evaluation of the drain opener, only presented one significant result for this study (Appendix A, table A1.2). This result suggests that that men believe, more than women, that an environmentally friendly person would choose a drain opener with a green product-related attribute (mean diff. = -.88, p = .01).

3.6.2 Dataset 1: Mixed ANOVA

Gentle Category - Body Lotion

The results from the mixed ANOVA for the body lotion category (Appendix A, table A2.1) show that there are several differences between men and women when comparing the different product attributes. The first significant result is the evaluation of effectiveness of the body lotion. Women have a higher rating of effectiveness when comparing the green

product-related attribute with the non-green baseline (p = .012). This means that when comparing a body lotion with natural ingredients to a body lotion without green attributes, women rate the effectiveness of the former significantly higher than men.

Further, when evaluating a body lotion's ability to moisturise skin, women rate the ability of a body lotion with a green product-related attribute significantly higher than men when it is compared to a body lotion with a non-product-related green attribute (p = .032).

In one of the dimensions measuring perceived greenness, namely the rating of sustainability, women rate the sustainability level of a body lotion with the product-related green attribute higher than the non-green baseline, compared to men (p = .044). This would suggest that women see a body lotion with natural ingredients as more sustainable than a body lotion without a green product attribute.

Women also have a higher rating than men on the likelihood of choosing a body lotion with a product-related green attribute, compared to a non-product-related green attribute (p = .002). Thus, women are more likely than men to choose a body lotion with natural ingredients over a body lotion with packaging made of recycled materials.

Regarding the belief of how successful the product will be in the market, women have a higher rating than men of a body lotion with the product-related green attribute than a body lotion with the non-product-related green attribute (p = .049). This means that women believe that a body lotion with natural ingredients will be more successful than a body lotion with recycled materials in the packaging, compared to men.

The final significant result is connected to the evaluation of perceived damage the body lotion has on skin. Compared to men, women believe that a body lotion with a product-related green attribute has lower damage on the skin than a both body lotion with a non-product-related green attribute (p = .008) and the non-green baseline (p = .022).

Based on the results from the mixed ANOVA tests on the gentle product category, women, more often than men, have a higher rating of the performance of a product with a green product-related attribute.

Strong Category - Drain Opener

The results from the mixed ANOVA for drain opener, show that there are no significant results (Appendix A, table A2.2). This indicate that there are negligible differences between

how men and women rate the different measures of a drain opener with a product-related attribute, a non-product-related attribute and a non-green baseline.

The lack of significant cases is discussed in section 3.8 Limitations of Study 1.

3.6.3 Dataset 2: T-test

Strong Category - Drain Opener

Both men and women have a relatively low mean score on the perceived greenness of the non-green baseline drain opener (Appendix B, table B1.1). Looking closer at the gender differences, men rate the perceived greenness of the non-green baseline higher than women (mean diff. = -.49, p = .033).

As can be seen from the significant results in table B1.1 in Appendix B, women rate the effectiveness of a drain opener with a green product-related attribute (mean diff. = .51, p = .006) and a non-product-related green attribute (mean diff. = .42, p = .034) higher than men. However, we see that women still rate the non-green baseline to have a higher ability to open drains than men do (mean diff. = .44, p = .039).

In terms of success in the market, women have a more positive outlook on how a drain opener with a green product-related attribute will perform and rate this higher than men (mean diff. = .81, p = .00).

When rating the damage of a drain opener on health, environment and pipes, women have an overall higher mean score than men, meaning that women believe that a drain opener is more harmful than men do. Women also rate a drain opener with the non-product-related green attribute to have more damage on pipes than men do (mean diff. = .47, p = .047), while men rate a drain opener with the green product-related attribute to be more damaging on health than women do (mean diff. = -.47, p = .042).

3.6.4 Dataset 2: Mixed ANOVA

Strong Category - Drain Opener

The results from the mixed ANOVA test present several significant gender differences (Appendix B, table B2.1), and we start by presenting the result for perceived greenness. For the sustainability dimension of perceived greenness, women rate a drain opener with a green product-related attribute (p = .022) and a non-product-related green attribute (p = .046)

higher than the non-green baseline, compared to rating by men. In the other dimension of perceived greenness, namely environmental friendliness, women rate the drain opener with the product-related green attribute as more environmentally friendly than the non-green baseline compared to men (p = .013).

Compared to men, women believe that a drain opener with a green product-related attribute is more successful in the market than a drain opener with a non-product-related green attribute (p = .004) and the non-green baseline (p = .048).

Even though women believe a drain opener to be more harmful on pipes, health and the environment than men do, they believe that a green alternative will do the least damage. When comparing a drain opener with a green product-related attribute to a drain opener with a non-product related attribute, women believe that the first alternative is less damaging on pipes than men do (p = .002). Women also believe, in contrast to men, that a drain opener with a green product-related attribute is less damaging on pipes than the non-green baseline (p = .00). Compared to men, women also rate the drain opener with the green product-related attribute to be less damaging on health than the drain opener with the non-product-related green attribute (p = .003) and the non-green baseline (p = .00). When comparing the drain opener with the non-product-related green attribute to the non-green baseline, women rate the first higher compared to men (p = .005). On the rating of damage on the environment, women rate, compared to men, a drain opener with a green product-related attribute (p = .00) and a non-product-related green attribute (p = .002) to be less harmful than the non-green baseline.

3.6.5 Dataset 3: T-test

Gentle Category - Body Lotion

The results from independent sample t-tests on the gentle product category can be found in Appendix C, table C1.1. When assessing the product as an environmentally friendly choice, women rate both the body lotion with the green product-related attribute (mean diff. = .63, *p* = .002) and the non-product-related green attribute (mean diff. = .33, *p* = .034) significantly higher than men. Men, on the other hand, rate the non-green baseline to be a more environmentally friendly alternative than women (mean diff. = -.47, *p* = .003). When asked to assess whether the different body lotions are likely to be chosen by a conscious consumer, women rate the body lotion with the green product-related attribute (mean diff. = .50, *p* =

.007), the non-product-related green attribute (mean diff. = .35, p = .015) and the non-green baseline (mean diff. = -.32, p = .049) higher than men.

There is a tendency that women rate a body lotion with a green product-related attribute significantly higher than men. They rate it higher on the ability to moisturise skin (mean diff. = .37, p = .043), the likelihood of choosing the product (mean diff. = .91, p = .00) and the potential success in the market (mean diff. = .52, p = .001). Additionally, women believe that a body lotion with a green product-related attribute is less harmful to skin (mean diff. = -.39, p = .027), health (mean diff. = -.45, p = .012) and the environment (mean diff. = -.38, p = .033) than men what do. In contrast, men rate the non-green baseline to have less damage on skin (mean diff. = .38, p =.035) and to be less harmful to the environment (mean diff. = .67, p = .00) than women do.

Strong Category - Drain Opener

When performing independent sample t-tests on the evaluations from respondents exposed to a drain opener, the results show that women have a higher mean score than men for drain openers with a green product-related attribute on several of the measures (Appendix C, table C1.2). Women are more likely than men to believe that such a drain opener is an environmentally friendly choice (mean diff. = .43, p = .041), that it will have success in the market (mean diff. = .62, p = .00) and has less damage on pipes (mean diff. = -.47, p = .012). Regarding the drain opener with a non-product-related green attribute, women have a stronger belief than men that people who are concerned about the environment will choose this product (mean diff. = .35, p = .033). In addition, they are significantly more likely to choose this alternative compared to men (mean diff. = .42, p = .033).

3.6.6 Dataset 3: Mixed ANOVA

Gentle Category - Body Lotion

Women rate a body lotion with either a green product-related attribute (p = .00) or a non-product-related green attribute (p = .00) higher than the non-green baseline, compared to men, on the measure of environmentally friendly choice (Appendix C, table C2.1). The same pattern occurs for the environmentally concern construct. Compared to men, the body lotion with the green product-related attribute (p = .01) and the non-product-related green attribute (p = .05) are rated higher by women than the non-green baseline. On the ability to moisturise skin, women rate a body lotion with the green product-related attribute higher than the non-

green baseline compared to men (p = .019). Compared to men, women also rate a body lotion with the green product-related attribute higher than a body lotion with the non-product-related green attribute (p = .04) and the non-green baseline (p = .02) on the likelihood of choosing the product.

When it comes to damage on skin, health and the environment, women rate, compared to men, the body lotion with the green product-related attribute to be less harmful than the alternatives. Compared to the non-green baseline, they believe that the green product-related attribute is less harmful to the skin (p = .00), health (p = .00) and environment (p = .00). They also rate the green product-related attribute to have less damage than the body lotion with the green non-product-related attribute on the skin (p = .001) and the health (p = .003). Compared to men, women are more likely to believe that a body lotion with a non-product-related green attribute is less harmful than the non-green baseline on the measures on damage on health (p = .03) and damage on the environment (p = .00).

Strong Category - Drain Opener

Compared to men, women rate a drain opener with either a green product-related attribute (p = .008) or a non-product-related green attribute (p = .008) higher than the non-green baseline when assessing whether the product is an environmentally friendly choice (Appendix C, table C2.2). Women also rate a drain opener with the non-product-related green attribute higher than the non-green baseline (p = .00) on the construct preferred product by environmentally conscious consumer. In addition, women are more likely than men to believe that a drain opener with the green product-related attribute will have more success in the market (p = .037) and have less damage on health (p = .012) than the non-green baseline.

3.6.7 Analysis of Control Variables: T-Test

Dataset 1

When testing the gender differences in dataset 1 using independent sample t-tests in SPSS, there was only one significant result (Appendix A, table A1.3). The significant result showed that women are more willing than men to sacrifice quality for environmental friendliness (mean diff. = .21, p = .001).

Dataset 2

The independent sample t-tests performed on the control variables in dataset 2, show several gender differences in the attitudes towards green consumerism in general (Appendix B, table B1.2). It is more important to women than men that the product they buy is environmentally friendly (mean diff. = .56, p = .016). Women also have a higher willingness to recycle when they have the opportunity (mean diff. = 0.76, p = .001). When looking closer at emotions connected to green consumerism, women experience a stronger sense of guilt than men when they choose a less environmentally friendly product (mean diff. = 1.17, p = .00). They also feel better than men when they choose to boycott environmentally harmful products (mean diff. = 1.06, p = .00).

Dataset 3

When performing independent sample t-tests on the control variables in dataset 3, there were no significant findings, indicating that women and men rated the measures very similarly (Appendix C, table C1.3).

3.6.8 Analysis of Control Variables: One-Way ANCOVA

To control for effects of other variables than the main independent variable of interest, gender, a one-way analysis of covariance (ANCOVA) was conducted. ANCOVA allow us to use the control variables in each dataset as covariates. An ANCOVA checks if the significant results from the independent sample t-tests presented above still hold when we control for the effect of the covariates on the dependent variables. In the ANCOVA test, we used the control variables presented in the table in section 4.4 as covariates. The variable gender was used as the independent variable while perceived effectiveness, perceived greenness and choice of product for both product categories were used as dependent variables.

Dataset 1

In dataset 1, there were only a few statistically significant findings when we conducted the independent sample t-tests. These findings are upheld even when we add the control variables as covariates. This suggests that the differences found in the t-test for gender analysis are not the result of unobserved factors.

Dataset 2

When testing dataset 2 using ANCOVA with the control variables as covariates, the statistically significant gender differences from the t-tests were not upheld when controlling for “Boycott”, “Recycle”, “Guilt” and “Importance”. This means that the effect from the independent variable gender on the dependent variables is confounded. There is some other effect that can explain the relationship between the independent variable gender and the dependent variables measuring perceived effectiveness, perceived greenness and choice of product. Often, women score higher on these personality traits than men. Thus, it is likely that the control variables used as covariates in this test explain most of the statistically significant results found in the independent sample t-test in the gender analysis.

3.7 Summary of Results

Before providing a thorough summary of the findings from each product category, tables of all significant results from Study 1 will be provided below.

Table 2: Summary of Significant Results, Independent Sample T-test

Dataset	Product category	Attribute	Variable	Mean diff.
Dataset 1	Body lotion	Product-related green attribute	Preferred product by environmentally conscious consumer	.59
			Choice of product	.78
	Drain opener	Product-related green attribute	Preferred product by environmentally conscious consumer	-.88
Dataset 2	Drain opener	Product-related green attribute	Effectiveness	.51
			Preferred product by environmentally conscious consumer	.41
			Market success	.81
			Perceived damage on health	-.47
		Non-product-related green attribute	Effectiveness	.42
			Green labeling	.52
			Perceived damage on pipes	.47
		Non-green baseline	Perceived greenness: Environment	-.49
			Perceived greenness: Sustainability	-.48
			Green labeling	-.48
			Green choice	-.73
			Preferred product by environmentally conscious consumer	-.65
			Ability	.44
			Perceived damage on pipes	.88
			Perceived damage on health	.99
			Perceived damage on environment	.9
Dataset 3	Body lotion	Product-related green attribute	Environmentally friendly choice	.63
			Environmentally concern	.5
			Choice of product	.91
			Market success	.53
			Ability	.37
			Perceived damage on skin	-.39
			Perceived damage on health	-.45
			Perceived damage on environment	-.38
		Non-product-related green attribute	Environmentally friendly choice	.33
			Environmentally concern	.35
		Non-green baseline	Environmentally friendly choice	-.47
			Environmentally concern	-.32
			Perceived damage on skin	.38
			Perceived damage on environment	.67
	Drain opener	Product-related green attribute	Environmentally friendly choice	.43
			Market success	.62
			Perceived damage on pipes	-.47
		Non-product-related green attribute	Environmentally concern	.35
			Choice of product	.42

Table 3:Summary of Significant Results, Control Variables

Dataset	Control variable	Mean diff.
Dataset 1	Sacrifice	**.21**
Dataset 2	Recycle	**.76**
	Important	**56**
	Guilt	**1.17**
	Boycott	**1.06**

Table 4:Summary of Significant Results, Mixed ANOVA

Dataset	**Product category**	**Attribute**	**Variable**	**level interaction**
Dataset 1	Body lotion	(Product related green attribute - Non-green baseline)	Effectiveness	**.012**
		(Product related green attribute - Non-green baseline)	Perceived greenness: Sustainability	**.044**
		(Product related green attribute - Non-product related green attribute)	Choice of product	**.002**
		(Product related green attribute - Non-product related green attribute)	Market success	**.049**
		(Product related green attribute - Non-product related green attribute)	Ability	**.32**
		(Product related green attribute - Non-product related green attribute)	Perceived damage on skin	**.008**
		(Product related green attribute - Non-green baseline)		**.022**
Dataset 2	Drain opener	(Product related green attribute - Non-green baseline)	Perceived greenness: Environment	**.013**
		(Product related green attribute - Non-green baseline)	Perceived greenness: Sustainability	**.022**
		(Non-product related green attribute - Non-green baseline)		**.046**
		(Product related green attribute - Non-product related green attribute)	Market success	**.004**
		(Product related green attribute - Non-green baseline)		**.48**
		(Product related green attribute - Non-product related green attribute)	Perceived damage on pipes	**.002**
		(Product related green attribute - Non-green baseline)		**0**
		(Product related green attribute - Non-product related green attribute)	Perceived damage on health	**.003**
		(Product related green attribute - Non-green baseline)		**0**
		(Non-product related green attribute - Non-green baseline)		**.005**
		(Non-product related green attribute - Non-green baseline)	Perceived damage on environment	**.002**

Dataset 3	Body lotion	(Product related green attribute - Non-green baseline) (Non-product related green attribute - Non-green baseline)	Environmentally friendly choice	0 0
		(Product related green attribute - Non-green baseline) (Non-product related green attribute - Non-green baseline)	Environmentally friendly concern	.001 .005
		(Product related green attribute - Non-product related green attribute) (Product related green attribute - Non-green baseline)	Choice of product	.004 .002
		(Product related green attribute - Non-green baseline)	Ability	.019
		(Product related green attribute - Non-product related green attribute) (Product related green attribute - Non-green baseline)	Perceived damage on skin	.001 0
		(Product related green attribute - Non-product related green attribute) (Product related green attribute - Non-green baseline) (Non-product related green attribute - Non-green baseline)	Perceived damage on health	.003 0 .030
		(Product related green attribute - Non-green baseline) (Non-product related green attribute - Non-green baseline)	Perceived damage on environment	0 0
	Drain opener	(Product related green attribute - Non-green baseline) (Non-product related green attribute - Non-green baseline)	Environmentally friendly choice	.008 .008
		(Non-product related green attribute - Non-green baseline)	Environmentally friendly concern	.003
		(Product related green attribute - Non-green baseline)	Market success	.037
		(Product related green attribute - Non-green baseline)	Perceived damage on health	.012

3.7.1 Gentle Category - Body Lotion

When looking at the overall gender differences in the evaluation of perceived effectiveness, perceived greenness and choice of product, women rate the body lotion with the green product-related attribute higher than men. In terms of perceived greenness, women, compared to men, rate the body lotion with the green product-related attribute higher than both the body lotion with the non-product-related green attribute and the non-green baseline.

Women are also more positive than men when rating the effectiveness of the body lotion with the green product-related attribute. They believe that such a product has a higher ability to moisturise the skin than a product with the non-product-related green attribute and the non-green baseline. This could be connected to the nature of the product category main attribute, gentleness.

In terms of choice of product, women are more likely than men to choose the body lotion with the green product-related attribute rather than the body lotion with the non-product-

related green attribute and the non-green baseline. The results show that women believe that the green product-related attribute is less harmful to the skin, the health and the environment. As the gentle product category is represented by a body lotion, a product directly applied to one's skin, it is understandable they prefer the green product-related attribute as they see it as more gentle.

3.7.2 Strong Category - Drain Opener

Based on the results from the tests performed on the three datasets, there are some clear gender differences in the evaluation of perceived greenness, perceived effectiveness and choice of product. Women see the drain opener with the product-related green attribute as more environmentally friendly than men. They also see the version with the non-product-related green attribute, where the packaging is made of recycled material, as more environmentally friendly than the non-green baseline, compared to men. Men have a higher perceived greenness of the non-green baseline than women, meaning that they do not consider this product to be so harmful to the environment.

When assessing a drain opener's effectiveness, women rate the drain opener with the green product-related attribute and the non-product-related green attribute higher than men. However, men rate the effectiveness of the non-green drain opener statistically higher than women.

Consequences of usage of drain openers may be damage inflicted on the pipes, health and the environment which can be of importance to the consumers when deciding which product to choose. A drain opener with the green product-related attribute is considered less harmful to pipes, health and the environment by women compared to men. It is seen as less harmful than both the green non-product-related attribute and the non-green baseline. Women also see the green non-product-related attribute as less harmful to the health and the environment than the non-green baseline, compared to men.

Regarding choice of product, women are more likely than men to choose the product with the green product-related attribute, the drain opener with natural ingredients. They are also more likely to choose the drain opener with the non-product-related attribute. There is also a clear gender differences in the evaluation of potential success in the market. Women believe to a stronger degree than men that the drain opener with the green product-related attribute will be a success among consumers.

3.8 Limitations of Study 1

In the following section, we will discuss the limitations of Study 1. We will start by discussing potential reasons for the lack of results from the mixed ANOVA test in dataset 1 for the strong category. Then we will discuss the validity and reliability of the study.

3.8.1 Discussion of Lack of Results in Mixed ANOVA on Dataset 1

When conducting the mixed ANOVA on the measures for the drain opener in dataset 1, we did not find a single significant difference between the genders in the comparison of the different product attributes. As there were several significant results in dataset 2 with similar experiment design, we wanted to investigate what could be the possible explanation of the lack of significant cases in dataset 1.

By looking at the descriptive statistics for dataset 1 and 2 we discovered differences in the age distribution and in the sample size. In dataset 2, there were more men than women in the age groups 15-20 years old and 65 years old and above that participated in the experiment. Dataset 1 on the other hand, had a larger number of young female participants in the age group 15-20 years old. To see if this could have an impact on the number of significant results discovered on gender differences in the two datasets, we wanted to check the interaction effect of age and gender. We ran a univariate ANOVA using SPSS, with age and gender as fixed factors and tested for all the different dependent variables used in the experiments. There were only few significant interaction effects found on age. Therefore, we cannot argue that the difference in the age distribution in the two experiments' samples explains the difference between the number of significant differences between genders.

As explained in section 3.3.2, the difference in design for the experiments for dataset 1 and 2, was that dataset 2 used a mirror as manipulation of self-consciousness. To test if the mirror had an impact on the results regarding gender difference, a univariate ANOVA was conducted using SPSS. The results presented very few significant cases. Therefore, we will argue that the mirror manipulation did not affect the mean differences of rating of product categories between the genders and cannot be used to explain the differences in number of significant cases between the datasets.

When comparing the descriptive statistics for dataset 1 and 2, we discovered a large difference in the representation of gender participating in the experiments. In experiment 1,

61 women and 29 men were exposed to the drain opener and 59 women and 32 men were exposed to the body lotion. Experiment 2 had a sample size with 121 women and 84 men. This difference in gender distribution might have had an impact on the p-value, because it did not give a strong representation of the male gender.

In dataset 1, the sample size for respondents exposed to a drain opener was 90. As the p-value is indirectly dependent on the sample size, we wanted to test if the mean differences were similar as in dataset 2, even though the sample size was smaller in experiment 1. By comparing the mean differences for the different variables across dataset 1 and 2, we discovered that there were not similar patterns in the mean differences. Since the mean differences between the genders did not follow the same pattern, we will argue that the low sample size does not explain the fewer number of significant cases in mean rating between the genders regarding the calculation of significance level.

However, the sample size might have an impact on the p-value in a different way. If there had been more similar gender distribution and sample size, there could be a different rating, creating more representative mean difference. With a small *n*, the impact of one response on the mean becomes higher and can therefore distort the results. A higher *n* would lead to a lower standard deviation, which could have an impact on the mean difference. A better representation of the mean difference would make the p-values of the results more trustworthy.

Another limitation to Study 1 is the possibility of false positives. When running multiple statistical tests, the chance of finding significant results even when there are none, increases for each test. This is called the multiple comparison problem. However, we set a stricter alpha level for each comparison by applying the Bonferroni adjustment to the alpha level which protects against Type 1 errors (Pallant, 2013). We thus argue that the possibility for a multiple comparison problem is at an acceptable level and that our number of findings is reasonable.

3.8.2 Validity and Reliability

To ensure the quality of this study, it is important to discuss elements influencing the validity and reliability of the study (Saunders et al., 2016).

Validity refers "to the appropriatenes of the measures used, accuracy of the analysis of the results and generalisability of the findings (Saunders et al, 2016, p.202). There are three main dimensions of validity, measure validity, internal validity and external validity.

Measure validity is "the extent to which a scale or measuring instrument measures what it is intended to measure" (Saunders et al, 2016, p.720). In our Study 1, we have used secondary data, which made it impossible for us to improve the measure validity in the research design. However, the measurements used all three datasets were developed based on established scales for measuring greenness, ability and choice of product (Bjortvatn & Bjarnadottir, 2018; Handeland & Skogholt, 2018). This increases the measure validity of the study.

According to Saunders et al. (2016, p. 202) internal validity is "established when your research accurately demonstrates a causal relationship". The data collection had high response rate which minimises the likelihood of errors and potential biases. However, the datasets used were collected with a different purpose than to analyse gender differences, resulting in an uneven gender distribution in the datasets. This can influence the causal effect of gender found and therefore be a limitation influencing Study 1. Regarding the analyses, we ensured to conduct statistical tests approved by Pallant (2013) for the gender analyses. In addition, we analysed the impact of control variable to avoid ambiguity of the causal direction in the results. An important element in the validation of Study 1, is the triangulation of datasets. By using three different datasets measuring the same, the results are more likely to have a credible causality.

The final dimension of validity, external validity, is "the extent to which the research results are generalisable to all relevant contexts" (Saunders et al, 2016, p.716). In Study 1, the results are only generalisable to a certain extent. Liobikiene & Bernatoniene (2017) argue that it is necessary to separate product categories, when analysing green consumer behaviour. However, we investigate two different product categories and find similar results in both categories, increasing the external validity of the study.

The reliability of a study is defined by Saunders et al. (2016, p.726) as "the extent to which data collection technique or techniques will yield consistent findings, similar observations would be made, or conclusions reached by other researchers or there is transparency in how sense was made from the raw data (Saunders et al, 2016, p.726). Internal reliability can be increased by ensuring consistency during the research project (Saunders et al., 2016). In Study 1, we were two researchers preparing the data and performing the analyses to ensure consistency throughout the study. External reliability refers to "whether your data collection techniques and analytics procedures would produce consistent findings if they were repeated by you on another occasion of if they were replicated by a different researcher" (Saunders et al., 2016, p. 202). As we did not perform the data collection for Study 1, we could make adjustments to improve the external reliability for the data collection. However, we used different datasets with similar research design and conditions to measure the same construct, giving similar results. This would suggest a high level of external reliability in the data collected. To ensure the reliability of our analysis, we have a transparent presentation of the statistical analyses performed and their results in section 3.5 – 3.6.

In secondary data analysis, it is necessary to evaluate the credibility of the data used to ensure validity and reliability (Saunders et al., 2016). One approach is to assess the reputation of the source. The datasets used are not collected by professional researchers, as they are part of master theses. However, the research design and methods were developed in collaboration with the thesis supervisors, who are professional full-time researchers at Norwegian School of Economics. In addition, they have given a clear description of the methods for data collection in their theses. Therefore, we assess the data sets as credible and suitable for secondary data analysis.

3.9 Discussion of Results

From the results of the analysis of the three datasets, we see that there is a clear gender difference in perception of both body lotion and drain opener. The main difference is found in the evaluation of a product with the green product-related attribute compared to the non-green baseline. In general, women have a higher evaluation of the alternative with the green product-related attribute than men do. This pattern is similar for both the gentle and strong product category.

The gender difference in evaluation could be explained by women having a more positive attitude towards green consumer behaviour than men. Previous research suggests that this gender difference is a result of differences in personal attitudes, such as empathy, which are linked to the gender stereotypes. In our analyses, we found gender differences in the control variables representing attitudes towards green consumer behaviour. For instance, women feel better than men about boycotting products that are more harmful to the environment. This support previous research arguing that personal attitudes are determinants for green behaviour. These personal attitudes are not directly linked to gender, but rather gender stereotypes and socialisation of gender (Zelezny & Bailey, 2006). Therefore, one could assume that a man with high level of empathy and care-giving attitudes would have more positive evaluation of green products. Thus, where gender differences were not detected, a possible explanation can be that the men answering the survey had higher level of empathy such that the difference in rating between men and women was not large enough to be statistically significant.

This study also investigates how the gender difference is reflected in the perception of products with green products compared to non-green products. From the results, we see that there is a difference in how men and women perceive the effectiveness of the products, women see products with green attributes as more effective than men. Men believe that the non-green alternative is more effective than women. A possible explanation of the difference in perception could be that, due to the socialised gender stereotypes mentioned above, the currently known barriers towards green consumption are not as strong for women as for men. In our control variables, we saw that men were more likely than women to sacrifice quality for environmental friendliness when choosing a product. This was confirmed in the analysis, where women and men evaluate the effectiveness of a green drain opener to be the same, but women still chose the green product. Women do not need the same argumentation for effectiveness as men, because they value the protection of the environment more than men.

3.10 Framework for Further Research

In Study 1, we found several gender differences in the perception of green products. One important difference was the evaluation of perceived effectiveness of green products, which has been identified as a barrier to green consumption by previous research.

As green products do not necessarily have lower performance than non-green alternatives, it is important to find out how to communicate the effectiveness and performance of the product to the consumers in a trustworthy manner. In most purchasing situations, the consumer is not able to try the products and make their own evaluation before buying a new product. This lack of knowledge creates a higher switching cost for consumers and can make them reluctant to try new products. Therefore, it is interesting to further investigate the effectiveness dimension of green products and how to communicate effectiveness to consumers. Potentially the right product communication could help reduce the barrier to green consumption and reduce the differences between men and women in their rating of green products. This will be the purpose of the second part of our master thesis, Study 2.

4. Study 2

4.1 Purpose and Research Question

Based on the findings from Study 1, we will conduct a second study, where we investigate a potential strategy to increase the perception of effectiveness of green products and reduce the gender differences in the perception of effectiveness. Previous research presented in the theoretical framework suggest communicating the effectiveness of green products as a solution to improve the perception of effectiveness of such products. However, they disagree on how explicit this message should be to have an impact on the consumers' product perception. Therefore, degree of explicitness in communication needs to be investigated as well. Building on Study 1 and our theoretical framework, we developed the following research question for Study 2:

RQ2: *Are there gender differences in the responsiveness to different degrees of explicitness in the communication of effectiveness for environmentally friendly products?*

In this research question, we use the concept responsiveness. By responsiveness we mean how the communicated message of effectiveness has an influence on the perception of the green product. How will they react to the message? We want to see if different messages of effectiveness can have a positive impact on the perception of green products. Will the consumers see the products as more effective and will it increase the probability of choosing a green product? This is what we want to find out in Study 2.

To answer the research question, we will perform an artificial field experiment, where the respondents are exposed to green products with different degrees of explicitness in the communication of effectiveness. We will start by explaining the focus of Study 2 before we present the hypotheses developed for the second part of our master thesis. Further, we will elaborate on the experimental design used, including a presentation of the manipulations and measures used in the artificial field experiment. Following, the statistical analyses used to test the hypotheses will be presented before we present the results discovered in Study 2. In addition, we will present results not directly related to the hypotheses, but of interest to the overall research question. To ensure the quality of our study we will then give a discussion of possible limitations to the study. Finally, we will summarise and discuss the results.

4.2 Hypotheses and Research Model

From the purpose and research question presented above, we have developed a set of hypotheses we want to investigate through study 2. In this section, we will start by presenting the focus of the study, followed by hypotheses developed to answer the research question and a visualisation of our research model.

4.2.1 Focus of Study 2

For our hypotheses and analyses, we have decided to only focus on the green product-related alternative. The baseline in our study is the green product alternative with no communication of effectiveness. We decided to investigate the evaluation of the green alternative, and not include the non-green alternative, as we find it most interesting how the communication influences the evaluation of the green product alternative. By only looking at the green alternative, we make the model simple to facilitate the process of more advanced analyses. A comparison of the green and the non-green is a relative measure, which could make it difficult to interpret the results correctly. However, we will compare the effect of communication of effectiveness on the green product with the non-green baseline in section 4.7 Additional Findings as an add-on to our main model.

4.2.2 Presentation of Hypotheses

Consumers are not likely to choose a green product if it the effectiveness is perceived as lower than the non-green alternatives. Therefore, it is important to communicate effectiveness in a trustworthy manner (Gabler et al., 2013). Luchs et al. (2010) argue that this is essential for drain openers, as greenness is not an attribute normally valued by consumers in the strong product category. To investigate this proposal from previous research, we developed the following hypothesis:

H_1: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness of the product is communicated than when the effectiveness is not communicated.*

From the theoretical framework, we know that different levels of abstractness or explicitness in the message communicated can lead to different responsiveness by the consumer. Among others, Skard (2010), O'Keefe (1997) and Ang & Lim (2006) propose the use of more

implicit communication of conclusion to engage and persuade the receivers. We would like to investigate if this proposal could be valid for communication of effectiveness as well. This leads us to our second set of hypotheses, where we aim at testing the difference in effect of effectiveness messages with different level of explicitness:

H_{2a}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated implicitly than when the effectiveness is communicated explicitly.*

H_{2b}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated implicitly than when the effectiveness is not communicated.*

H_{2c}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated explicitly than when the effectiveness is not communicated.*

As one of the main barriers for adoption of green consumer behaviour is perceived effectiveness (Gleim et al., 2013), we are interested in how the communication messages impact the perceived effectiveness and how this perceived effectiveness have an impact on choice of product. Therefore, we suggest a third set of hypotheses, where we want to investigate the potential mediating effect of perceived effectiveness.

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

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

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

The overall purpose of this master thesis is to investigate gender differences; hence a fourth set of hypotheses addressing this. We are interested in finding out if men and women respond differently to the communication of effectiveness with different levels of explicitness, as previous research suggest gender differences in green consumer behaviour (e.g. Brough et al., 2016). Based on the theoretical framework, we would suggest that women will respond more to the communication of effectiveness, as they are generally more positive green products and thereby more likely to trust the effectiveness claim. However, we would like to believe that the communication of effectiveness could help reduce the

gender differences in perceived effectiveness of green product. This ambiguity in expectations makes it difficult to make a clear expectation regarding the direction of results. Therefore, we have decided to be agnostic about the direction of the expectation and suggest the following hypotheses, where we add gender as a moderator in the model.

H_{4a}: *The effect postulated in H_{3a} is moderated by gender.*

H_{4b}: *The effect postulated in H_{3b} is moderated by gender.*

H_{4c}: *The effect postulated in H_{3c} is moderated by gender.*

4.2.3 Research Model

Based on the purpose of Study 2 and the hypotheses presented above, we have chosen to use a moderated mediation model to explain the relationship between the degrees of explicitness in communication of effectiveness, perceived effectiveness and the probability of choosing a green product (see Figure 1). Based on the theoretical framework and findings from Study 1, we predict that perceived effectiveness is the model's mediator. We believe that communication of the effectiveness of a green product will increase the consumer's perceived effectiveness of the product, leading to higher probability of buying the green product. In addition, we propose gender as a moderator of the relationship between the different degrees of explicitness in communication of effectiveness and the perceived effectiveness of a product. We expect men and women to respond differently to the different degrees of explicitness in communication and thereby perceive the effectiveness of the green product differently.

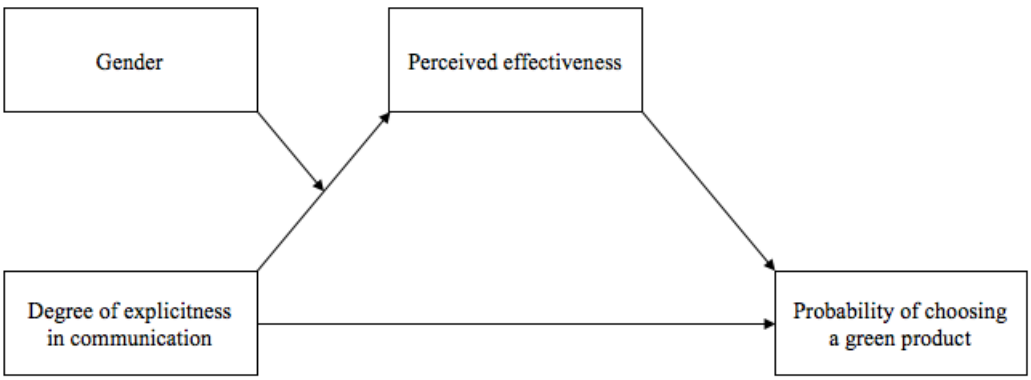


Figure 1: Model for Moderated Mediation

A moderated mediation model consists of a simple mediation model with a moderator. A simple mediation model is a causal system where the independent variable X influences the dependent variable Y through the mediator M. Thus, adding a moderator to the causal system, will influence the size of the indirect effects of X on Y through M (Hayes, 2018). As the statistical diagram of the model below shows, there are several paths in a moderated mediation model. The direct effect of X on Y is path *c'*, and the conditional indirect effect of X on Y through M is $(a_{1i} + a_{3i}W)b_i$. Together they make up the total effect of the model.

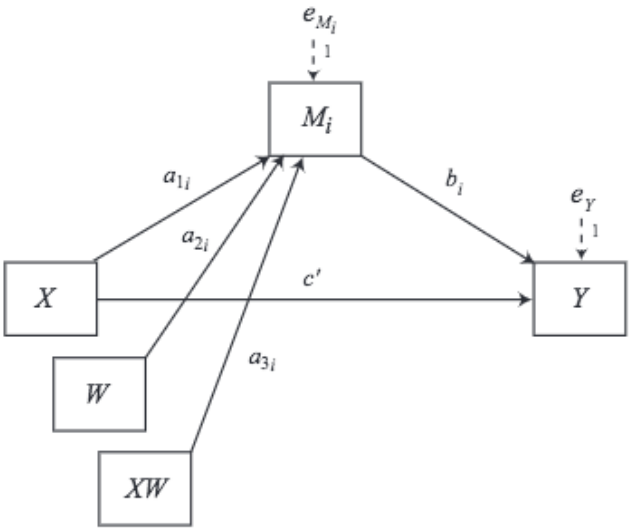


Figure 2: Statistical Diagram of Model for Moderated Mediation.

4.3 Experimental Design

4.3.1 Research Design

To answer the research question for study 2, we decided to conduct an artificial field experiment. In an artificial field experiment, respondents are exposed to a manipulation as in a normal field experiment, but in an artificial, non-realistic context (Harrison & List, 2004). The purpose of using this method for data collection is that the respondents will evaluate realistic products. By using this method, it is easier to get a high response rate compared to a normal field experiment. In addition, we could control the setting to a larger extent. The disadvantage is that we were not able to see the actual behaviour as in a realistic field

experiment, where the consumers choose a product in a real-life setting. To adjust the artificial context, we added a choice of product as the final element of our experiment.

Since the aim of Study 2 is to investigate a potential causal effect of communication of effectiveness on perception of the green product, we apply a causal research design for the study. In addition, the research design chosen for Study 2 can be characterised as a mixed-model design, as we combine between-subjects and within-subjects factors. The advantage of using a mixed-model design is that it requires fewer subjects than a between-subjects design and has higher statistical power, making the use of each subject more efficient (Kherad-Pajouh & Renaud, 2015). A disadvantage of the design is that it is often more complex than non-repeated measures design, as there can be associations between the observations from the same respondents (Kherad-Pajouh & Renaud, 2015).

The between-subjects independent variable in the study is degree of explicitness in communication and it consists of three levels: *explicit communication, implicit communication* and *baseline.* The within-subjects independent variable, level of greenness for the product attribute has two levels, *green product-related attribute* and *non-green baseline.* Therefore, we can categorise Study 2 as a 3x2 mixed factorial design.

4.3.2 Conceptual Framework

In the development of products to be used in Study 2, we have taken point of the conceptual framework used in the experiments by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018). In addition to strong/gentle product category and centrality of green attribute they use, we introduce a new dimension for our second study, level of explicitness in communication of effectiveness.

Strong and Gentle Product Category

The secondary data explored in Study 1, looked at two different product categories, strong and gentle. Study 2, however, will only focus on the strong product category, represented by a drain opener. We chose the strong category because effectiveness is a key performance indicator for this category. In addition, compared to a body lotion, a drain opener contains toxic chemicals, which increase the perceived contrast between a green and non-green alternative. Thus, we believed that it would be easier for the respondents to evaluate the difference between a green and non-green product in the strong category.

Centrality of Green Attribute

In previous studies, Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018) compared drain openers and body lotions with 100 % natural ingredients and 100 % recycled materials to a non-green alternative. In Study 2, we have decided to only look at one green alternative, the product with the green product-related attribute, represented by a drain opener with 100 % natural ingredients. We chose this alternative because we experienced the most gender differences connected to this green attribute in Study 1. In addition, Gershoff & Frels, 2015 argue that central product attribute is more important to the overall perception of the product. In a green product with a non-product-related green attribute, the content of the product will be the same as in the non-green alternative. As we are investigating the perception of effectiveness of a green product, it is more interesting to look at a green product where the green attribute is related to the content of the product.

Level of Explicitness in Communication of Effectiveness

In this study, we introduce the concept communication of effectiveness to investigate the impact it may have on the perception of green products. Based on the theoretical framework arguing that level of explicitness in the communication can influence the reception of the message, we decided to create two different labels for our product. One of the labels expressed effectiveness explicitly and the other expressed effectiveness implicitly. The label for explicit communication had a verbal message stating “Documented effectiveness”. For the implicit label, we used a visual message, with an arm flexing muscles to illustrate effectiveness.

Visualisation of products used in Study 2

The conceptual framework for Study 2 resulted in four drain openers with different labels. Below is a visualisation of the four products used in the experiment.

Illustration 2: The Non-Green Product Used in Study 2

Illustration 3: The Green Product with Baseline Communication of Effectiveness

Illustration 4: The Green Product with Explicit Communication of Effectiveness

Illustration 5: The Green Product with Implicit Communication of Effectiveness

4.3.3 Treatments

In our artificial field experiment, we created a set-up at a shopping centre, where we invited consumers to participate. The respondents were exposed to different mock-up products with manipulations and had to evaluate them through a survey we created. After completing the survey, the respondents got the opportunity to choose a real product they could bring with them.

The mock-up products used in the experiment were designed to resemble an actual drain opener and we named the brand "Sera". We chose to create a mock-up to avoid brand loyalty bias in the responses. However, by including the message "unclogs clogged pipes" and a picture of an unclogged pipe, we tried to make the products seem as realistic as possible.

The design of our study is a 3x2 factorial design with three between-subjects factors (the degree of explicitness in communication) and two within-subjects factors (a green and non-green drain opener). This implies that all the respondents were exposed to a drain opener with a green attribute and a drain opener without a green attribute. The green attribute used in the experiment was product-related, meaning it was the content of the drain opener which was environmentally friendly. The product with the green attribute included the message "100 % natural ingredients" while the non-green drain opener did not present any information about the content in the bottle. The green drain opener also included a manipulation with three different degrees of explicit communication. As degree of explicitness in communication was a between-subjects factor, the respondents were only exposed to one of the three different degrees of explicit communication manipulations. In

practice, the respondents had to open one of three boxes, box A, B or C, and evaluate the green and non-green drain opener it contained.

Box A contained a non-green baseline and a green drain opener the manipulation of the condition “Explicit communication. This was illustrated by a label stating: “Documented effectiveness”. Below is a visualisation of Box A and the explicit communication manipulation.

Illustration 6: Visualisation of Box A with Explicit Communication Manipulation

The second box, Box B contained a non-green drain opener and a green version with the implicit communication manipulation. The manipulation label for implicit communication had an illustration of an arm with flexing muscles to show it was strong and effective. Illustration 7 gives a visualisation of the contents of Box B.

Illustration 7: Visualisation of Box B with Implicit Communication Manipulation

The third alternative the respondents were exposed to, contained a non-green alternative and a green alternative without any manipulation.

Illustration 8: Visualisation of Box C with Baseline Communication

In addition to the evaluation of the products in the boxes, the respondents could choose a product to bring home after completing the survey. They could choose between two products, a hand soap with a green-product related attribute, Klar, and a non-green alternative, Sunlight. The purpose of adding this choice to the experiment was to create an actual choice situation, where the respondents had to choose between a green and non-green alternative. Below is an illustration of the products the respondents could choose.

Illustration 9: Visualisation of the Green Product, Klar and the Non-Green Product, Sunlight

4.3.4 Survey and Measures

To evaluate the products in the boxes, the respondents had to answer a questionnaire designed for the experiment. It was a 10-minute-long survey using the software Qualtrics. The survey is presented in Appendix E. The field experiment and the survey were conducted in Norwegian, thus, the following descriptions of the questionnaire and measures used are translated.

The first page included practical information about the study and stated that the experiment was a part of our master thesis at Norwegian School of Economics. It also explicitly informed that all responses would be handled anonymously, that it was voluntary to participate and that they could withdraw from the study at any time. At the bottom of the page, the participants had to check off the box "Yes, I wish to participate" to be able to answer the rest of the questions in the survey. If participants had changed their mind about participating, they could check off the box "No, I do not want to participate" that would send them straight to the last page of the survey. Furthermore, the participants were told how to

proceed with the study. They were told that they would be asked to open one of the boxes labelled “A”, “B” or “C” and that they should follow the instructions in the questionnaire carefully.

To ensure that the participants were randomly exposed to either implicit, explicit or no communication of effectiveness of the green drain opener, i.e. box A, B or C, the randomisation function in Qualtrics was used. Randomising participants in an experimental design is important because it prevents selection bias and minimises the systematic error (Suresh, 2011). The randomisation function assigned 85 people to answer questions about the drain openers with implicit communication of effectiveness, 79 people had to answer questions about the drain opener with explicit communication of effectiveness and 81 people had to answer questions about the baseline product. By doing this, the only observable difference between the groups should be the degree of explicitness in communication of effectiveness the participants were exposed to in the experiment.

The measures used in the survey for Study 2 took point of departure in the same measures used in the research by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018), with only minor changes. The variables used in their research are measured on a seven-point Likert scale anchored in different literature dependent on the variable being measured. By using already well-established measures, we increase the internal validity of our study. A summary of the variables can be found in the table below.

For our study, after the participants had read the introductory page of the survey, they were asked to imagine that they were going to buy one of the drain openers which were placed in front of them, depending on which box they were assigned to open. The intention behind question 1 was to measure the participants’ evaluation of the product’s perceived greenness and perceived effectiveness, the latter being the mediating variable in the research model. More specifically, the participants were asked to rate “To what extent do you believe that the products possess the abilities listed below?” on a scale from “Very little extent” to “Large extent”. The words environmental friendliness and sustainability should measure the products’ perceived greenness while the word effective was used to measure the products’ perceived effectiveness.

The second question in the survey also concerned perceived greenness. We asked the participants to rate the following statements on a scale from “Strongly disagree” to “Strongly

agree": "This product should be labelled environmentally friendly", "Buying this product is an environmentally friendly choice" and "A person who cares about the environment would buy this product". These measures were developed by Gershoff & Frels (2015).

To further assess the products' perceived effectiveness, a measure on perceived quality developed by Newman, Gorlin, & Dhar (2014) was used. The participants were asked "How would you rate the products' ability to unclog clogged popes?". They had to assess the products' quality on a seven-point scale from "Very low" to "Very high".

The following questions in the survey were included to measure the participants' preference for the green and non-green product where the measure *probability of choosing a green product* is the study's dependent variable. This variable was measured by asking the participants to rate the following on a scale from "Very unlikely" to "Very likely": "Imagine that your bathroom pipes are clogged, and you are in the need of a drain opener. What is the probability that you would choose the following products?". This question is anchored in the research by Newman et al. (2014). Further, we asked the participants to choose between the drain opener with the green attribute and the one without the green attribute. The reason for this was that we wanted to test if there was a difference in outcome for the two variables when conducting the analyses based on how the question was framed. The last measure included in the survey was based on the preference measure developed by Luchs et al. (2010). It was included to assess participants' preference for the products and we asked the participants: "How likely do you think these products are to become a success in the market?". They were asked to rate this on a seven-point scale from "Very unlikely" to "Very likely".

To control for unobserved effects that could potentially influence the results on the relationships we wanted to investigate, several control variables were included in the questionnaire. The first variable we controlled for was price. From the qualitative study conducted by Gleim et al. (2013), perceived high price of green products is one of the most noted barriers to adopt environmentally friendly products. If the respondents were under the same impression as the literature shows, this can potentially affect how they rate the different products. We asked the participants whether they believed there was a price difference between the green and non-green product with a simple yes/no answer and which product they believed to be more expensive. The variables we controlled for next was whether the participants perceived that there was a trade-off between the green and non-

green product and if they view themselves as being an environmentally friendly person. To measure this, the participants were asked to rate four claims on a scale from “Strongly disagree” to “Strongly agree”: “An environmentally friendly product has lower quality than a non-environmentally friendly product”, “It is important to me that the products I buy are environmentally friendly”, “I recycle whenever I have the opportunity” and “I am willing to sacrifice quality for environmental friendliness”.

Further, we wanted to control for perceptions about consumer impact on the environment. We asked the participants to rate two claims measured on a seven-point scale from “Strongly disagree” to “Strongly agree”. The first claim reads as follows: “When I buy environmentally-friendly products I contribute by reducing the negative effects on the environment”, while the second one states “The environmental issues are too extensive for me to have an impact on the situation by buying environmentally-friendly products”. The research by Gleim et al (2013) suggests that if consumers understand that a single purchase can have an impact on the environment, the barriers to buy green products can be mitigated. Hence, we include these measures to get an understanding of the participants’ perceptions about how they impact the environment to test if the findings from the literature are applicable to our data.

Lastly, we controlled for which aspects of a drain opener the participants find important in a purchase situation. For the question “To what extent are the following aspects important to you when buying a drain opener?” the participants should rate “Price”, “Effectiveness”, “Recommendation from others”, “Environmental friendliness” and “Little damage on pipes” on a seven-point scale from “Very low degree” to “Very high degree”.

To get a more thorough picture of our dataset, we included questions about demographics at the end of our survey. We asked the participants to report their gender, age, work status, and relationship status, to mention a few, to able to draw conclusion from the dataset which are applicable for the entire population and not just the sample. The very last question of the survey was that we asked the participants to choose one of two hand soaps (one being environmentally friendly and the other one not) from the white paper bag and indicate which product they chose. We included this question to make the survey somewhat resemble a real purchase situation and it gave us the opportunity to compare the outcome of the dependent variable from the analyses to what type of product the participant chose from the bag.

A summary of all the measures used in the survey in Study 2 can be found in the table below.

Table 5: Overview of Constructs and Measures used in Study 2

Construct	**Measures***
Perceived greenness: Environment	*To what extent do you believe that the products are environmentally friendly?*
Perceived greenness: Sustainability	*To what extent do you believe that the products are sustainable?*
Perceived effectiveness	*To what extent do you believe that the products are effective?*
Ability	*How would you the the product's ability to open drains/moisturise skin?*
Choice of product	*How likely is it that you would choose each of the different alternatives if you were in need of a drain opener/ body lotion for dry skin?*
Market success	*How likely do you think it is that each alternative will be a success in the market?*
Control variables	
Quality	*To what extent do you agree that an environmentally friendly product has lower quality than a non-environmentally friendly product?*
Recycle	*To what extent do you agree that you recycle as often as possible?*
Sacrifice	*To what extent do you agree that you are willing to sacrifice quality for environmentally friendliness*
Important	*To what extent do you agree that it is important to you that the products you purchase are environmentally friendly*
Guilt	*To what extent do you agree that you would feel guilty if you chose the least environmentally friendly alternative?*
Boycott	*To what extent do you agree that you would feel better if you boycott products that are harmful for the environment?*
Impact	*To what extent do you agree that when you buy environmentally friendly products, you contribute to reduce negative impact on the environment?*
Powerless	*To what extent do you agree that the environmental challenges are too extensive and you cannot impact the situation by buying environmentally friendly products*
Preference price/effectiveness/recommendation/environmentally friendly/damage on pipes	*To what extent is price/effectivenes/recommendations from others/environmental friendliness/ little damage on pipes important to you when buying a drain opener?*

**The measures are rephrased to better suit this table presentation. Some measures are also translated from Norwegian to English.*

4.3.5 Sampling and Recruitment

An important issue we had to consider when recruiting participants for a field experiment, was that we got enough respondents. A fundamental principle in statistics is that the statistical power increases as the number of subjects increases (Saunders et al., 2016) and thus, the probability of making a Type II error decreases. Due to the design of our experiment, we needed to recruit approximately 240 people.

We managed to recruit 260 respondents, of which 245 completed the experiment. Due to non-response error, we had to disregard 15 responses (5.8%). For the 245 respondents, the age was quite evenly divided and ranged from 18 to 86 years of age and 145 women and 92 men participated (8 people chose not to answer the question about gender). Since our study focus on gender differences, we were careful about recruiting approximately the same

number of women and men. However, we experienced that more women than men entered the doors where we conducted the experiment, and thus, we ended up with 40% men and 60% women in our sample.

4.3.6 Procedure

The experiment was conducted over three days, Saturday 27th, Monday 29th and Tuesday 30th of October 2018. The experiment took place just inside of the main entrance of Åsane shopping centre, a suitable place to recruit respondents. We wanted to conduct the experiment at a shopping mall so that the sample gave a representation of the average population, improving the study's external validity. To ensure credibility, we put up posters with the school's logo and the message "Please help us with our master thesis". By doing this, we wanted to signal that we were conducting an academic research project which would hopefully attract more respondents.

The first day of the experiment, we put up three stations. We placed the stations such that there was space between them to ensure privacy for the respondents. However, we quickly realised that this was not as efficient as it could have been because when all three stations were occupied, the recruitment had to come to a stop for up to ten minutes. We therefore added two more stations for the remaining two days and experienced a much more efficient recruitment when five people could answer the survey at the same time.

When the participants had given their consent to partake in the study, they were given a short run-through of how the experiment and the survey was built up. We emphasised the importance of opening only the box they were instructed to open and to answer the questions in the survey about the products in the box. We told the participants that all answers were anonymous and that they were free to contact us during the survey if they experienced any difficulties. For the last question in the survey, the participants were asked to indicate which of the hand soaps from the white paper bag they wanted take home. After the completion of the study, we thanked all the participants, gave them the product from the bag that they had selected and an 8 EUR gift card.

4.4 Statistical Analyses

In the following sections, we will present the statistical analysis applied to investigate the hypotheses and the proposed research models. We start by presenting the choice of test variables used in the analyses. Secondly, we present the descriptive statistics, which will be used in the following section where we test the assumptions necessary for the main statistical analysis. After testing the assumptions, we will introduce the statistical analysis we use to analyse direct effects, mediation and moderated mediation. Finally, we present our method for analysis of control variables

4.4.1 Choice of Test Variables

In our survey, we included two measures on how the participants perceived the effectiveness of the drain openers they were exposed, since perceived effectiveness is the mediator in our research model. We named the variables "Perceived effectiveness" and "Perceived ability", respectively. However, during the field experiment, we experienced that some of the participants found it difficult to answer the question of perceived ability without being able to test the drain opener. We worried that the participants would then choose a random number on the seven-point scale, and therefore decided to only use the measurement "Perceived effectiveness" as the mediator in our data analyses. To support the decision, we ran the simple mediation analyses and the moderated mediation analyses with "Perceived ability" as the mediator and found only minor differences from the initial analyses. Further, we merged the variables of perceived effectiveness by averaging the scores from the two items and conducted the same analyses. Again, the difference in outcome compared to outcome using only "Perceived effectiveness" as the mediator were too small to be of any interest.

4.4.2 Descriptive Statistics

A table of the descriptive statistics for the dependent variable, the mediator, the moderator and the control variables can be found in Appendix F.

4.4.3 Test of Assumptions

In our research study, we use several statistical techniques to analyse the data, including independent samples t-tests, analyses of variance, simple mediation analyses and moderated

mediation analyses. These techniques need to satisfy some assumptions, and the following section will discuss the assumptions briefly.

Level of Measurement

When using parametric techniques such as t-tests and analyses of variance, it is assumed that the dependent variable is measured on a continuous scale rather than being categorical (Pallant, 2013). Thus, for our analyses we use the variable "Probability of choosing a green product" as the dependent variable. In the survey, a categorical variable for choice was also included. However, no analyses will be conducted using this variable since it allows for fewer statistical techniques and does not meet the assumption concerning level of measurement.

Independence of Observation

To satisfy the assumption of independence, each observation or measurement making up our dataset cannot be influenced by any other observation or measurement (Pallant, 2013). When conducting the field experiment, we collected individual responses from all the participants to ensure independence. Further, as described in section 4.3.6, each participant answered the survey at different stations with space between them, making it difficult to interact with one another or to look at other participants' responses. Due to the set-up of the study, we argue that the dataset consists of independent observations.

Normal Distribution

The statistical techniques conducted on our data sample assume that the distribution of the scores on the dependent variable "Probability of choosing a green product" is normal, i.e. a symmetrical, bell-shaped curve, with the highest frequencies in the middle (Pallant, 2013). To test this assumption, we measured the skewness and kurtosis of the data. The skewness measures the symmetry in the distribution of scores, where a positive value means that the scores are clustered at low values and negative values means that the scores are clustered at high values. The kurtosis, on the other hand, gives an indication of how pointy the distribution is. Negative values of the kurtosis mean that the distribution of the scores is flat, while a positive value means that distribution is pointy. When the scores of skewness and kurtosis are 0, the distribution of the scores are perfectly normally distributed, however, such occurrences are rare. One can assume that the data is approximately normally distributed when the scores of skewness and kurtosis lies between -2 and +2 (Khan, 2015).

The descriptive statistics (Appendix E, Table E.1) show that neither the dependent variable, the mediator or the moderator have a skewness or kurtosis above |2|. For the control variable "Preference effectiveness", the kurtosis is above the acceptable range. However, we do not believe that this will cause a problem since the sample size is fairly large (n = 245) and because it only applies to one variable. Because of this, we will conclude that the collected data meet the assumption of normal distribution.

Homogeneity of Variance

To test hypotheses 1 and 2, we conduct an independent sample t-test and a one-way between-groups ANOVA, respectively. These analysis techniques investigate the difference between groups and make the assumption that the variance within each group is similar across groups, meaning the level of variation is equal in each group. When using SPSS for statistical tests, the programme runs Levene's test for equality of variance as part of the t-test and the ANOVA automatically to test this. From the table for the t-test (Appendix G, Table G.1) we see that the significant level from the test is above .05, indicating that the variance for the group exposed to communication of effectiveness and the group not exposed to any form of communication is the same. Further, Levene's test for the one-way between measures analysis of variance (Appendix G, Table G.2), shows that the result is not significant. This means that the variance between three groups that were exposed to different degrees of explicitness in communication of effectiveness, is equal. Thus, the assumption of homogeneity of variance is upheld when conducting the t-test and the ANOVA.

4.4.4 Direct Effects

To test of H_1, we conducted an independent sample t-test on the condition "Communication" vs. "No Communication" on the dependent variable "Probability of choosing a green product". To be able to do this, we merged the groups which had been exposed to implicit communication of effectiveness and explicit communication of effectiveness to one group; communication. We then merged the new variable with the respondents that had been exposed to the baseline product so that it became one variable with two levels. To compare the mean score on the dependent variable for the two groups communication and no communication, an independent sample t-test was conducted. This test could tell whether there was significant difference between the respondents which were exposed to communication and those who were not in their probability of choosing a green product.

To test the effect proposed in H_{2a}, H_{2b} and H_{2c}, a one-way between-groups analysis of variance was conducted. This statistical technique is used when the aim is to compare the mean scores of more than two groups. In this case, respondents who were exposed to implicit communication of effectiveness, explicit communication of effectiveness and the non-communicative baseline. A one-way between-groups ANOVA will present whether there is a significant difference in the mean scores on the dependent variable across the groups (Pallant, 2013). A post-hoc comparison using the Tukey HSD (Honestly Significant Difference) was conducted to find where the difference between the groups could be found. On the one hand, using a post-hoc test makes it more difficult to obtain statistically significant differences between the groups, but on the other hand it protects against the likelihood of a Type 1 error being made, where one rejects a true null hypothesis (Pallant, 2013).

4.4.5 Simple Mediation Analysis

A simple mediation analysis was conducted in order to investigate how the dependent variable Y is influenced by the independent dichotomous variable X through the mediating variable M (Hayes, 2018). Because we wanted to test how the probability of choosing a green product (Y) was affected by different conditions, implicit, explicit and baseline communication of effectiveness (X), through perceived effectiveness (M), a simple mediation analysis was the suitable choice. By conducting such an analysis, we were able to test hypotheses 3a, 3b and 3c.

To perform a simple mediation analysis, we used the PROCESS macro for SPSS by Hayes (2018). Model 4 in the PROCESS macro tests the direct effect, the indirect effect and the total effect of X on Y through M. For us, the most interesting effect to investigate in the mediation analysis was the indirect effect, as we wanted to know if some of the effect on the dependent variable (probability of choosing a green product) by the independent variable (degree of explicitness in communication of effectiveness) can be transmitted through the mediator “perceived effectiveness” (Hayes, 2018). The PROCESS macro carries out confidence intervals using bootstrapping for inference to test whether such an effect exists. When the bootstrap interval does not include zero, it means that the indirect effect is significant (Hayes, 2018).

4.4.6 Moderated Mediation Analysis

To investigate whether the degree of explicitness in communication of effectiveness influencing the probability of choosing a green product through perceived effectiveness is moderated by gender, a moderated mediation analysis was conducted (Hayes, 2018). We wanted to test hypotheses 4a, 4b and 4c by exploring if men and women rate a drain opener with a green product-related attribute differently when exposed to different levels of explicitness in communication of effectiveness for a green product.

By using Model 7 in the PROCESS macro by Hayes (2018) one can perform a moderated mediation analysis and tests the conditional direct and indirect effects of the independent variable on the dependent variable. The test also provides an index of the moderated mediation which tests the moderation of the indirect effect. As with the simple mediation model, the PROCESS macro provides confidence intervals using bootstrapping for inference to test whether the effect is moderated by gender. If the bootstrap interval does not include zero, a moderation on the indirect effect is statistically significant (Hayes, 2018).

4.4.7 Analysis of Control Variables

Correlation analyses were conducted on the control variables such as “Boycott”, “Recycle” and “Importance” and the dependent variable “Probability of choosing a green product” to investigate if there was a linear relationship between the variables, and how strong this relationship potentially was. More specifically, we wanted to test if, and to which degree, the control variables influenced the dependent variable. Further, we were interested in testing if men and women scored differently on the control variables. Findings from Study 1 revealed that there were gender differences in how consumers rate environmentally friendly products and we wanted to investigate those differences further. To compare the mean difference between how men and women rate these variables, we conducted independent sample t-tests.

4.5 Results

4.5.1 Direct Effects

An independent t-test was conducted to answer the following hypothesis:

H_1: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness of the product is communicated than when the effectiveness is not communicated.*

The independent samples t-test compared the probability of choosing a green product when the participants were exposed to communication of effectiveness of the green product and when the green product did not communicate its effectiveness (Appendix H, Table H.1). There was no significant difference in scores for communication (M = 4.17, SD = 1.85) and no communication (M = 4.21, SD = 1.96; t (229) = -.18, p = .86, two-tailed). The magnitude of difference in the means (mean difference = -.005, 95% CI: -0.57 to 0.46) was very small (eta squared = .00014). The results indicate that there is no support for H_1.

Further, a one-way between-subjects ANOVA was conducted to answer the statements postulated in hypothesis 2:

H_{2a}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated implicitly than when the effectiveness is communicated explicitly.*

H_{2b}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated implicitly than when the effectiveness is not communicated.*

H_{2c}: *Consumers are more likely to choose a drain opener with a green product-related attribute when the effectiveness is communicated explicitly than when the effectiveness is not communicated.*

The one-way between-groups analysis of variance was conducted to explore the impact of different degrees of explicitness in communication of effectiveness on probability of choosing a green product (Appendix H, Table H.2). Participants were divided into three groups according to which level of explicitness in communication they received in the field

experiment (Group 1: Explicit, Group 2: Implicit, Group 3: No Communication). There was no statistical significance at the $p < .05$ in choice of product for the three groups: F (2, 228) = .58, p = .56. The effect size, calculated using eta squared, was .005. Post-hoc comparison using Tukey HSD test indicated that the mean score for Group 2 (M = 4.01, SD = 1.96) was not significantly different from either Group 1 (M = 4.33, SD = 1.72) or Group 3 (M = 4.21, SD = 1.98). Group 1 was not significantly different from Group 3. Since there are no significant differences between the groups on probability of choosing a green product, we do not get support for H_{2a}, H_{2b} nor H_{2c}.

4.5.2 Mediating Effects

To answer the following hypotheses, simple mediation analyses were conducted:

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

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

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

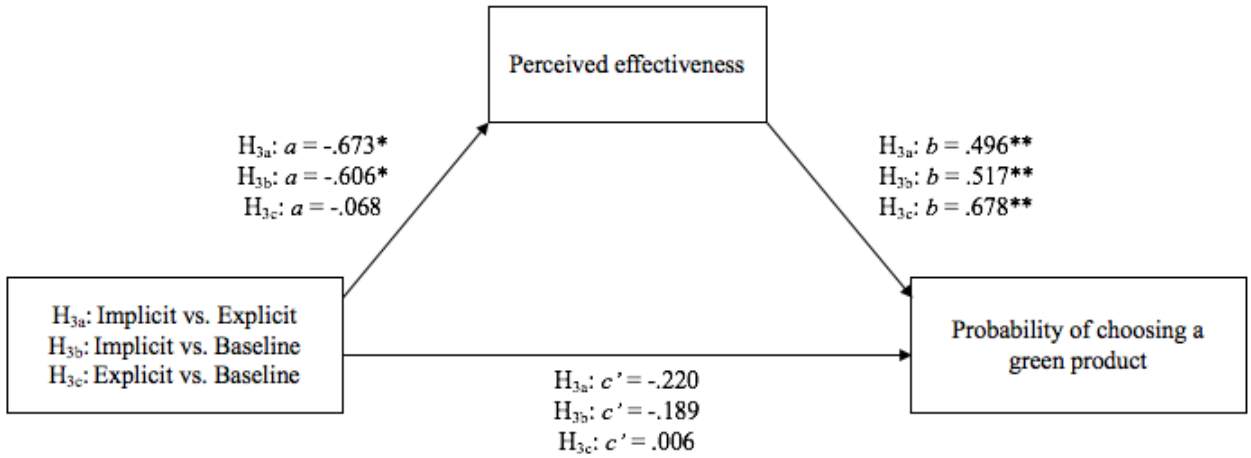
When testing the effect of the conditions "Implicit Communication" vs. "Explicit Communication" on probability of choosing a green product through perceived effectiveness, we only found a significant indirect effect (effect = -.334, 95% BootCI = {-.712, -.056}). There was no support for the direct effect (c' = -.220, p = .432) or the total effect, indicating a complete mediated model (Appendix I, Table I.1). Thus, consumers who were exposed to a drain opener with a green product-related attribute which communicated the effectiveness of the product indirectly, were, on average, 0.334 units lower in their rating of likelihood of buying such a product than those who received the product which communicated the effectiveness explicitly. This partially supports H_{3a} by stating that there is a mediating effect. However, the postulation that implicit communication of effectiveness has a larger impact on probability of choosing a green product than explicit communication, is not supported.

Further, we wanted to test the conditions "Implicit Communication" vs. "Baseline Communication" for the same mediation. Here we also only found a significant indirect effect through perceived effectiveness (effect = -.313, 95% BootCI = {-.669, -.022}), but no support for the direct effect (c' = -.189, p = .525) nor the total effect which indicates a complete mediated model (Appendix I, Table I.1). This means that a green drain opener

where the effectiveness of the product is indirectly communicated, is, on average, rated 0.313 units lower by consumers on the likelihood of choosing such a product than drain opener which does not communicate the effectiveness. Thus, the postulation made in H_{3b} that implicit communication of effectiveness has a larger impact on probability of choosing a green product than no communication of effectiveness is not supported. However, it does support that there is a mediating effect of perceived effectiveness. Therefore, H_{3b} is partially supported.

Lastly, when testing the conditions "Explicit Communication" vs. "Baseline Communication" on probability of choosing a green product through perceived effectiveness, there was no support for either the indirect effect (effect = .046, 95% BootCI = {-.315, 446}), direct effect (*c*' = .006, *p* = .981) nor for the total effect (Appendix I, Table I.1). Thus, there is no support for H_{3c}.

The figure below shows the process behind the mediation. In this model, there are two distinct pathways; the direct effect of degree of explicitness in communication of effectiveness on probability of choosing a green product (*c'*) and the indirect effect of degree of explicitness in communication through perceived effectiveness (*ab*). The results indicate that there is a significant mean difference in perceived effectiveness between implicit communication of effectiveness and explicit communication of effectiveness (*a* = -.673*) and between implicit communication of effectiveness and baseline (*a* = -.606*). For the first result, explicit communication of effectiveness is perceived as having a larger effect on how the perceived effectiveness of a green drain opener is rated by consumers. For the latter, the baseline is perceived as having higher effect on the perceived effectiveness of a green drain opener. However, when testing the difference between explicit communication and the baseline, there was no significant difference in mean in perceived effectiveness (*a* = .068). Path b shows that perceived effectiveness had a significant effect on probability of choosing a green drain opener on a $p < .01$ level both when the effectiveness was communicated and when it was not communicated. Thus, consumers are more likely to rate a green product higher when the perceived effectiveness of the product is higher.



*Significant at the .05 level

**Significant at the .01 level

Figure 3: Detailed Process of the Simple Mediation Model

4.5.3 Moderated Mediation Effect

Lastly, moderated mediation analyses were conducted to answer the following hypotheses:

H_{4a}: *The effect postulated in H_{3a} is moderated by gender.*

H_{4b}: *The effect postulated in H_{3b} is moderated by gender.*

H_{4c}: *The effect postulated in H_{3c} is moderated by gender.*

When testing if gender moderates the conditions "Implicit Communication" vs. "Explicit Communication" on probability of choosing a green product through perceived effectiveness using Model 7 in PROCESS macro for SPSS, there were no significant results supporting a moderated mediation model (Index = -.280, 95% BootCI = {-.846, .271}) (Appendix J, Table J.1). Therefore, hypothesis 4a is not supported. The detailed process behind the moderated mediation (Figure 4) show that neither degree of explicit of communication on perceived effectiveness (a1), gender on perceived effectiveness (a2) or the interaction between communication and gender on perceived effectiveness (a3) were significant. Similar to results from the test of hypothesis 3a, the effect of perceived effectiveness on the probability of choosing a green product (b) was significant (b= .513**), indicating that higher perceived quality leads to higher probability of choosing such a product.

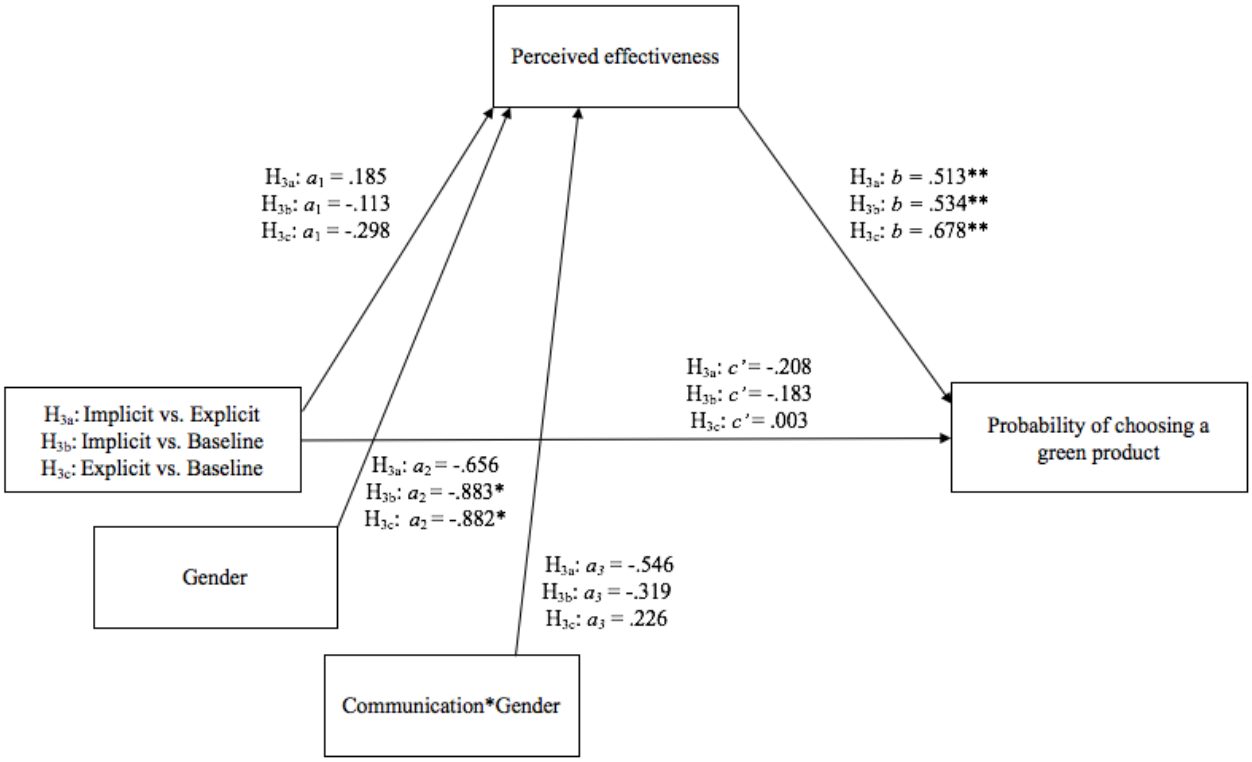
The test showed that the conditional indirect effect was significant for men (effect = -.465, 95% BootCI = {-.974, -.050}) but not for women (effect = -.185, 95% BootCI = {-.622, .156}) (Appendix J, Table J.1). This indicates that the mediation effect, that the probability of choosing a green product depends on perceived effectiveness, has a statistically significant effect for men. These results will be further investigated section 4.6: "Further gender analysis of communication of effectiveness".

To test if gender moderates the condition "Implicit Communication" vs. "Baseline Communication" on probability of choosing a green product through perceived effectiveness, we again performed a moderated mediation analysis using the PROCESS macro for SPSS. As for hypothesis 4a, we did not find support for the moderated mediation model (Index = -.171, 95% BootCI = {-.783, .443}) (Appendix J, Table J.1). Thus, hypothesis 4b is not supported. When going into the details of the moderated mediation (Figure 4), neither the degree of explicitness in communication on perceived effectiveness (a1) or the interaction between communication and gender on perceived effectiveness (a3) show significant results. However, the path gender on perceived effectiveness is significant (a2 = -.882*), indicating that men and women perceive the effectiveness of a green product differently. In line with previous results, the effect of perceived effectiveness on the probability of choosing a green product is significant (b = .534**). Thus, when the perceived effectiveness of a product with a green attribute is high, consumers are more likely to choose such a product.

In contrast to the results from hypothesis 4a, the condition "Implicit Communication" vs. "Baseline Communication" shows no significant results for the conditional indirect effect for gender in the model.

A moderated mediation analysis using the PROCESS macro for SPSS was also conducted when testing if gender moderated the condition "Explicit Communication" vs. "Baseline Communication" on probability of choosing a green product through perceived effectiveness. Again, there was no support for the moderated mediation model (Index = .154, 95% BootCI = {-.605, .909}) (Appendix J, Table J.1). Therefore, there is no support for hypothesis 4c. A more detailed presentation of the moderated mediation (Figure 4) does not show any significant results for degree of explicitness in communication on perceived effectiveness (a1) or for the interaction between communication and gender on perceived effectiveness (a3). Path a2, on the other hand, which is the path gender on perceived

effectiveness, is significant (a2 = -.882*). This is the same result attained for 4b, indicating that men and women perceive the effectiveness of a product with a green attribute differently. Further, the effect of perceived effectiveness on the probability of choosing a green product is again significant (b = .678**). Thus, the likelihood of choosing a product with a green attribute is higher when the perceived effectiveness of such a product is higher. However, the conditional indirect effect for gender is not statistically significant for these conditions.



*Significant at the .05 level

**Significant at the .01 level

Figure 4: Detailed Process for the Moderated Mediation Model

4.5.4 Control Variables

Control variables can influence the response on the dependent variable. In this section we perform correlation analyses to describe the strength and direction of the linear relationship between the probability of choosing a green drain opener and the different control variables from our study. Our study uses Likert scales which is an ordinal measure, therefore our data does not meet the criteria for the Pearson product-moment correlation procedure. Instead, we conduct a Spearman rho correlation (Pallant, 2013). The correlation value can only take

values from -1 to +1, meaning that a perfect correlation of |1| indicates that the dependent variable can be exactly determined by knowing the value of one the control variables (Pallant, 2013).

Table 6: Spearman rho Correlation Between Probability of Choosing a Green Product and Control Variables

	Dependent variable
Control variable	*Probability of choosing*
Quality	-.16*
Importance	.322*
Recycle	.060
Sacrifice	.243**
Guilt	.304**
Boycott	.215**
Preference price	.142*
Preference effectiveness	-.04
Preference recommendation	.151*
Preference environmental friendly	.391**
Preference damage on pipes	.227**

The results from the correlation analyses show that there is a small negative correlation between the quality and the probability of choosing a green product, $r = -.26$, $n = 229$, $p < .05$. This indicates that lower perceived quality of green products is associated with lower probability of choosing such a product. There are medium positive correlations between the dependent variable and the control variables "Importance", $r = .322$, $n = 227$, $p < .001$, and "Guilt", $r = .304$, $n = 229$, $p < .001$. Such findings indicate that a consumer who believes that it is important to choose green products, or feels guilty for not choosing such products, are more likely to choose a product with a green attribute. Further, the results show that there are small positive correlations between the dependent variable and the control variables "Sacrifice", $r = .243$, $n = 228$, $p < .001$ and "Boycott", $r = .215$, $n = 229$, $p < .001$. This means that consumers who are willing to sacrifice quality of a product for environmental friendliness or boycott products harmful to the environment, are more likely to choose a drain opener with a green product-related attribute. Finally, when the consumers rate what they value to be important when choosing a drain opener, price ($r = .142$, $n = 222$, $p < 0.05$), recommendation from others ($r = .151$, $n = 220$, $p < 0.05$), environmental friendliness ($r =$

.391, $n = 222$, $p < 0.01$) and damage on pipes ($r = .227$, $n = 227$, $p < 0.01$) have a small to medium positive correlation with the dependent variable.

To further test the control variables for our study, independent samples t-tests were conducted to compare the difference in how men and women scored on the control variables. The results revealed significant differences in scores between men and women when rating their recycling habits, if they feel guilty about not choosing environmentally friendly products and how important environmental friendliness is when choosing a drain opener. As the mean difference from the table below shows, women score higher than men on the control variables in the significant findings.

Table 7: T-Test Results Comparing Gender on Control Variables

	Gender						
	Female			Male			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Quality	142	3.31	1.647	90	3.62	1.809	-.31
Importance	140	4.69	1.631	92	4.52	1.586	.17
Recycle	141	5.7	1.629	91	5.1	1.640	**.60**
Sacrifice	141	3.89	1.703	92	3.63	1.727	.26
Guilt	143	3.77	1.887	91	3.18	1.774	**.59**
Boycott	143	4.41	1.955	91	4.26	1.902	.15
Preference price	137	4.33	1.937	89	3.88	1.827	.45
Preference effectivenes	137	6.11	1.109	92	6.15	1.079	-.04
Preference recommendation	134	5.13	1.526	89	4.94	1.780	.19
Preference environmental friendly	136	5.12	1.486	89	4.42	1.795	**.70**
Preference damage on pipes	139	6.15	1.209	90	5.92	1.256	.23

Note: The mean differences in bold are significant at the .05 level

4.6 Further Gender Analysis of Communication of Effectiveness

The results from hypothesis 4a showed that there was a significant result for men on the conditional indirect effect. To investigate this further, we ran a simple mediation model using model 4 in PROCESS on the same variables, only now we separated the sample by gender. First, we conducted the analysis only including the male participants from the data sample, and then once more only including the female participants. The results showed that the effect of the condition “Implicit Communication” vs. “Explicit Communication” on probability of choosing a green product through perceived effectiveness was significant for

men (effect = -.771, 95% BootCI = {-1.621, -.078}), but not for women (effect = -.126, 95% BootCI = {-.497, .103}) (Appendix K, Table K.1). These findings could suggest that gender had a different moderating effect than what we initially postulated in hypotheses 4a, b and c. Thus, we continued our analyses by conducting a new moderated mediation analysis using model 14 in PROCESS. As the figure below shows, this model is similar to model 7 which was used to test hypothesis 4a, 4b and 4c, except that gender now moderates the relationship between perceived effectiveness and probability of choosing a green product. The results for the moderated mediation analysis was statistically significant (Index = -.278, 95% BootCI = {-.612, -.019}) (Appendix K, Table K.2). This supports previous findings of gender differences in the effect of perceived effectiveness of green products on the probability of choosing the product. When looking closer at the gender differences from the analysis, we see that this effect is stronger for men (effect = .798, 95% BootCI = {.500, 1.096}) than for women (effect = .358, 95% BootCI = {.151, .564}) and these findings are significant. This means that the perceived effectiveness of a drain opener with a green attribute is more important for men compared to women when evaluating the probability of choosing a green product.

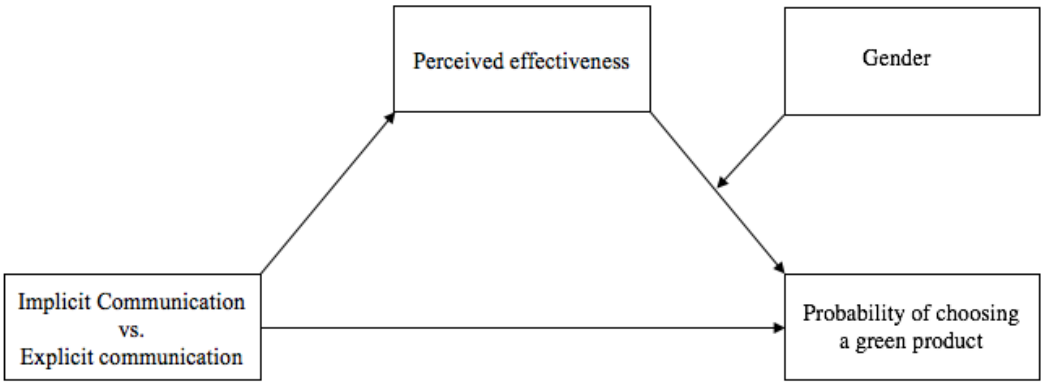


Figure 5: Second Model for Moderated Mediation

4.7 Additional Findings

The field experiment resulted in a large amount of interesting data. Not all of the measures are included in our research model and hypotheses. In this section, we want to investigate the dataset further on areas related to green consumption which we found interesting during the analysis process.

4.7.1 Choice of Real Product

In the artificial field experiment, we asked the participants to choose between two hand soaps, where one was environmentally friendly while the other one was not. The reason for including this question was that we wanted to test if there was a connection between how a participant rated a product with a green attribute and which hand soap they chose. However, when we ran descriptive statistics on the variable "choice of product", we discovered that 86.4% of the participants chose the environmentally friendly soap from Klar, while only 13.6% chose the other soap, Sunlight (Appendix L, Table L.1). Further, when looking at the frequencies for the dependent variable, only 24.9% of the participants answered that they were very likely (6 and 7 on the Likert scale) to choose a green product. With such unevenly divided results, we concluded that we would not investigate these results further. There can be several reasons for why so many participants chose the environmentally friendly soap even though they answered that they were not very likely to choose a green product in a purchase situation. First of all, Klar is a fairly new brand on the Norwegian market, perhaps making the participants curious to try a product from this brand when given the opportunity. Additionally, trying a new product can involve some risk for a consumer if it does not live up the consumer's expectations. However, when the participants were able to choose the product for free, this risk disappeared. Secondly, green products are often perceived to be more expensive than non-green products (Gleim et al., 2013). Therefore, some consumers might choose the green product to maximise their consumer surplus, by getting more value for free. However, interesting with this specific case is that the non-green alternative is actually more expensive than the green alternative. This was unknown and surprising to many of the respondents, making it difficult to say if the perceived higher price made an impact on choice of product.

4.7.2 Consumer Impact on the Environment

In the survey, the participants were asked to rate the following measures: "When I buy environmentally friendly products, I contribute by reducing the negative effects on the environment" and "The environmental issues are too extensive for me to have an impact on the situation by buying environmentally friendly products". We named the variables "Impact" and "Powerless", respectively. Findings from Gleim et al. (2013) suggest that if consumers believe that their purchase decisions do not have an impact on the environment, the barrier to adopt green products is higher. Thus, we wanted to test if that was the case for our sample as well. To test if there was a relationship between the variables and the likelihood of choosing a green product, a Spearman rho correlation analysis was conducted.

The results show that there is a small positive correlation between "Impact" and the probability of choosing a green product, $r = 0.26$, $n = 231$, $p < .01$, indicating that when a consumer believe that their purchase decision can positively impact the environment, they are more likely to buy a green product. However, there is no significant correlation between the feeling of powerlessness in terms of environmental issues and the probability of choosing a green product.

Table 8: Spearman rho Correlation Between Probability of Choosing a Green Product and Impact and Powerless

	Dependent variable
Control variable	*Probability of choosing*
Impact	.260**
Powerless	-.031

**Significant at the .01 level

Further, independent sample t-tests were conducted on "Impact" and "Powerless" to investigate whether the perceived impact a consumer can have on the environment is different for men and women. Throughout our analyses we operate with a significance level of 0.05. However, the results from the t-test showed that there was a significant difference in scores for women ($M = 5.33$, $SD = 1.47$) and men ($M = 4.92$, $SD = 1.69$; t (232), p = 0.054, two-tailed) on the measure of "Impact" at the .10 level. Even though the result is only significant at a less strict level, we choose to report it as it supports previous findings from

Study 1 about men being less willing to buy green products. The result suggests that men are more pessimistic about how a single consumer can positively impact the environment which can lead to lower probability of choosing a green product. However, there were no significant difference in scores for women (*M* = 3.14, *SD* = 1.86) and men (*M* = 2.98, *SD* = 1.73) on the measure of "Powerless".

Table 9: T-test Results Comparing Gender on Impact and Powerless

	Gender						
	Female			Male			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Impact	143	5.33	1.47	91	4.92	1.69	**.41**
Powerless	142	3.14	1.86	91	2.98	1.73	.16

Note: The mean difference in bold is significant at the 0.10 level

4.7.3 Comparison of Green and Non-Green Product Alternatives

In our model, we looked at how communication of effectiveness had an impact on the perceived effectiveness of a green product. However, in a real-life purchasing situation a consumer will have a range of non-green alternatives they can choose instead of the green product. Therefore, it is interesting to see how the communication of effectiveness works if we compare the green product to the non-green product.

Before conducting further tests, we created two new variables, one measuring the difference in perceived effectiveness for the green and the non-green alternative and the other measuring the difference in probability of choosing the product for the green and the non-green product. Next, we conducted a one-way between measures ANOVA, a simple mediation analysis and a moderated mediation analysis, similar to the tests in $H_{2a,b,c}$, $H_{3a,b,c}$ and $H_{4a,b,c}$. However, we only discovered differences from the results found when testing our hypotheses when performing the simple mediation analyses using the PROCESS macro with the new variables. The results from this test will be presented below.

When testing the condition "Implicit Communication" vs. "Explicit Communication" on the difference in probability of choosing a product through difference in perceived effectiveness (Appendix L, Table L.2), there was a significant total effect (effect = -1.118, 95% BootCI =

{-2.159, -.076}). There was no support for the direct effect (*c'* = -.242, *p* = 0,593). On the other hand, there was a significant indirect effect (effect = -.877, 95% BootCI = {-1.507, -.287}). Path a, expressing the relationship between the condition "Explicit Communication" vs. "Implicit Communication" and the difference in perceived effectiveness was significant (*a* = -1.063**) (Appendix L, Figure L.3). This means that the communication condition had an impact on the perceived effectiveness difference variable. When exposed to explicit communication, the participants rated the effectiveness of the green and the non-green product more similarly than when exposed to implicit communication. The perceived effectiveness had a mediating effect on the difference in probability of choosing a green and non-green product. This implies that participants who were exposed to the explicit communication would rate the probability of choosing a green and non-green product more closely than when exposed to implicit communication.

We also tested the condition "Implicit Communication" vs. "Baseline Communication" in the mediation model using the new difference variables. The results from the test were similar to the test of H_{3b}, with a significant indirect effect through difference in perceived effectiveness (effect = -.457, 95% BootCI = {-.992, -.014}) (Appendix L, Table L.2). When looking more detailed at the different paths (Appendix L, Figure L.4), only path b is significant (*b* = .582**), suggesting an effect of perceived effectiveness on probability of choosing a product. From the results, we see that the difference in rating of the green product and the non-green product decreases when the participants are exposed to the baseline communication than when the consumers are exposed to implicit communication. Put differently, the green product is seen as more equal to non-green product when the effectiveness is communicated at a baseline level than when the effectiveness is communicated at an implicit level.

Lastly, we ran a simple mediation analysis on the condition "Explicit Communication" vs. "Baseline Communication" on the difference in probability of choosing a green product through difference in perceived effectiveness, similar to the test conducted in H_{3c}. The total effect of the model was significant (effect = -1.052, 95% BootCI = {.076, 2.025}), as well as the direct effect (effect = .851, 95% BootCI = {.023, 1.679}) (Appendix L, Table L.2). The detailed process behind the model, as visualised in Appendix L, Figure L.5, also reveals that path b is statistically significant (*b* = .721**). This means that exposure to a product communicating its effectiveness explicitly has a direct effect on the difference of choosing a green and a non-green product. Further, when the participants were exposed to a drain

opener with explicit communication, they would rate the probability of choosing a green product and the probability of choosing a non-green product more similarly than when they were exposed to the baseline communication.

4.8 Limitations of Study 2

The following section will discuss potential limitations in our second study regarding validity and reliability. We will focus on internal and external validity related to the artificial field experiment, the questionnaire used and the sample size.

To ensure measurement validity, we used the already established measures and scales (Newman et al., 2014 and Luchs et al., 2010 in Bjorvatn & Bjarnadottir, 2018) for the constructs of interest in the design of the questionnaire. This also supports the construct validity, meaning if the chosen measures actually measure the construct they were intended to measure (Saunders et al., 2016). In addition, the constructs were chosen based on the theoretical framework of previous research to ensure the questionnaire included constructs relevant to the purpose of the study.

For internal validity to be maintained, one need to ensure that there are no confounding variables which explain the relationship between X and Y. In Study 2, we have controlled for this by including a set of control variables in the analysis. Though controlling for the impact of control variables, there might be other variables influencing the relationship which can weaken the internal validity. Further, in the moderated mediation analysis, gender was used as the moderator. The sample used consisted of 40% men and 60% women, indicating that the gender distribution was not optimal. We tried to even out the gender distribution in the data collection, but experienced some difficulties recruiting the same amount of men and women as women were more interested in participating in the experiment.

To be able to secure for external validity, one must ask whether the findings in the study's research can be generalised to other relevant groups or settings (Saunders et al., 2016). Or in other words, ensuring that our sample is as similar to the population as possible. We can argue that the groups which were exposed to the different degrees of explicitness in communication are statistically similar due to randomisation and the fairly large sample size (n = 245), strengthening the external validity.

To increase the internal reliability and ensure consistency during the second study, we made sure to that both of us were part of the data collection. We were also two researchers in the data preparation and analysis process.

An aspect which can lead to lower external reliability is the artificial context of field experiment. The experiment was conducted at a busy shopping centre. The participants had to answer the survey in a relatively crowded environment with quite high noise level. This can have had an impact on the participants' concentration affecting their responses. Another aspect which can have had an impact on the participants' responses is the possibility that the manipulated messages on the drain openers was not clear to the participants. This could potentially mean that the treatment was not strong enough to generate differences between the products.

4.9 Summary and Discussion of Results

Table 10: Overview of Hypotheses and Results from Study 2

Hypothesis	Result
H1: Consumers are more likely to choose a drain opener with green product-related attributes when the effectiveness of the product is communicated than when it is not communicated	Not supported
H2a: Consumers are more likely to choose a drain opener with green product-related attributes when the effectiveness is communicated implicitly than when the effectiveness is communicated explicitly	Not supported
H2b: Consumers are more likely to choose a drain opener with green product-related attributes when the effectiveness is communicated implicitly than when the effectiveness is not communicated	Not supported
H2c: Consumers are more likely to choose a drain opener with green product-related attributes when the effectiveness is communicated explicitly than when the effectiveness is not communicated	Not supported
H3a: The effect postulated in H2a is mediated by perceived effectiveness	Partially supported
H3b: The effect postulated in H2b is mediated by perceived effectiveness	Partially supported
H3c: The effect postulated in H2c is mediated by perceived effectiveness	Not supported
H4a: The effect postulated in H3a is moderated by gender	Not supported
H4b: The effect postulated in H3b is moderated by gender	Not supported
H4c: The effect postulated in H3c is moderated by gender	Not supported

4.9.1 Direct Effects

The results from the analysis showed that communication of effectiveness did not impact the likelihood of choosing a green drain opener. We did not find a significant difference between the degrees of explicitness in communication of effectiveness on the dependent variable either. In Study 1, we discovered that one of the barriers for consumers to adopt products with green attributes, was that such products are often perceived as being less effective. Thus, not finding any significant results when the effectiveness of the green products was communicated, came as a surprise to us. The lack of significant results, while knowing that effectiveness of a drain opener is important when consumers are buying this product, suggests that there might be a better way of convincing consumers that a green product can be just as effective as a non-green product. It is also possible that the design in

communicating effectiveness could not outperform that the product was made of 100 % natural ingredients, not leading to an increased likelihood of choosing the product with the green attribute.

The lack of significant results leads to no support for H_1, H_{2a}, H_{2b} or H_{2c}.

4.9.2 Mediating Effects

When testing the different degrees of explicitness in communication by conducting simple mediation analyses, no total effects were discovered. Further, the analyses also revealed that there were no direct effects of degree of explicitness in communication on probability of choosing a green product. However, we did find significant indirect effects for the conditions "Implicit Communication" vs. "Explicit Communication" and "Implicit Communication" vs. "Baseline Communication" on probability of choosing a green product through perceived effectiveness. Since the results only show a significant indirect effect, this indicates that we have a complete mediated model, which lends partial support for H_{3a} and H_{3b}. When analysing the condition "Explicit Communication" vs. "Baseline" on probability of choosing a green product through perceived effectiveness no significant results were found, indicating no support for H_{3c}.

The detailed process behind the mediation analyses indicates that perceived effectiveness of a green product is higher when the effectiveness is communicated explicitly rather than implicitly. Further, when consumers are exposed to the green drain opener which communicate effectiveness implicitly and the green baseline, the consumers rate the baseline as being more effective. These findings are opposite to what was postulated in the hypotheses. An explanation for this can be that the manipulation for implicit communication (the flexing arm) was either misinterpreted by the participants or that they did not trust this kind of message which thus lead to lower perceived effectiveness. The results from the analyses revealed further that perceived effectiveness has significant positive effect on probability of choosing a green drain opener supporting previous findings that consumers will choose a green product when they perceive the effectiveness of such a product to be high. However, the mediation analyses show that the degree of explicitness in communication only has an indirect effect on the dependent variable, indicating that there is only partial support for H_{3a} and H_{3b} and no support for H_{3c}.

4.9.3 Moderating Mediation Effects

When testing if gender moderated the different conditions on probability of choosing a green product through perceived effectiveness, no significant results were revealed, giving no support for H_{4a}, H_{4b} or H_{4c}. This was expected as we had already established that the degree of explicitness in communication of effectiveness has no significant impact on the dependent variable.

However, the conditional indirect effect was significant for men when we ran the test on "Implicit Communication" vs. "Explicit Communication" indicating that the total mediating effect (which was not supported in H_{3a}) was significant for men. Even though this does not support H_{4a} it was still an interesting finding which we investigated later in thesis.

The detailed process behind the moderated mediation showed that the relationship between perceived effectiveness and probability of choosing a green product was positive for all the conditions. This indicates, as predicted in Study 1, that how a consumer perceives the effectiveness of a product with green attributes directly impacts the likelihood of choosing such a product. The lack of significant results leads us to think that there is some other factor than communication of effectiveness which affects a consumer's perceived effectiveness of a green product.

4.9.4 Control Variables

The results from the correlation analysis showed that several of the control variables from the study correlated with the probability of choosing a green product to either a small or medium degree. However, the control variables are all indirect measures of how consumers view themselves in terms of environmental friendliness, thus, it is not surprising that a consumer that scores high on this personality trait is more likely to buy a green product. What this means in practice is that if we know how high a person scores on for example "guilt" we can to some extent predict whether that person will score high or low on the dependent variable probability of choosing a green product.

When testing whether men and women score differently on the control variables, we discovered that women score significantly higher than men on the measures "I recycle whenever I have the option", "I feel guilty if I choose the least environmentally friendly product" and "Environmental friendliness is an important factor when I choose a drain

opener". For women to score higher on these personality traits was not an unexpected finding, and it was in line with the results from the ANCOVAs conducted in Study 1.

4.9.5 Further Gender Analyses

As described in section 4.6, H_{4a} was not supported, but an interesting finding was discovered. When a significant effect for men was revealed from the mediation analysis on selected cases for the conditions "Implicit Communication" vs. "Explicit Communication", we therefore conducted a moderated mediation again. However, this time, gender was moderating the effect of perceived effectiveness on the probability of choosing a green product. The results from the moderated mediation was statistically significant, meaning that there is a difference between how men and women perceive the effectiveness of a green product which again impacts the likelihood of choosing such a product. Further, we discovered that the effect was stronger for men than women. Thus, when evaluating whether to buy a drain opener with a green attribute, it is more important for men that the perceived effectiveness of that product is high. This supports the findings from Study 1, that men are more hesitant about choosing products with green attributes than women are.

4.9.6 Additional Findings

Consumer Impact on the Environment

When testing the relationship between perceived consumer impact on the environment and probability of choosing a green product, we discovered a positive correlation between one of two measures and the dependent variable. The finding states that when consumers believe that they can positively impact the environment through their purchase decision, they are more likely to choose a green product. This supports the research made by Gleim et al. (2013) and suggests that if consumers can get a better impression of how one person's actions can make a positive difference for the environment, the barriers to adopt environmentally friendly products are reduced.

The results from the independent sample t-tests revealed that, at the .10 level, there is a significant difference between men and women in their beliefs about consumer impact on the environment. Women rate the claim "When I buy environmentally friendly products, I contribute by reducing the negative effects on the environment" significantly higher than men. Even though men rate the measurement relatively high (M = 4.92), the results suggest that women are more positive about buying environmentally friendly products than men are.

This also supports the findings from Study 1. When rating the claim "The environmental issues are too extensive for me to have an impact on the situation by buying environmentally friendly products", no statistical difference in scores between women and men were detected. It was rated relatively low by both women (M = 3.14) and men (M = 2.98). In total, the findings suggest that neither men nor women are very sceptical about consumers' impact on the environment, but that women are more optimistic, and that this can result in higher probability of choosing green products.

Comparison of Green and Non-Green Products

When comparing the green product with the non-green alternative, we found that communication has different impact on the probability of choosing a product than when we ran the tests only for the green alternative. The indirect effects were stronger when we looked at the difference between green and non-green alternatives compared to the test of the green alternative independently. We also experienced a direct effect when the consumers where exposed to the explicit communication compared to the baseline, that was not present in the test of the green alternative. This could suggest that communication has a stronger effect when the green product is compared to the non-green product. In the more detailed analysis of the process behind the simple mediation model, it is only in the test of explicit vs implicit communication we found a significant relation between communication and difference in perceived effectiveness. This could mean that consumers are more receptive to explicit communication than implicit communication of effectiveness when comparing a green product to a non-green product.

However, the overall findings from the tests conducted on the difference measures suggests that communicating the effectiveness of a green product balances out the difference between a green and a non-green product in a situation where consumers evaluate the products simultaneously. Further, the results showed that explicit communication was the most effective degree of communication since both the difference in perceived effectiveness between a green and a non-green product and difference in probability of choosing a green or a non-green product decreased more compared to the other types of communication.

5. General Discussion and Conclusion

The purpose of this master thesis was to investigate the gender differences in green consumption and potential ways of addressing these differences to reduce the impact they might have on preference of green products. Our study was two-fold with one study looking closer at gender differences in existing data, where the other study built on the results of the first study and investigated how to potentially mitigate the differences found.

5.1 Discussion of Findings

5.1.1 Gender Differences in Green Consumption

In the first part of this master thesis, we investigated gender differences in green consumption in the data collected in previous studies by Bjorvatn & Bjarnadottir (2018) and Handeland & Skogholt (2018). As their studies involved different product categories and green product attributes with different product centrality, the research question for the exploratory study was the following:

RQ1: *Are there gender differences in perceived environmental friendliness, effectiveness and choice of products in the evaluation of...*

... products with different centrality of the green product attribute?

... products in both strong and gentle product category?

Based on analyses of the data from three selected studies, we found that there are gender differences in the perceived environmental friendliness, effectiveness and choice of products in both product categories. The main gender difference was in the evaluation of the body lotion with the green product-related attribute.

In the gentle product category, the product with the green product-related attribute was seen as more environmentally friendly by women than men. The same product attribute was considered more effective by women than men, especially compared to the non-green baseline. Women were also more likely than men to choose the product with the green product-related attribute. The main gender differences were connected to the green product-related attribute.

For the drain opener, representing the strong product category, the results were similar. Women perceived both the green product-related attribute and the green non-product-related attribute as more environmentally friendly than men. Regarding performance and effectiveness, women perceived the products with the green attributes, both product-related and non-product-related, as more effective compared to men. We also found that women were more likely than men to choose a product with green attributes.

In the evaluation of the different centralities, women in general rated both the green product-related attribute and the green non-product-related attribute as more environmentally friendly and effective than the non-green baseline. Women also had a higher preference for the green product than the non-green baseline. When looking closer at the green attributes, women often rate the product with the green product-related attribute higher than the green non-product-related alternative compared to men. This would suggest that having a product-related green attribute is considered to have a stronger element of greenness than the non-product-related green attribute.

The findings in this study are consistent with existing research presented in the theoretical framework on gender differences in green consumption, which argue that women are more positive towards green consumer behaviour than men. In the analysis of control variables, we found that women are more likely to recycle and that it is more important to them that the products they buy are environmentally friendly. They also feel more guilt when not buying environmentally friendly products and feel better than men when they sacrifice quality for a more environmentally friendly choice. Previous research has to a large extent looked at the underlying personal characteristics that create a gender difference in green consumer behaviour, where this study rather investigates how this gender difference is expressed in perceptions of green products.

5.1.2 Communication of Effectiveness

RQ2: *Are there gender differences in the responsiveness to different degrees of explicitness in the communication of effectiveness for environmentally friendly products?*

In our study of the responsiveness to communication of effectiveness, there were no significant gender differences. There was still an effect of perceived effectiveness on the probability of choosing a green product. However, this effect was not influenced by the effectiveness treatments in the experiment.

We will therefore discuss three elements that might have had an impact on the responsiveness to communication of effectiveness. The first suggestion is that the message communicating effectiveness was not registered by the respondents. Effectiveness is a common message in product communication for drain openers, therefore, it is possible that consumers take the message for granted. Consumers might have perceived the environmentally friendly attribute as the main difference between the two products they evaluated, resulting in lower attention to the communication message. The other element that potentially can explain the results is the perception of trade-off between green product attributes and quality. Previous studies (Bjorvatn & Bjarnadottir, 2018) have shown that consumers evaluate green products to have lower quality than the non-green alternative. This effect could be so strong that even with communication of effectiveness, green products are perceived to have a lower quality than non-green products. A barrier towards green consumption presented in the theoretical framework is trust and trust could be another element explaining the results. The claims of effectiveness in the experiment does not have any independent source and is a claim made by the producer of the products. It is in the benefit of the company that the product is perceived as effective. Therefore, consumers might believe that the effectiveness is overrated and not believe the claim made by the company. If consumers do not find the effectiveness claim trustworthy, they will exclude it from the evaluation of the product.

Through our analysis we did discover that there was an alternative model explaining the gender differences on choice of product. The model suggested that there was a moderation by gender on the effect of perceived effectiveness on choice of product. When evaluating the probability of buying a green product, perceived effectiveness was more important to men than women. As this evaluation of perceived effectiveness have an impact on their probability to buy a product, it is necessary to take this finding into consideration in the development of marketing for green products to increase the engagement of men.

5.2 Theoretical Implications

This master thesis contributes both to give support to existing research and adds new knowledge to barriers towards green consumption, with a special focus on gender differences.

The findings from our research is in line with previous research on how men and women consume green products differently. We found that there are gender differences in the evaluation of green products on perceived effectiveness, perceived environmental friendliness and probability of choosing a green product. By this result, our research brings new knowledge to the field, as we have investigated how the perceptions differ for men and women. Research in the literature framework emphasised that personal characteristics differ between men and women, and our research has contributed with the knowledge of these differences expressed in the perception of green products.

The results also support the identified perceived quality barrier, as our investigation of the mediation shows that higher perceived effectiveness increases the probability of choosing a product with a green attribute. However, there has been a request for further research on how to communicate green products to address the barrier of perceived lower quality of green products (Gleim et al., 2013). Our results show that both explicit and implicit product communication by the company has little effect on perceived effectiveness and therefore give important insight to the field on how to create messages in green product communication.

5.3 Managerial Implications

Addressed in the introduction of this master thesis, an important challenge for the producers of green products is the attitude-behaviour gap. Consumers are aware of the environmental challenges the global community is facing, but they are not adapting their consumer behaviour and do not use their purchasing power to help solve this challenge. Therefore, companies investing in developing environmentally friendly products are not rewarded for their efforts. The slow turn-over to green consumption creates frustration for managers wanting to use their products to solve the needs of their consumers while protecting the planet.

With the aim of reducing the behavioural gap in green consumerism, many researchers have looked at the barriers towards green consumption. Our study adds to the previous research connected to the perceived quality barrier and the results from our study show that perceived quality, and in our case effectiveness, impacts the likelihood of buying a product with green products. Therefore, it is necessary for managers to create marketing strategies with the aim of mitigating the perceived trade-off between effectiveness and environmental friendliness.

In our study, we found that communication of effectiveness on the packaging of the product had little effect on the perceived effectiveness of the product and thereby the likelihood of choosing the green product. However, if managers choose to communicate effectiveness it is more impactful to communicate it explicitly rather than implicitly. When developing marketing strategies for communication, managers need to follow a different path to increase the perceived effectiveness. As the level of trustworthiness of the message can be one of the reasons why it does not have an impact, managers should look for ways to document the effectiveness by external, independent parties or ways to demonstrate the effectiveness for the consumers. It can be a risky decision for the consumers to change from a known, effective non-green product to an unknown green product. By either documenting or demonstrating the effectiveness, the companies can reduce the switching cost for the consumers.

In addition to focus on effectiveness in the marketing strategies, managers need to be aware of the gender differences in the evaluation of green products. Women are in general more positive to green products. In order to target a male consumer segment, managers need to adapt their communication to better match male preferences. Therefore, it is important for managers developing marketing strategies to involve male consumers in their focus groups and test groups, to ensure the success of the strategies.

Further Research

The field of research on barriers to adopt environmentally friendly products is already well established. However, our research also reveals that there are differences between men and women's perception of environmentally friendly products and the products' perceived effectiveness can be a decisive factor, particularly for men, when consumers evaluate products. Further, we discovered that men are more sceptical about the perceived effectiveness of green products and are thus less likely to choose such a product. Therefore, a suggestion for further research is a to go more in-depth on the gender differences in perception of green products and focus on potential strategies to increase perceived effectiveness for men, especially.

Our research investigated communication strategies for increasing perceived effectiveness with focus on use of explicit and implicit messages. Although the data from the field experiment did not show significant results on the probability of choosing a green product when the participants were exposed to different degrees of explicitness in communication of effectiveness, we propose a development of our study. The lack of significant results from our study could suggest that the design of the effectiveness message was not enough to outweigh the green attribute. Thus, a change in the design of the manipulation can be valuable. By partnering with an independent source who can give a trustworthy message of effectiveness, one can test how this would impact the perceived effectiveness of the green product.

In our study, we included questions about how the participants link environmental issues to their consumer behaviour and discovered that men are more pessimistic about how consumers can impact the environment in a positive way. Hence, it could be interesting for future research to investigate this link further and increase consumer's understanding about their impact on the environment. By doing this, the willingness to buy environmentally friendly products can possibly increase. Further analyses of the control variables also revealed that women score significantly higher than men on measures such as "Guilt". A suggestion of new avenues of research could be to investigate this attitude in connection to green consumerism and find ways to use it as an advantage in green marketing.

We decided not to connect price to choice of product. However, this could be an interesting path for further research. Consumers are under the impression that green products are more

expensive than non-green products (Gleim et al., 2013). Therefore, including price and observing consumers in a real shopping situation where they have the option to buy a green and non-green product can give interesting results.

Lastly, during the field experiment, we experienced that some participants were not familiar with the use of drain openers since this is a product rarely bought and used by a consumer. Further, a drain opener is not a product that should be in contact with skin, perhaps increasing the distance to the product. We therefore suggest that future research on barriers to adopt environmentally friendly products use products which consumers are more familiar with and which are used every day such as soap, shampoo or tooth paste in the study.

5.4 Conclusion

With his speech at the World Economic Forum in 1999, Kofi Annan planted the seed of the modern sustainability movement. In later years, we have seen that this seed has grown, and it is starting to blossom. Companies are taking more responsibility for their impact on the environment and society and take advantage of the market opportunity which the sustainability movement presents. To drive the future growth of the sustainability movement it is important for companies to understand their customers and find innovative ways of reducing the barriers to adopting green products. The purpose of this study was to be a fertiliser for the growth of green consumption by exploring whether men and women experience these barriers differently and if communicating the effectiveness of green products could break down the barrier related to the trade-off between effectiveness and greenness.

In Study 1, we analysed secondary data to explore if there were gender differences in perceived environmental friendliness, effectiveness and choice of products with different centralities of green attributes for a strong and gentle product category. The results showed that there was a clear gender difference in perception of both product categories. The main difference is in the evaluation of a product with a green product-related attribute compared to the non-green baseline, where women are more positive than men to green products. Further, we discovered that the perceived effectiveness of a product with a green attribute is higher for women than men. This finding led us to the design of Study 2.

The purpose of Study 2 was to investigate the effect of degree of explicitness in communication of effectiveness on the probability of choosing a green product. The results revealed that communicating the effectiveness of a drain opener with a green attribute did not influence the perceived effectiveness of the product nor the probability of choosing a green product. We could not find that the degree of explicitness in communication had a different effect on women than men either. This finding can indicate that there is some other underlying factor which determines how consumers perceive the effectiveness of a product and that communicating this attribute is not enough to weigh up for the predetermined perception of a green product.

In conclusion, the results show that men and women have different perceptions about green products, that women are more positive to environmentally friendly products and that one of the prominent barriers behind the adoption of green products, especially for men, is lower perceived effectiveness. This thesis has disproved that communicating the effectiveness of a green product impacts the probability of choosing such a product. Even though our postulations proved wrong, it is clear that a different communication strategy for products with green attributes is needed to break down the barrier between effectiveness and greenness. For marketers to implement this successfully, they need to understand their consumers and this thesis has provided them with better insight on this topic.

6. References

Ahearne, M., Gruen, T., & Saxton, M. (2000). When the Product Is Complex, Does the Advertisement's Conclusion Matter? *Journal of Business Research, 48*(1), 55-62.

Ang, S. H., & Lim, E. A. (2006). The Influence of Metaphors and Product Type on Brand Personality Perceptions and Attitudes. *Journal of Advertising, 35*(2), 39-53.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M., Hopkins, M., & Kruschwitz, N. (2009). *The Business of Sustainability: Imperatives, Advantages and Actions.* Boston: The Boston Consulting Grop.

Bjorvatn, E. E., & Bjarnadottir, Å. N. (2018). *Does Eco-Friendliness Come at the Expense of Quality?* (Master thesis). Bergen: Norwegian School of Economics .

Borin, N., Lindsey-Mullikin, J., & Krishnan, R. (2013). An Analysis of Consumer Reactions to Green Strategies. *Journal of Product & Brand Management, 22*(2), 118-128.

Bray, J., Johns, N., & Kilburn, D. (2011). An Exploratory Study into the Factors Impeding Ethical Consumption. *Journal of Business Ethics, 98*(4), 597-608.

Brough, A. R., Wilkie, J. E., Ma, J., Isac, M. S., & Gal, D. (2016). Is Eco-Friendly Unmanly? The Green-Feminine Stereotype and Its Effect on Sustainable Consumption. *Journal of Consumer Research, 43*, 567-582.

Chestney, N. (2018, March 22). *Global Carbon Emissions Hit Record High in 2017*. Retrieved November 27, 2018, from Reuters: https://www.reuters.com/article/us-energy-carbon-iea/global-carbon-emissions-hit-record-high-in-2017-idUSKBN1GY0RB

Dangelico, R. M., & Vocalelli, D. (2017). "Green Marketing": An Analysis of Definitions, Strategy Steps, and Tools Through a Systematic Review of the Literature. *Journal of Cleaner Production, 165*, 1263-1279.

Davidson, D. J., & Freudenburg, W. R. (1996). Gender and Environmental Risk Concerns: A Review and Analysis of Available Research. *Environment and Behavior, 28*(3), 302-339.

Gabler, C. B., Butler, T. D., & Adams, F. G. (2013). The Environmental Belief-behaviour gap: Exploring Barriers to Green Consumerism. *Journal of Customer Behaviour, 12*(2-3), 159-176.

Gershoff, A. D., & Frels, J. K. (2015). What Makes It Green? The Role of Centrality of Green Attributes in Evaluations of the Greenness of Products. *Journal of Marketing, 79*(1), 97-110.

Gleim, M. R., Smith, J. S., Andrews, D., & Cronin Jr., J. J. (2013). Against the Green: A Multi-method Examination of the Barriers to Green Consumption. *Journal of Retailing, 89*(1), 44-61.

Handeland, S., & Skogholt, J. V. (2018). *Betyr miljøvennlighet lavere kvalitet?* (Master thesis). Bergen: Norwegian School of Economics.

Harrison, G. W., & List, J. A. (2004). Field Experiments. *Journal of Economic Literature, 42*, 1009-1055.

Hayes, A. F. (2018). *Introduction to Mediation, Moderation and Conditional Process Analysis.* New York: The Guilford Press.

Kardes, F. R. (1988). Spontaneous Inference Processes in Advertising: The Effects of Conclusion Omission and Involvement on Persuasion. *Journal of Consumer Research, 15*(2), 225-233.

Kardes, F. R., & Sanbonmatsu, D. M. (1993). Direction of Comparison, Expected Feature Correlation ant the Set-Size Effect in Preference Judgement. *Journal of Consumer Psychology, 2*(1), 39-54.

Kell, G. (2018, August 19). *In Memory Of Kofi Annan: Father Of The Modern Corporate Sustainability Movement*. Retrieved October 15, 2018, from Forbes: https://www.forbes.com/sites/georgkell/2018/08/19/in-memory-of-kofi-annan-father-of-the-modern-corporate-sustainability-movement/#25e9caf454b1

Keller, K. L. (1993). Conceptualizing, Measuring, and Managing Customer-Based Brand Equity. *Journal of Marketing, 57*, 1-22.

Khan, A. F. (2015). *Assessment of Midlife Career Stress on Indian Managers.* (Ph.D) Aligarh: Aligarh Muslim University.

Kherad-Pajouh, S., & Renaud, O. (2015). A General Permutation Approach for Analyzing Repeated Measures ANOVA and Mixed-Model Designs. *Statistical Papers, 56*(4), 947-967.

Liobikiene, G., & Bernatoniene, J. (2017). Why Determinants of Green Purchase Cannot be Treated Equally? The Case of Green Cosmetics: Literature Review. *Journal of Cleaner Production, 162*, 109-120.

Luchs, M. G., Naylor, R. W., Irwin, J. R., & Raghunathan, R. (2010). The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *Journal of Marketing, 74*(5), 18-31.

Martin, B. A., Lang, B., & Wong, S. (2003). Conclusion Explicitness in Advertising. *Journal of Advertising, 32*(4), 57-65.

McQuarrie, E. F., & Phillips, B. J. (2005). Indirect Persuasion in Advertising. *Journal of Advertising, 34*(2), 7-20.

Moisander, J. (2007). Motivational Complexity of Green Consumerism. *International Journal of Consumer Studies, 31*, 404-409.

Moore, D. J., Reardon, R., & Durso, F. T. (1986). The Generation Effect in Advertising Appeals. *Advances in Consumer Research, 13*(1), 117-120.

Newman, G. E., Gorlin, M., & Dhar, R. (2014). When Going Green Backfires: How Firm Intensions Shape the Evolution of Socially Beneficial Product Enhancements. *Journal of Consumer Research, 41*(3), 823-839.

O'Keefe, D. J. (1997). Standpoint Explicitness and Persuasive Effect: A Meta-Analytic Review of the Effects of Varying Conclusion Articulation in Persuasive Messages. *Argumentation and Advocacy, 34*, 1-12.

Pallant, J. (2013). *SPSS Survival Manual.* Berkshire: Open University Press.

Peattie, K. (2010). Green Consumption: Behavior and Norms. *Annual Review of Environment and Resources, 35*(1), 195-228.

Phillips, B. J. (1997). Thinking into It: Consumer Interpretation of Complex Advertising Images. *Journal of Advertising, 26*(2), 77-87.

Rogers, G. (2013, February 4). *The Rise of Generation Y in the Sustainable Marketplace*. Retrieved November 27, 2018, from The Guardian: https://www.theguardian.com/sustainable-business/blog/rise-generation-y-sustainable-marketplace

Sachdeva, S., Jordan, J., & Mazar, N. (2015). Green Consumerism: Moral Motivations to a Sustainable Future. *Current Opinion in Psychology, 6*, 60-65.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students.* Harlow: Pearson Education Limited.

Sawyer, A. G., & Howard, D. J. (1991). Effects of Omtitting Conclusions in Advertisements to Involved and Uninvolved Audiences. *Journal of Marketing Research, 28*(4), 467-474.

Sengupta, J., & Gorn, G. J. (2002). Absence Makes the Mind Grow Sharper: Effcts of Element Omission in Subsequent Recall. *Journal of Research Marketing, 39*(2), 186-201.

Skard, S. (2010). *Communication Effects in Sponsorship: An Assessment of How Different Communication Strategies Can Enhance Incongruent Sponsorships.* (Doctoral Dissertation). Bergen: Norwegian School of Economics.

Sloman, S. A., Love, B. C., & Ahn, W.-K. (1998). Feature Centrality and Conceptual Coherence. *Cognitive Science*, *22*(2), 189-228.

Suresh, K. P. (2011). An Overview of Randomization Techniques: An Anbiased Assessment of Outcome in Clinical Research. *Journal of Human Reproductive Sciences, 4*(1), 8-11.

Tan, L. P., Johnstone, M.-L., & Yang, L. (2016). Barriers to Green Consumption Behaviours: The Roles of Consumers' Green Perceptions. *Australasian Marketing Journal, 24*, 288-299.

Tanner, C., & Wölfing Kast, S. (2003). Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss consumers. *Psychology & Marketing, 20*(10), 883-902.

The Nielsen Company. (2015, May 11). *Green Generation: Millennials Say Sustainability Is a Shopping Priority*. Retrieved November 27, 2018, from The Nielsen Company Web site: https://www.nielsen.com/lk/en/insights/news/2015/green-generation-millennials-say-sustainability-is-a-shopping-priority.html

United Nations. (1999, February 1). *Secretary-General Proposes Global Compact on Human rights, Labour, Environment, in Address to World Economic Forum In Davos*. Retrieved October 15, 2018, from United Nations: https://www.un.org/press/en/1999/19990201.sgsm6881.html

United Nations Environment Programme (UNEP). (2005). *Talk the Walk: Advancing Sustainable Lifestyles through Marketing and Communications.* UN Global Compact and Utopies.

United Nations Global Compact. (n.d.). *Homepage*. Retrieved November 27, 2018, from UN Global Compact Web site: https://www.unglobalcompact.org/

WEF. (2014). *The Consumption Dilemma: Leverage Points for Accelerating Sustainable Growth.* World Economic Forum.

Zelezny, L., & Bailey, M. (2006). A Call for Women to Lead a Different Environmental Movement. *Organization & Environment, 19*(1), 103-109.

7. Appendices

Appendix A: Results Study 1, Dataset 1

A1: Results T-tests

Table A1.1: T-test of Gender Differences, Dataset 1, Body Lotion Product Category

	Product-related green attribute						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effectiveness	59	4,97	1,89	32	4,56	1,32	0,41
Perceived greenness: Environment	59	4,98	1,49	32	4,91	1,79	0,07
Perceived greenness: Sustainability	59	5,12	1,43	32	4,88	1,54	0,24
Green labeling	59	5,14	1,37	32	4,66	1,83	0,48
Green choice	59	5,07	1,27	32	4,59	1,78	0,48
Preferred product by environmentally conscious consumer	59	5,47	1,15	32	4,88	1,56	**0,59**
Choice of product	59	5,66	1,321	32	4,88	1,862	**0,78**
Market success	59	5,58	1,037	32	5,25	1,481	0,33
Ability	59	5,32	1,332	32	5	1,107	0,32
Perceived damage on skin	59	1,66	1,124	32	2,41	1,847	-0,75
Perceived damage on health	59	1,73	1,172	32	2,09	1,51	-0,36
Perceived damage on environment	59	2,64	1,573	32	2,81	1,469	-0,17

	Non-product-related green attribute						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effective	59	4,56	1,47	32	4,56	1,52	0
Perceived greenness: Environment	59	6,02	0,92	32	5,94	1,32	0,08
Perceived greenness: Sustainability	59	5,53	1,22	32	5,34	1,45	0,19
Green labeling	59	5,76	1,3	32	5,63	1,54	0,13
Green choice	59	5,73	1,2	32	5,63	1,52	0,1
Preferred product by environmentally conscious consumer	59	5,98	1,09	32	5,84	1,48	0,14
Choice of product	59	3,9	1,807	32	4,47	1,849	-0,57
Market success	59	4,59	1,366	32	4,97	1,332	-0,38
Ability	59	4,12	1,62	32	4,5	1,244	-0,38
Perceived damage on skin	59	3,05	1,292	32	2,91	1,304	0,14
Perceived damage on health	59	2,88	1,327	32	2,88	1,264	0
Perceived damage on environment	59	2,15	1,529	32	2,75	1,951	-0,6

	Non-green baseline						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effective	59	4,19	1,32	32	4,63	1,29	-0,44
Perceived greenness: Environment	59	3,24	1,4	32	3,84	1,44	-0,6
Perceived greenness: Sustainability	59	3,31	1,42	32	3,84	1,57	-0,53
Green labeling	59	2,86	1,747	32	2,72	1,571	0,14
Green choice	59	2,59	1,328	32	2,53	1,414	0,06
Preferred product by environmentally conscious consumer	59	2,58	1,511	32	2,91	1,634	-0,33
Choice of product	59	3,93	1,741	32	3,97	1,656	-0,04
Market success	59	3,88	1,532	32	3,75	1,368	0,13
Ability	59	4,47	1,49	32	4,59	1,411	-0,12
Perceived damage on skin	59	3,27	1,574	32	3,13	1,68	0,14
Perceived damage on health	59	3,17	1,428	32	3,09	1,467	0,08
Perceived damage on environment	59	3,98	1,624	32	3,78	1,66	0,2

Note: Values in bold are significant at the 0.05 level

Table A1.2: T-test of Gender Differences, Dataset 1, Drain Opener Product Category

	Product-related green attribute						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effectiveness	61	4,49	1,456	29	4,48	1,299	0,01
Perceived greenness: Environment	61	5,36	1,592	29	5,66	1,421	-0,3
Perceived greenness: Sustainability	61	4,9	1,609	29	4,93	1,163	-0,03
Green labeling	61	5,39	1,9	29	5,45	1,764	-0,06
Green choice	61	5,48	1,766	29	5,69	1,466	-0,21
Preferred product by environmentally conscious consumer	61	5,43	1,717	29	6,31	0,761	**-0,88**
Choice of product	61	4,8	1,982	29	4,55	1,66	0,25
Market success	61	4,85	1,74	29	4,79	1,398	0,06
Ability	61	4,38	1,416	29	4,31	1,466	0,07
Perceived damage on skin	61	2,21	1,416	29	2,07	1,307	0,14
Perceived damage on health	61	2,48	1,679	29	2,07	1,334	0,41
Perceived damage on environment	61	2,46	1,649	29	2,17	1,338	0,29

	Non-product-related green attribute						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effectiveness	61	4,87	1,258	29	5	1,134	-0,13
Perceived greenness: Environment	61	4,77	1,783	29	5,21	1,373	-0,44
Perceived greenness: Sustainability	61	4,8	1,59	29	5,07	1,307	-0,27
Green labeling	61	4,46	1,92	29	4,55	1,92	-0,09
Green choice	61	4,59	1,707	29	4,69	1,583	-0,1
Preferred product by environmentally conscious consumer	61	4,98	1,565	29	5,03	1,614	-0,05
Choice of product	61	4,62	1,968	29	5	1,669	-0,38
Market success	61	4,66	1,611	29	4,69	1,755	-0,03
Ability	61	4,84	1,583	29	4,69	1,339	0,15
Perceived damage on skin	61	3,59	1,553	29	3,31	1,391	0,28
Perceived damage on health	61	3,82	1,544	29	3,48	1,661	0,34
Perceived damage on environment	61	3,7	1,687	29	3,62	1,635	0,08

	Non-green baseline						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effectiveness	61	5,33	1,399	29	5,31	1,039	0,02
Perceived greenness: Environment	61	2,7	1,542	29	3,17	1,605	-0,47
Perceived greenness: Sustainability	61	3,08	1,382	29	3,21	1,264	-0,13
Green labeling	61	2,48	1,659	29	2,48	1,503	0
Green choice	61	2,38	1,635	29	2,48	1,455	-0,1
Preferred product by environmentally conscious consumer	61	2,56	1,737	29	2,38	1,474	0,18
Choice of product	61	4,82	1,848	29	5,31	1,671	-0,49
Market success	61	4,49	1,66	29	4,24	1,48	0,25
Ability	61	5,72	1,343	29	5,48	1,153	0,24
Perceived damage on skin	61	4,44	1,893	29	3,93	1,831	0,51
Perceived damage on health	61	4,79	1,694	29	4,45	1,703	0,34
Perceived damage on environment	61	5,15	1,579	29	4,86	1,407	0,29

Note: Values in bold are significant at the 0.05 level

Table A1.3: T-test of Gender Differences, Dataset 1, Control Variables

	Gender						
	Female			Male			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Quality	120	2,98	1,715	81	2,79	1,694	0,19
Recycle	120	5,11	1,791	81	5,1	1,491	0,01
Sacrifice	120	4,23	1,837	81	4,02	1,432	**0,21**
Important	120	4,74	1,766	81	4,57	1,454	0,17

Note: Values in bold are significant at the 0.05 level

A2: Results Mixed ANOVA

Table A2.1: Pairwise Comparison for Gender and Measurements on Environmental Friendliness, Sustainability, Effectiveness, Greenness Dimensions, Choice and Damage, Dataset 1, Body Lotion Product Category

	Between subject factor	Within subject factors	Significance level interaction
Effectiveness	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	.199
		(Product related green attribute - Non-green baseline)	**.012**
		(Non-product related green attribute - Non-green baseline)	.195

	Between subject factor	Within subject factors	Significance level interaction
Perceived greeness: Environment	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	.994
		(Product related green attribute - Non-green baseline)	.113
		(Non-product related green attribute - Non-green baseline)	.720

	Between subject factor	Within subject factors	Significance level interaction
Perceived greeness: Sustainability	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	.845
		(Product related green attribute - Non-green baseline)	**.044**
		(Non-product related green attribute - Non-green baseline)	.069

	Between subject factor	Within subject factors	Significance level interaction
Choice of product	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	**.002**
		(Product related green attribute - Non-green baseline)	.076
		(Non-product related green attribute - Non-green baseline)	.19

	Between subject factor	Within subject factors	Significance level interaction
Market success	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	**.049**
		(Product related green attribute - Non-green baseline)	.635
		(Non-product related green attribute - Non-green baseline)	.201

	Between subject factor	Within subject factors	Significance level interaction
Ability	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green	**.032**
		(Product related green attribute - Non-green baseline)	.178
		(Non-product related green attribute - Non-green baseline)	.303

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage skin	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	**.008**
		(Product related green attribute - Non-green baseline)	**.022**
		(Non-product related green attribute - Non-green baseline)	.996

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage health	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	.254
		(Product related green attribute - Non-green baseline)	.244
		(Non-product related green attribute - Non-green baseline)	.823

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage environment	Gender F (N=59) M (N=32)	(Product related green attribute - Non-product related green attribute)	.307
		(Product related green attribute - Non-green baseline)	.389
		(Non-product related green attribute - Non-green baseline)	.138

Note: Values in bold are significant at the 0.05 level

Table A2.2: Pairwise Comparison for Gender and Measurements on Environmental Friendliness, Sustainability, Effectiveness, Greenness Dimensions, Choice and Damage, Dataset 1, Drain Opener Product Category

	Between subject factor	Within subject factors	Significance level interaction
Effectiveness	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.661
		(Product related green attribute - Non-green baseline)	.985
		(Non-product related green attribute - Non-green baseline)	.661

	Between subject factor	Within subject factors	Significance level interaction
Perceived greeness: Environment	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.731
		(Product related green attribute - Non-green baseline)	.735
		(Non-product related green attribute - Non-green baseline)	.943

	Between subject factor	Within subject factors	Significance level interaction
Perceived greeness: Sustainability	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green	.561
		(Product related green attribute - Non-green baseline)	.839
		(Non-product related green attribute - Non-green baseline)	.726

	Between subject factor	Within subject factors	Significance level interaction
Choice of product	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.247
		(Product related green attribute - Non-green baseline)	.282
		(Non-product related green attribute - Non-green baseline)	.840

	Between subject factor	Within subject factors	Significance level interaction
Market success	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.839
		(Product related green attribute - Non-green baseline)	.717
		(Non-product related green attribute - Non-green baseline)	.540

	Between subject factor	Within subject factors	Significance level interaction
Ability	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.819
		(Product related green attribute - Non-green baseline)	.665
		(Non-product related green attribute - Non-green baseline)	.798

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage pipes	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.744
		(Product related green attribute - Non-green baseline)	.481
		(Non-product related green attribute - Non-green baseline)	.558

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage health	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.887
		(Product related green attribute - Non-green baseline)	.898
		(Non-product related green attribute - Non-green baseline)	.996

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage environment	Gender F (N=61) M (N=29)	(Product related green attribute - Non-product related green attribute)	.691
		(Product related green attribute - Non-green baseline)	.998
		(Non-product related green attribute - Non-green baseline)	.612

Note: Values in bold are significant at the 0.05 level

Appendix B: Results Study 1, Dataset 2

B1: Results T-tests

Table B1.1: T-test of Gender Differences, Dataset 2, Drain Opener Product Category

Product-related green attribute

Variable	Gender: Female n	Female Mean	Female Std. Dev	Gender: Male n	Male Mean	Male Std. Dev	Mean difference
Effectiveness	121	4,99	1,228	84	4,48	1,435	**0,51**
Perceived greenness: Environment	121	5,61	1,468	84	5,38	1,48	0,23
Perceived greenness: Sustainability	121	5,29	1,486	84	5,13	1,421	0,16
Green labeling	121	5,5	1,544	84	5,14	1,709	0,36
Green choice	121	5,47	1,461	84	5,08	1,523	0,39
Preferred product by environmentally conscious consumer	121	5,83	1,436	84	5,42	1,433	**0,41**
Choice of product	110	5,02	1,871	82	4,54	1,732	0,48
Market success	121	5,49	1,386	84	4,68	1,387	**0,81**
Ability	121	4,67	1,422	84	4,32	1,337	0,35
Perceived damage on pipes	121	2,29	1,502	84	2,6	1,584	-0,31
Perceived damage on health	121	2,38	1,545	84	2,85	1,683	**-0,47**
Perceived damage on environment	121	2,45	1,638	84	2,73	1,765	-0,28

Non-product-related green attribute

Variable	Gender: Female n	Female Mean	Female Std. Dev	Gender: Male n	Male Mean	Male Std. Dev	Mean difference
Effectiveness	121	5,18	1,372	84	4,76	1,402	**0,42**
Perceived greenness: Environment	121	5,36	1,618	84	5,06	1,547	0,3
Perceived greenness: Sustainability	121	5,01	1,641	84	4,93	1,543	0,08
Green labeling	121	4,85	1,745	84	4,33	1,779	**0,52**
Green choice	121	4,93	1,711	84	4,51	1,602	0,42
Preferred product by environmentally conscious consumer	121	5,16	1,722	84	4,85	1,746	0,31
Choice of product	110	4,58	1,861	82	4,48	1,602	0,1
Market success	121	4,85	1,551	84	4,68	1,439	0,17
Ability	121	4,62	1,523	84	4,63	1,519	-0,01
Perceived damage on pipes	121	3,82	1,761	84	3,35	1,525	**0,47**
Perceived damage on health	121	3,93	1,716	84	3,65	1,602	0,28
Perceived damage on environment	121	3,54	1,919	84	3,56	1,645	-0,02

	Non-green baseline						
	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Effectiveness	121	5,21	1,572	84	5,18	1,372	0,03
Perceived greenness: Environment	121	2,76	1,613	84	3,25	1,59	**-0,49**
Perceived greenness: Sustainability	121	2,98	1,508	84	3,46	1,563	**-0,48**
Green labeling	121	2,15	1,47	84	2,63	1,597	**-0,48**
Green choice	121	2,03	1,414	84	2,76	1,502	**-0,73**
Preferred product by environmentally conscious consumer	121	2,05	1,437	84	2,7	1,519	**-0,65**
Ability	121	5,62	1,545	84	5,18	1,416	**0,44**
Choice of product	109	4,38	1,993	82	4,62	1,823	-0,24
Market success	121	4,65	1,618	84	4,43	1,507	0,22
Perceived damage on pipes	121	4,82	1,693	84	3,94	1,826	**0,88**
Perceived damage on health	121	5,38	1,392	84	4,39	1,665	**0,99**
Perceived damage on environment	121	5,57	1,413	84	4,67	1,608	**0,9**

Note: Values in bold are significant at the 0.05 level

Table B1.2: T-test of Gender Differences, Dataset 2, Control Variables

	Gender						
	Female			Male			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Quality	121	3,22	1,9	84	3,51	1,624	-0,29
Recycle	121	5,8	1,6	84	5,04	1,609	**0,76**
Sacrifice	121	4,52	1,623	84	4,11	1,598	0,41
Important	121	5,21	1,678	84	4,65	1,468	**0,56**
Guilt	121	4,53	1,826	84	3,36	1,712	**1,17**
Boycott	121	4,96	1,748	84	3,9	1,669	**1,06**
Brand confirming self-image	121	3,79	2,045	84	3,69	1,613	0,1
Choice in social viewpoint	121	2,45	1,617	84	2,71	1,669	-0,26

Note: Values in bold are significant at the 0.05 level

B2: Results Mixed ANOVA

Table B2.1: Pairwise Comparison for Gender and Measurements on Environmental Friendliness, Sustainability, Effectiveness, Greenness Dimensions, Choice and Damage, Dataset 2, Drain opener Product Category

	Between subject factor	Within subject factors	Significance level interaction
Effectiveness	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.645
		(Product related green attribute - Non-green baseline)	.066
		(Non-product related green attribute - Non-green baseline)	.136

	Between subject factor	Within subject factors	Significance level interaction
Perceived greenness: Environment	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.770
		(Product related green attribute - Non-green baseline)	**.013**
		(Non-product related green attribute - Non-green baseline)	.060

	Between subject factor	Within subject factors	Significance level interaction
Perceived greenness: Sustainability	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.736
		(Product related green attribute - Non-green baseline)	**.022**
		(Non-product related green attribute - Non-green baseline)	**.046**

	Between subject factor	Within subject factors	Significance level interaction
Choice of product	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.143
		(Product related green attribute - Non-green baseline)	.083
		(Non-product related green attribute - Non-green baseline)	.346

	Between subject factor	Within subject factors	Significance level interaction
Market success	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	**.004**
		(Product related green attribute - Non-green baseline)	**.048**
		(Non-product related green attribute - Non-green baseline)	.852

	Between subject factor	Within subject factors	Significance level interaction
Ability	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.105
		(Product related green attribute - Non-green baseline)	.725
		(Non-product related green attribute - Non-green baseline)	.062

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage pipes	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	**.002**
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	.096

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage health	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	**.003**
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	**.005**

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage environment	Gender F (N=121) M (N=84)	(Product related green attribute - Non-product related green attribute)	.317
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	**.002**

Note: Values in bold are significant at the 0.05 level

Appendix C: Results Study 1, Dataset 3

C1: Results T-tests

Table C1.1: T-test of Gender Differences, Dataset 3, Body Lotion Product Category

Product-related green attribute

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	5,29	1,326	139	4,66	1,549	**0,63**
Environmentally concern	85	5,53	1,221	139	5,03	1,409	**0,5**
Choice of product	85	5,67	1,349	139	4,76	1,56	**0,91**
Market success	85	5,72	0,934	139	5,19	1,221	**0,53**
Ability	85	5,59	1,256	139	5,22	1,33	**0,37**
Perceived damage on skin	85	1,78	1,117	139	2,17	1,388	**-0,39**
Perceived damage on health	85	1,75	1,079	139	2,2	1,395	**-0,45**
Perceived damage on environment	85	3,04	1,19	139	3,42	1,356	**-0,38**

Non-product-related green attribute

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	6,24	0,921	139	5,91	1,189	**0,33**
Environmentally concern	85	6,4	0,902	139	6,05	1,112	**0,35**
Choice of product	85	4,65	1,429	139	4,41	1,527	0,24
Market success	85	4,94	1,189	139	4,63	1,247	0,31
Ability	85	4,72	1,555	139	4,69	1,262	0,03
Perceived damage on skin	85	2,72	1,306	139	2,58	1,335	0,14
Perceived damage on health	85	2,55	1,249	139	2,58	1,351	-0,03
Perceived damage on environment	85	2,48	1,161	139	2,63	1,342	-0,15

Non-green baseline

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	2,88	1,149	139	3,35	1,088	**-0,47**
Environmentally concern	85	2,95	1,164	139	3,27	1,139	**-0,32**
Choice of product	85	4,98	1,456	139	4,98	1,364	**0**
Market success	85	5,11	1,273	139	4,82	1,131	0,29
Ability	85	5,18	1,274	139	5,24	1,166	-0,06
Perceived damage on skin	85	3,11	1,319	139	2,73	1,29	**0,38**
Perceived damage on health	85	3,09	1,333	139	2,82	1,347	0,27
Perceived damage on environment	85	4,81	1,341	139	4,14	1,322	**0,67**

Note: Values in bold are significant at the 0.05 level

Table C1.2: T-test of Gender Differences, Dataset 3, Drain Opener Product Category

Product-related green attribute

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	5,82	1,457	127	5,39	1,518	**0,43**
Environmentally concern	85	5,86	1,236	127	5,68	1,397	0,18
Choice of product	85	4,48	1,586	127	4,07	1,518	0,41
Market success	85	4,86	1,255	127	4,24	1,173	**0,62**
Ability	85	4,35	1,316	127	4,17	1,381	0,18
Perceived damage on pipes	85	2,38	1,272	127	2,85	1,375	**-0,47**
Perceived damage on health	85	2,29	1,344	127	2,64	1,301	-0,35
Perceived damage on environment	85	2,69	1,512	127	2,83	1,39	-0,14

Non-product-related green attribute

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	6,14	1,197	127	5,85	1,202	0,29
Environmentally concern	85	6,18	1,082	127	5,83	1,216	**0,35**
Choice of product	85	5,27	1,267	127	4,85	1,442	**0,42**
Market success	85	5,26	1,245	127	4,9	1,174	0,36
Ability	85	5,31	1,38	127	5,35	1,281	-0,04
Perceived damage on pipes	85	3,59	1,498	127	3,87	1,293	-0,28
Perceived damage on health	85	3,79	1,398	127	3,79	1,361	0
Perceived damage on environment	85	3,34	1,524	127	3,31	1,424	0,03

Non-green baseline

	Gender						Mean difference
	Female			Male			
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Environmentally friendly choice	85	2,64	1,132	127	2,94	1,268	-0,3
Environmentally concern	85	2,59	1,228	127	2,93	1,292	-0,34
Choice of product	85	5,25	1,327	127	5,34	1,399	-0,09
Market success	85	5,35	1,131	127	5,25	1,241	0,1
Ability	85	5,87	1,089	127	4,48	1,153	1,39
Perceived damage on pipes	85	4,54	1,651	127	4,52	1,402	0,02
Perceived damage on health	85	4,98	1,456	127	4,65	1,411	0,33
Perceived damage on environment	85	5,46	1,385	127	5,16	1,25	0,3

Note: Values in bold are significant at the 0.05 level

Table C1.3: T-test of Gender Differences, Dataset 3, Control Variables

	Gender						
	Female			Male			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Quality	170	3,09	1,611	266	3,5	1,635	-0,41
Sacrifice	170	4,42	1,396	266	4,12	1,397	0,3
Importance	170	3,76	1,498	266	3,68	1,529	0,08

Note: Values in bold are significant at the 0.05 level

C2: Results Mixed ANOVA tests

Table C2.1: Pairwise Comparison for Gender and Measurements on Environmental Friendliness, Sustainability, Effectiveness, Greenness Dimensions, Choice and Damage, Dataset 3, Body Lotion Product Category

	Between subject factor	Within subject factors	Significance level interaction
Environmentally friendly choice	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	.176
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	**0**

	Between subject factor	Within subject factors	Significance level interaction
Environmentally concern	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	.446
		(Product related green attribute - Non-green baseline)	**.001**
		(Non-product related green attribute - Non-green baseline)	**.005**

	Between subject factor	Within subject factors	Significance level interaction
Choice of product	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	**.004**
		(Product related green attribute - Non-green baseline)	**.002**
		(Non-product related green attribute - Non-green baseline)	.367

	Between subject factor	Within subject factors	Significance level interaction
Market success	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	.288
		(Product related green attribute - Non-green baseline)	.259
		(Non-product related green attribute - Non-green baseline)	.891

	Between subject factor	Within subject factors	Significance level interaction
Ability	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	.084
		(Product related green attribute - Non-green baseline)	**.019**
		(Non-product related green attribute - Non-green baseline)	.548

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage skin	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	**.001**
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	.074

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage health	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	**.003**
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	**.030**

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage environment	Gender F (N=85) M (N=139)	(Product related green attribute - Non-product related green attribute)	.208
		(Product related green attribute - Non-green baseline)	**0**
		(Non-product related green attribute - Non-green baseline)	**0**

Note: Values in bold are significant at the 0.05 level

Table C2.1: Pairwise Comparison for Gender and Measurements on Environmental Friendliness, Sustainability, Effectiveness, Greenness Dimensions, Choice and Damage, Dataset 3, Drain Opener Product Category

	Between subject factor	Within subject factors	Significance level interaction
Environmentally friendly choice	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.594
		(Product related green attribute - Non-green baseline)	**.008**
		(Non-product related green attribute - Non-green baseline)	**.008**

	Between subject factor	Within subject factors	Significance level interaction
Environmentally concern	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.427
		(Product related green attribute - Non-green baseline)	.051
		(Non-product related green attribute - Non-green baseline)	**.003**

	Between subject factor	Within subject factors	Significance level interaction
Choice of product	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.967
		(Product related green attribute - Non-green baseline)	.121
		(Non-product related green attribute - Non-green baseline)	.065

	Between subject factor	Within subject factors	Significance level interaction
Market success	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.180
		(Product related green attribute - Non-green baseline)	**.037**
		(Non-product related green attribute - Non-green baseline)	.249

	Between subject factor	Within subject factors	Significance level interaction
Ability	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.286
		(Product related green attribute - Non-green baseline)	.516
		(Non-product related green attribute - Non-green baseline)	.790

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage pipes	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.350
		(Product related green attribute - Non-green baseline)	.069
		(Non-product related green attribute - Non-green baseline)	.128

	Between subject factor	Within subject factors	Significance level interaction
Perceived damage health	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.100
		(Product related green attribute - Non-green baseline)	**.012**
		(Non-product related green attribute - Non-green baseline)	.114

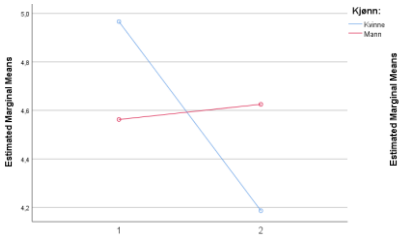
	Between subject factor	Within subject factors	Significance level interaction
Perceived damage environment	Gender F (N=85) M (N=127)	(Product related green attribute - Non-product related green attribute)	.491
		(Product related green attribute - Non-green baseline)	.119
		(Non-product related green attribute - Non-green baseline)	.242

Note: Values in bold are significant at the 0.05 level

Appendix D: Visualisation of Profile Plots in Mixed ANOVA

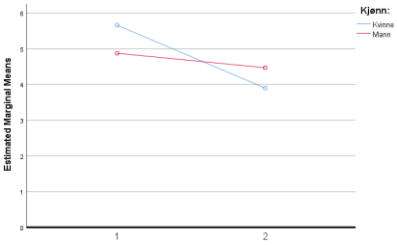
Dataset 1- Body Lotion

Effectiveness



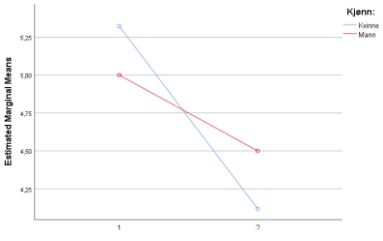
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Choice



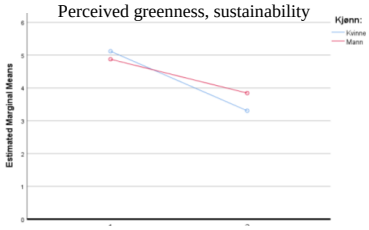
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Ability



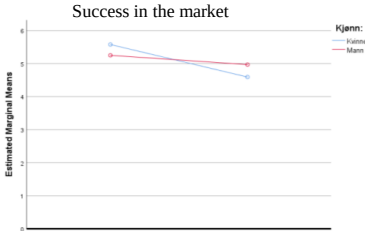
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived greenness, sustainability



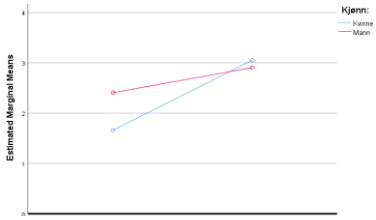
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Success in the market



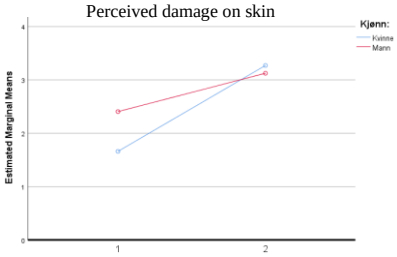
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on skin



Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

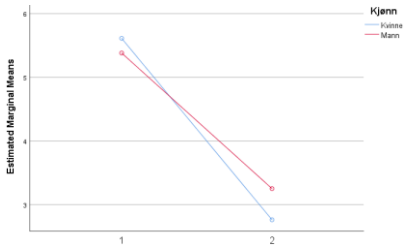
Perceived damage on skin



Factor 1 = Product related green attribute, factor 2 = Non-green baseline

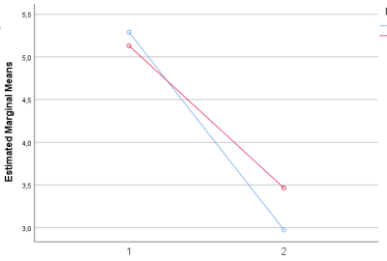
Dataset 2 – Drain Opener

Perceived greenness, environmental friendliness



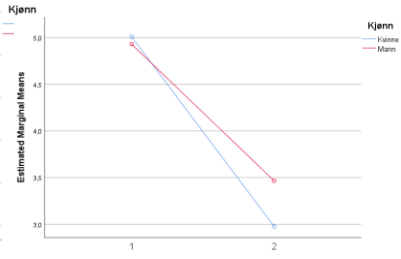
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived greenness, sustainability



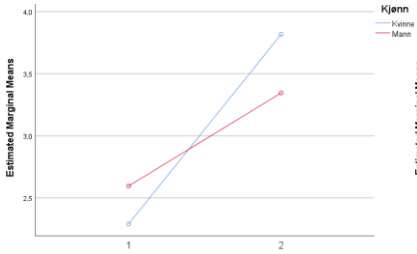
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived greenness, sustainability



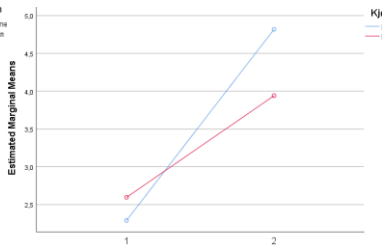
Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

Perceived damage on pipes



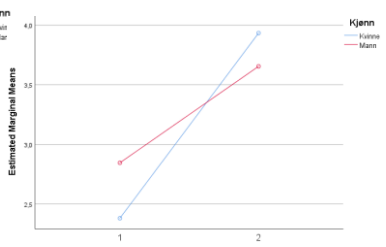
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on pipes



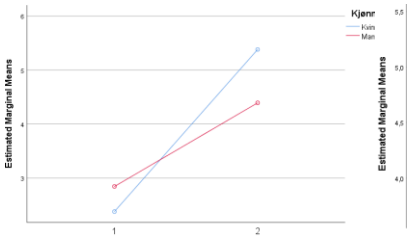
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived damage on health



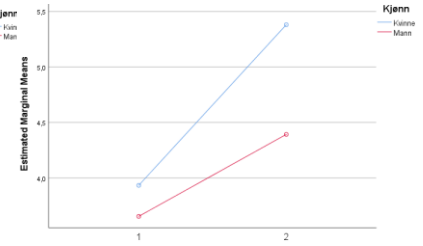
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on health



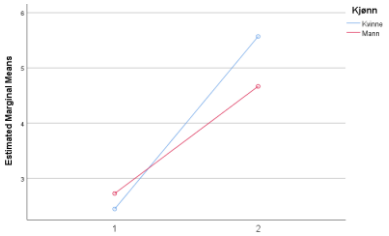
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived damage on health



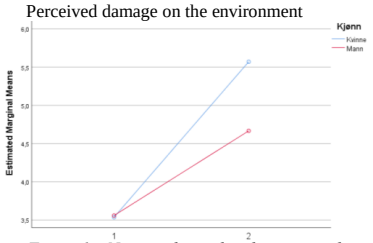
Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

Perceived damage on the environment



Factor 1 = Product related green attribute, factor 2 = Non-green baseline

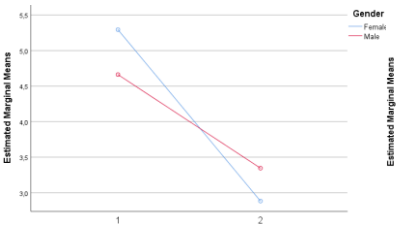
Perceived damage on the environment



Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

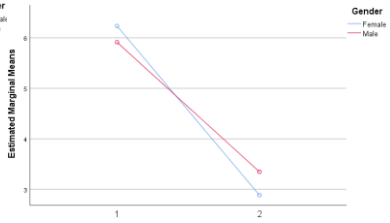
Dataset 3 – Body Lotion

Environmentally friendly choice



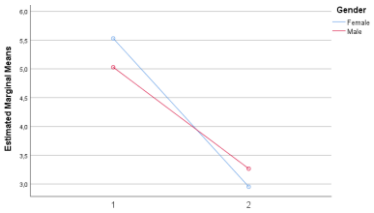
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Environmentally friendly choice



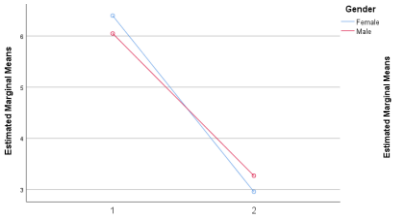
Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

Environmental concern



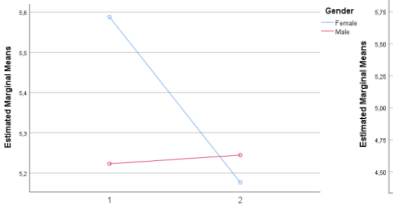
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Environmental concern



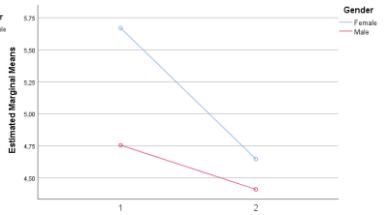
Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

Ability



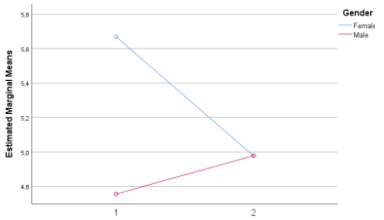
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Choice



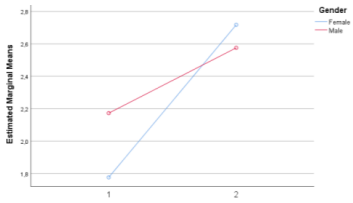
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Choice



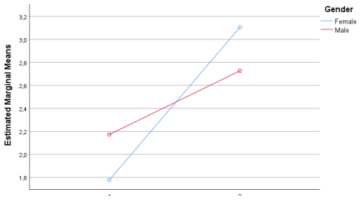
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived damage on skin



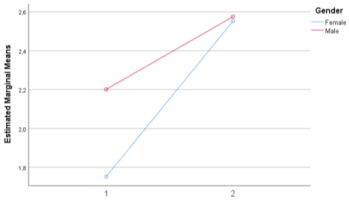
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on skin



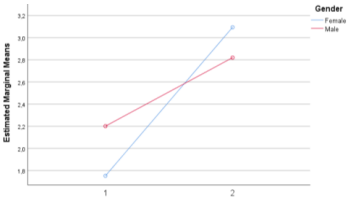
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Perceived damage on health



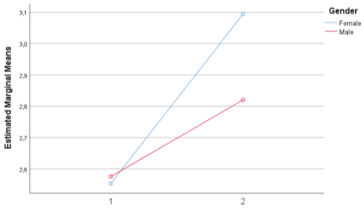
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on health



Factor 1 = Product related green attribute, factor 2 = Non-green baseline

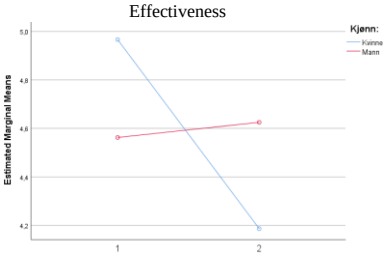
Perceived damage on health



Factor 1 =Non-product related green attribute, factor 2 = Non-green baseline

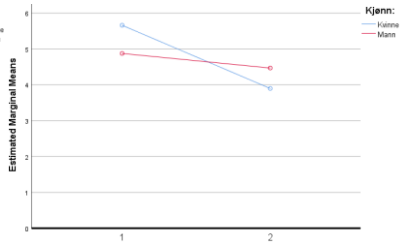
Dataset 1- Body Lotion

Effectiveness



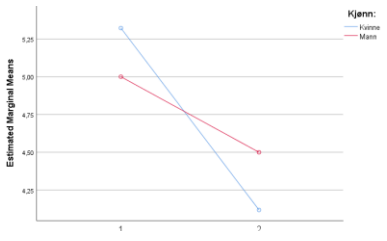
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Choice



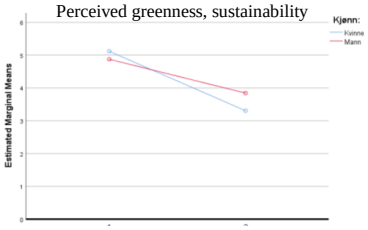
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Ability



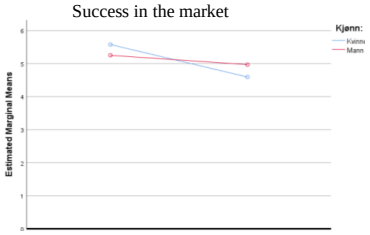
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived greenness, sustainability



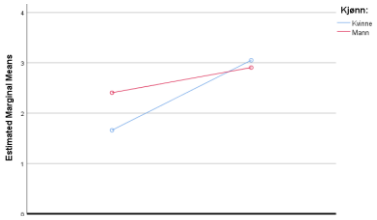
Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Success in the market



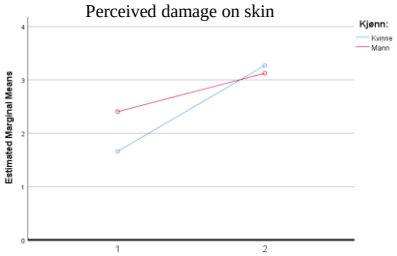
Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on skin



Factor 1 = Product related green attribute, factor 2 = Non-product related green attribute

Perceived damage on skin



Factor 1 = Product related green attribute, factor 2 = Non-green baseline

Appendix E: Questionnaire

Hei!
Denne undersøkelsen er en del av masteroppgaven vår ved Norges Handelshøyskole og vil ta ca. 10 minutter å gjennomføre. Vi setter stor pris på at du tar deg tid til å delta - svarene dine er verdifulle for oss! Du vil motta et sentergavekort på 70 kr etter å ha fullført denne undersøkelsen.

Foran deg står det to ulike avløpsåpnere 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 undersøkelsen, og du kan når som helst trekke samtykket ditt uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli slettet.

Dersom du bekrefter at du har lest informasjonen over, og gir samtykke til å frivillig delta i undersøkelsen, velg "ja".

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

Åpne boks A og ta ut de to avløpsåpnerene. Forestill deg at du skal kjøpe en avløpsåpner og at du kan velge mellom de to alternativene foran deg.
Produktene er fortsatt under utvikling og kan derfor se noe uferdige ut. I de neste stegene vil vil stille deg noen spørsmål angående produktene og du velger det alternativet som passer best for deg.

Åpne boksen og trykk på pilen under når du er klar til å starte undersøkelsen.

Bekreft hvilken boks du åpnet nedenfor:

Jeg åpnet:

- ◯ Boks A
- ◯ Boks B
- ◯ Boks C

I hvor stor grad mener du produktene har egenskapene som er listet i tabellene nedenfor?

Vanlig avløpsåpner

	1 = I svært liten grad	2	3	4	5	6	7 = I svært stor grad
Miljøvennlig	◯	◯	◯	◯	◯	◯	◯
Bærekraftig	◯	◯	◯	◯	◯	◯	◯
Effektiv	◯	◯	◯	◯	◯	◯	◯

Avløpsåpner med naturlige ingredienser

	1 = I svært liten grad	2	3	4	5	6	7 = I svært stor grad
Miljøvennlig	◯	◯	◯	◯	◯	◯	◯
Bærekraftig	◯	◯	◯	◯	◯	◯	◯
Effektiv	◯	◯	◯	◯	◯	◯	◯

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

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	○	○	○	○	○	○	○

Avløpsåpner med 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	○	○	○	○	○	○	○

Vi ønsker å undersøke i hvilken grad du opplever de to produktene som feminine eller maskuline.

	1 = Ikke feminint i det hele tatt	2	3	4	5	6	7 = Svært feminint
Vanlig avløpsåpner	○	○	○	○	○	○	○
Avløpsåpner med naturlige ingredienser	○	○	○	○	○	○	○

	1 = Ikke maskulint i det hele tatt	2	3	4	5	6	7 = Svært maskulint
Vanlig avløpsåpner	○	○	○	○	○	○	○
Avløpsåpner med naturlige ingredienser	○	○	○	○	○	○	○

Tror du det er flest menn eller kvinner som vil velge de ulike produktene?

Vanlig avløpsåpner

- ○ Flest kvinner
- ○ Flest menn
- ○ Ingen forskjell

Avløpsåpner med naturlige ingredienser

- ○ Flest kvinner
- ○ Flest menn
- ○ Ingen forskjell

Hvordan vil du rangere produktenes evne til å løse opp tette rør?

	1 = Svært dårlig	2	3	4	5	6	7 = Svært god
Vanlig avløpsåpner	○	○	○	○	○	○	○
Avløpsåpner med naturlige ingredienser	○	○	○	○	○	○	○

Se for deg at du har tette rør på badet og derfor trenger en avløpsrens. Hva er sannsynligheten for at du vil velge de følgende produktene?

	1 = Svært usannsynlig	2	3	4	5	6	7 = Svært sannsynlig
Vanlig avløpsåpner	○	○	○	○	○	○	○
Avløpsåpner med naturlige ingredienser	○	○	○	○	○	○	○

Hvis du må velge mellom de to avløpsåpnerne, hvilken ville du valgt?

- ○ Vanlig avløpsåpner
- ○ Avløpsåpner med naturlige ingredienser

Hvor sannsynlig tror du det er at disse produktene vil bli en suksess på markedet?

	1 = Svært usannsynlig	2	3	4	5	6	7 = Svært sannsynlig
Vanlig avløpsåpner	○	○	○	○	○	○	○
Avløpsåpner med naturlige ingredienser	○	○	○	○	○	○	○

Tror du det er prisforskjell mellom produktene i denne undersøkelsen?

- ○ Ja
- ○ Nei

Hvor enig er du i påstandene nedenfor?

	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 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.	○	○	○	○	○	○	○

	1 = Svært uenig	2	3	4	5	6	7 = Svært enig
Jeg ville følt meg skyldig dersom jeg hadde valgt det minst miljøvennlige alternativet	○	○	○	○	○	○	○
Jeg føler meg bedre dersom jeg boikotter produkter som er skadelig for miljøet	○	○	○	○	○	○	○

Hvor enig er du i påstandene nedenfor?

	1 = Svært uenig	2	3	4	5	6	7 = Svært enig
Når jeg kjøper miljøvennlige produkter bidrar jeg til å redusere negative miljøpåvirkninger.	○	○	○	○	○	○	○
Miljøproblemene er altfor omfattende til at jeg kan påvirke situasjonen ved å kjøpe miljøvennlige produkter	○	○	○	○	○	○	○

I hvilken grad er følgende punkter viktige for deg når du skal kjøpe en avløpsåpner?

	1 = Svært liten grad	2	3	4	5	6	7 = Svært stor grad
Pris	○	○	○	○	○	○	○
Effektivitet	○	○	○	○	○	○	○
Anbefaling fra andre	○	○	○	○	○	○	○
Miljøvennlighet	○	○	○	○	○	○	○
Lite skade på rør	○	○	○	○	○	○	○

Vi ønsker å vite hvordan du rangerer deg selv når det kommer til maskulinitet og femininitet. Fullfør setningene nedenfor med valgalternativet som passer best for deg.

	1 = Svært maskulin	2	3	4	5	6	7 = Svært feminin
Jeg anser meg selv som...	○	○	○	○	○	○	○
Ideelt sett ville jeg ønsket å være...	○	○	○	○	○	○	○
Mine interesser blir oppfattet som...	○	○	○	○	○	○	○
Mine holdninger og meninger blir oppfattet som...	○	○	○	○	○	○	○
Min oppførsel blir oppfattet som...	○	○	○	○	○	○	○
Andre vil trolig oppfatte meg som...	○	○	○	○	○	○	○

Kjønn:

- ○ Kvinne
- ○ Mann

Alder:

Hva er høyeste nivå av utdanning du har fullført eller er i gang med å fullføre?

- ○ Ungdomsskole
- ○ Videregående
- ○ Bachelorgrad
- ○ Mastergrad
- ○ PhD

Yrkestatus:

- ○ Student
- ○ Pensjonist
- ○ Yrkesaktiv
- ○ Ikke i jobb

Årlig inntekt:

- ◯ Mindre enn 250.000 NOK
- ◯ Mellom 250.000 og 500.000 NOK
- ◯ Mellom 500.000 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?

- ◯ Ja
- ◯ Nei

Hvem har hovedansvaret for handling av dagligvarer i husholdningen din?

- ◯ Jeg har hovedsaklig ansvaret
- ◯ En annen har hovedsaklig ansvaret
- ◯ Delt ansvar

Som takk for at du har svart på undersøkelsen ønsker vi å gi deg et gratis produkt (i tillegg til et gavekort på 70 kr). Ved siden av PC'en finner du en hvit pose. Åpne posen og velg det produktet du vil ha. Kryss av nedenfor hvilket produkt du valgte. Ønsker du ikke å ta med deg et produkt hjem, kryss av for det du ville ha valgt.

eller

- ◯ Klar håndsåpe
- ◯ Sunlight håndsåpe

Appendix F: Descriptive Statistics Study 2

Table F.1: Descriptive Statistics, Dependent Variable, Mediator and Control Variables

	N	Mean	Std. Dev	Skewness		Kurtosis	
Variables				Statistic	Std. Error	Statistic	Std. Error
Probability of choosing	231	4,18	1,886	-0,120	0,160	-0,952	0,319
Effectiveness	219	4,05	1,673	0,074	0,164	-0,712	0,327
Gender	237	1,39	0,488	0,462	0,158	-1,802	0,315
Quality	240	3,45	1,711	0,190	0,157	-0,842	0,313
Importance	240	4,65	1,604	-0,218	0,157	-0,753	0,313
Reycle	239	5,44	1,672	-0,970	0,157	0,090	0,314
Sacrifice	241	3,81	1,717	0,035	0,157	-0,827	0,312
Guilt	241	3,55	1,862	0,319	0,157	-0,898	0,312
Boycott	242	4,38	1,925	-0,178	0,156	-1,101	0,312
Powerless	240	3,10	1,802	0,530	0,157	-0,764	0,313
Impact	242	5,17	1,559	-0,696	0,156	-0,087	0,312
Preference price	233	4,15	1,987	-0,083	0,159	-1,054	0,318
Preference effectiveness	236	6,14	1,086	-1,456	0,158	**2,442**	0,316
Preference recommendation	231	5,03	1,653	-0,765	0,160	0,021	0,319
Preference environmental friendly	233	4,85	1,634	-0,521	0,159	0,444	0,318
Preference damage on pipes	237	6,08	1,217	-1,378	0,158	1,044	0,315

Note: Values in bold are violations of the normality assumption.

Appendix G: Study 2, Test of Assumptions

Table G.1: Test for Homogeneity of Variance, t-Test

	Condition							
	Communication			**No Communication**			Mean difference	Levene's test
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev		
Probability of choosing	156	4,17	1.849	75	4,21	1.975	-0,04	0.148

Note: Values in bold are violations of the homogeneity of variance assumption

Table G.2: Test for Homogeneity of Variance, One-Way Between-Measures ANOVA

Condition I - J	Mean difference	Standard Error	Levene's test
Implicit communication - Explicit communication	-.4	.303	.229
Implicit communication - Baseline communication	-.201	.303	
Explicit communication - Baseline communication	.12	.309	

Note: Values in bold are violations of the homogeneity of variance assumption

Appendix H: Results Study 2 – Direct effects

Table H.1: t-test Results Comparing Communication and No Communication on Probability of Choosing a Green Product

	Condition						
	Communication			**No Communication**			Mean difference
Variable	n	Mean	Std. Dev	n	Mean	Std. Dev	
Probability of choosing	156	4,17	1.849	75	4,21	1.975	-0,04

Note: The mean difference is significant at the 0.05 level if the value is bold

Table H.2: Pairwise Comparison for Measurement on Probability of Choosing a Green Product

Condition I - J	Mean difference	Standard Error
Implicit communication - Explicit communication	-.4	.303
Implicit communication - Baseline communication	-.201	.303
Explicit communication - Baseline communication	.12	.309

Note: The mean differences in bold are significant at the 0.05 level

Appendix I: Results Study 2 – Mediating Effects

Table I.1: Simple Mediation Model Analysis

Independent variable	Dependent variable	Mediator	Total effect		Direct effect		Indirect effect	
			Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
Implicit communication - Explicit communication	Probability of choosing	Perceived effectiveness	-.554	-1.157, .046	-.22	-.772, .332	**-.334**	-.705, -.332
Implicit communication - Baseline communication	Probability of choosing	Perceived effectiveness	-.503	-1.146, .141	-.189	-.775, .397	**-.313**	-.669, -.022
Explicit communication - Baseline communication	Probability of choosing	Perceived effectiveness	.052	-.565, 0.668	.006	-.482, .494	.046	-.315, .446

Note: Values in bold are significant at the 0.05 level

Appendix J: Results Study 2 – Moderated Mediation Effects

Table J.1: Moderated Mediation Model Analysis

			Total effect		Direct effect		Indirect effect			
							Female		Male	
Independent variable	**Dependent variable**	**Mediator**	Index	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
Implicit communication - Explicit communication	Probability of choosing	Perceived effectiveness	-.28	-.846, .271	-.208	-.761, .344	-.185	-.622, .156	**-.465**	-.974, -.050
Implicit communication - Baseline communication	Probability of choosing	Perceived effectiveness	-.171	-.783, .443	-.183	-.775, .409	-.231	-.654, .136	-.402	-.919, .068
Explicit communication - Baseline communication	Probability of choosing	Perceived effectiveness	.154	-.605, .909	.003	-.489, .495	-.049	-.492, .420	.105	-.485, .734

Note: Values in bold are significant at the 0.05 level

Appendix K: Results Study 2 – Further Gender Analysis

Table K.1: Simple Mediation Model Analysis on Selected Cases

			Total effect		Direct effect		Indirect effect	
Independent variable	**Dependent variable**	**Mediator**	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
Implicit communication - Explicit communication	Probability of choosing	Perceived effectiveness	-.398	-1.450, .654	.373	-.464, 1.21	**-.771**	-1.621, -.078

Note: Values in bold are significant at the 0.05 level

Table K.2: Moderated Mediation Model Analysis

			Total effect		Direct effect		Effect of predictor			
							Female		Male	
Independent variable	**Dependent variable**	**Mediator**	Index	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
Implicit communication - Explicit communication	Probability of choosing	Perceived effectiveness	**-.278**	-.611, -.016	-.136	-.683, .411	**.356**	.151, .564	**.798**	.500, 1.096

Note: Values in bold are significant at the 0.05 level

Appendix L: Results Study 2 – Additional Findings

Table L.1: Frequencies Scores on Choice of Product

Product	Frequency	Percent
Klar Hand Soap	204	83.3
Sunlight Hand Soap	32	13.1
Total	236	96.3
Missing	9	3.7

Table L.2: Simple Mediation Model Analysis with Comparison of Green and Non-Green Product Attribute

Explanation of the abbreviations:

- NI = Drain opener with 100% natural ingredients
- Reg = Regular drain opener without green attributes and communication of effectiveness

			Total effect		Direct effect		Indirect effect	
Independent variable	**Dependent variable Y1-Y2**	**Mediator M1-M2**	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)	Effect	95% CI (LL, UP)
Implicit communication - Explicit communication	Probability of choosing (NI-Reg)	Perceived effectiveness (NI-Reg)	**-1.118**	-2.159, -.076	-.242	-.134, .651	**-.877**	-1.507, -.287
Implicit communication - Baseline communication	Probability of choosing (NI-Reg)	Perceived effectiveness (NI-Reg)	-.067	-1.096, .962	-.39	-.548, 1.329	**-.457**	-.992, -.014
Explicit communication - Baseline communication	Probability of choosing (NI-Reg)	Perceived effectiveness (NI-Reg)	**1.052**	.076, 2.025	**.851**	.023, 1.679	.201	-.324, .764

Note: Values in bold are significant at the 0.05 level

Figure L.3: Model of Simple Mediation with Comparison of Green and Non-Green Product Attribute, Implicit vs. Explicit Condition

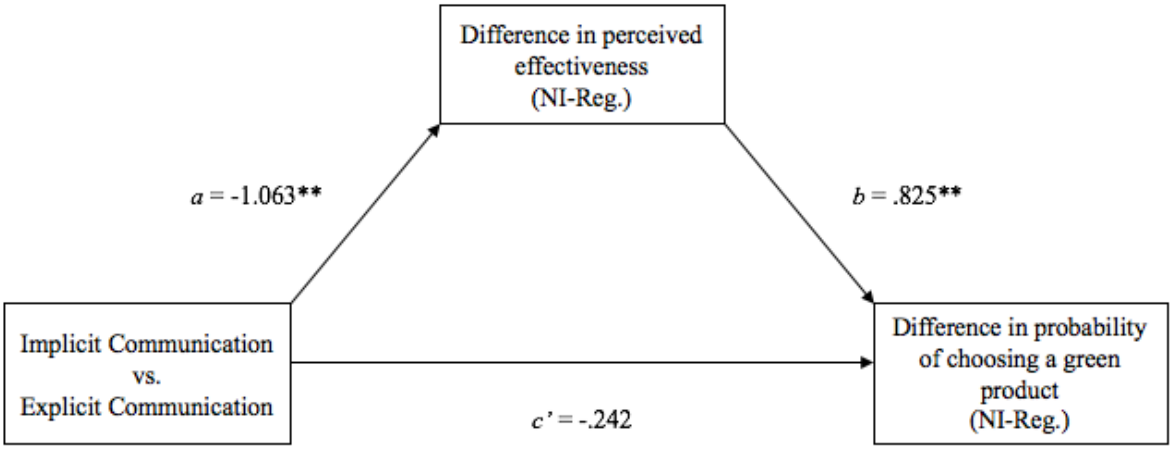


Figure L.4: Model of Simple Mediation with Comparison of Green and Non-Green Product Attribute, Implicit vs. Baseline Condition

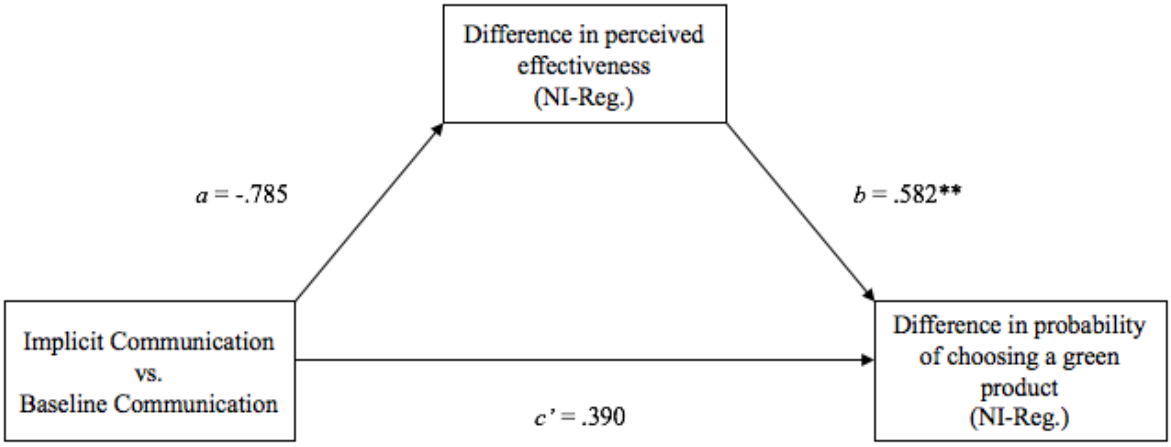


Figure L.5: Model of Simple Mediation with Comparison of Green and Non-Green Product Attribute, Explicit vs. Baseline Condition