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# UNDERSTANDING ETHICAL CONSUMER DECISION MAKING

The relationship of perceived sustainability and perceived efficacy in ethical consumption.

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## ABSTRACT

**Title:** Understanding ethical consumer decision making: The relationship of perceived sustainability and perceived efficacy in ethical consumption.

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Businesses hope that consumers reward their corporate social responsibility with higher brand loyalty and increased willingness to pay. Yet, contrary to these expectations recent research has revealed that in certain situations consumers shun ethical products as they assume a trade-off between ethicality and performance. To understand more about how ethical consumption decisions are made, this thesis analyzes the impact of perceived sustainability and perceived efficacy on purchase intentions under the moderating influence of locus of control (LOC). To this end, a quantitative experimental study was conducted via an online survey in the category of laundry detergents. Respondents were shown either a laundry detergent with an environmental message or with a message promoting functionality. The data does not support that there is an overall negative effect of sustainability on perceived efficacy; however, it suggests that there is a cross-over interaction effect with LOC: People with an external LOC assume that there is a trade-off between sustainability and efficacy whereas respondents with an internal LOC actually perceive products to have a better performance when they are sustainable. We also find that LOC moderates perceived sustainability. Both variables have a direct impact on purchase intentions, yet, perceived efficacy has a stronger influence. We conclude that businesses should use LOC in their customer segmentation strategy and aim to strike a balance in communicating the green appeal of the product while highlighting its performance at the same time.

**Keywords:** CSR, green, sustainable, ethical consumption, consumer perceptions, purchase intention, efficacy, sustainability, locus of control

## RESUMO

As empresas esperam que os consumidores recompensem a sua responsabilidade social corporativa com maior fidelidade à marca e maior disponibilidade para pagar. No entanto, ao contrário das expectativas, pesquisas recentes revelaram que, em certas situações, os consumidores evitam produtos éticos ao assumirem um trade-off entre a ética e o desempenho. Para entender mais sobre como as decisões de consumo ético são tomadas, esta tese analisa o impacto da sustentabilidade e eficácia percebida nas intenções de compra sob a influência moderadora do locus de controlo (LOC). Para este fim, um estudo experimental quantitativo foi realizado através de uma pesquisa online na categoria de detergentes para a roupa. Aos entrevistados foi mostrado um detergente para a roupa com uma mensagem ambiental ou com uma mensagem que promove a funcionalidade. Os dados não sustentam que exista um efeito negativo na sustentabilidade sobre a eficácia percebida; no entanto, sugere que há um efeito de interação cruzada com LOC. Pessoas com um LOC externo assumem que há um trade-off entre sustentabilidade e eficácia, enquanto os entrevistados com um LOC interno percebem que os produtos têm um melhor desempenho quando são sustentáveis. Também foi descoberto que o LOC modera a sustentabilidade percebida. Ambas as variáveis têm um impacto direto nas intenções de compra, no entanto, a eficácia percebida tem uma influência mais forte. Concluímos que as empresas devem usar o LOC na sua estratégia de segmentação de clientes e procurar um equilíbrio na comunicação da ecológia do produto, ao mesmo tempo em que destaca seu desempenho.

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Finally, I want to thank Verena who always supported and motivated me when the thesis grew over my head or when I struggled with my job search.

This topic is not only important for me but rather for society at large as it becomes clearer that ordinary citizens will have to lead the change in the way the resources of our planet are used and consumed. Studying ethical consumption certainly was exciting but also frustrating as many findings seem to conflict with each other and a good grasp of ethical consumerism is only slowly developing. I am happy that my study could contribute its part to better explain this topic.

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## GLOSSARY

CSR – corporate social responsibility

LOC – locus of control

ILOC – internal locus of control

ELOC – external locus of control

# 1. INTRODUCTION

## 1.1 Background

For many companies, corporate social responsibility (CSR) has become either a new market opportunity or a market necessity due to growing consumer expectations (Schamp, Heitmann, & Katzenstein, 2019). For global players like Nike, who in the past have been both applauded and criticized for their CSR activities and previous lack thereof, it has become both (Hunt, 2018; Robinson & Wood, 2018). However, many new companies go one step further and incorporate CSR as part of their brand identity and unique selling proposition (Jahdi & Acikdilli, 2009; Robinson & Wood, 2018). Among other recent examples are *The Girlfriend Collective* which aims to reduce plastic waste by making fashion from recycled bottles or Tentree who plant ten trees for every item sold, founded in 2016 and 2017 respectively (Hum, 2018; Tentree, 2019). As more and more people become aware of the massive environmental issues of our time like climate change and plastic waste, being green (i.e. environmentally friendly) has become especially important for consumers and entrepreneurs (Gordon & Euromonitor, 2010; Trudel, 2019)..

Many companies hope to gain a competitive advantage, build brand equity or directly drive sales by being more ethical (Schamp et al., 2019). After all, 73% of global consumers report that they would switch to a more ethical brand if price and quality were comparable (Edelman, 2012). To capture that market potential, companies use various marketing strategies like eco-labels, cause-related marketing or changing the color of the packaging, to communicate their good deeds to consumers. (Schamp et al., 2019; Schuitema & De Groot, 2015).

However, in the marketplace consumers are far more reluctant to buy ethical products than market research and academic findings suggest (Bray, Johns, & Kilburn, 2011; Wiederhold & Martinez, 2018). Indeed, ethical brands often only capture relatively low market shares compared to their regular competitors, which led to the coining of the term “attitude-behavior gap” (Bray et al., 2011; Carrigan & Attalla, 2001; Roberts, 1996). An early investigation of the puzzling situation was conducted by Cowe and Williams (2000) who found that while 30% of consumers claim to care about ethical conduct of companies, market shares of ethical products rarely reach more than 3%.

While there is undoubtedly a case for CSR with some brands reaching widespread appeal, it becomes clear that e.g. environmental attitudes of consumers do not simply translate to

market shares (Carrington, Neville, & Whitwell, 2010). Much of the subsequent research concerning the attitude-behavior gap has focused on finding the reasons that impede ethical consumption (Bray et al., 2011; Trudel, 2019). In real shopping situations, consumers encounter various constraints like price premiums, brand loyalty and availability (Bray et al., 2011; Pelsmacker, Driesen, & Rayp, 2006; Vermeir & Verbeke, 2006).

But these are factors that merely limit the positive impact of CSR on buying behavior. Yet, there is a growing number of papers actually reporting a negative impact of CSR on brands (Luchs, Naylor, Irwin, & Raghunathan, 2010; Robinson & Wood, 2018; Sen & Bhattacharya, 2001). Holding these findings against the studies reporting positive effects, suggests that CSR is a cue which consumers interpret differently depending on various factors like product category (Luchs et al., 2010), age of the brand (Robinson & Wood, 2018) and the way it is communicated (Pancer, McShane, & Noseworthy, 2017) among others. In some cases CSR increases the overall product evaluations e.g. through halo effects where the observable ethical label leads to more positive evaluations of other attributes (Chernev & Blair, 2015). In other cases consumers have doubts about the product's quality and efficacy because they assume that businesses are distracted by their ethical endeavors instead of focusing on making a top quality product (Robinson & Wood, 2018). Hence, it is crucial to understand in which situations CSR works and in which it becomes a liability.

An important concept that can help understanding consumer behavior is locus of control (LOC). It is a psychological construct that determines the extent to which people believe that they are in control of the events in their life (Rotter, 1966). A strong believe in being in control, which is referred to as an internal locus of control, is believed to positively affect the likelihood to engage in environmentally friendly behavior (Cheng, Chang, & Lee, 2018; Cleveland, Laroche, & Kalamas, 2005). Linking LOC with the ambivalent reactions of consumers toward ethical products will provide much needed clarity about the way ethical products are perceived and is the goal of this dissertation.

## 1.2 Problem Statement

This thesis strives to understand how consumers intuitively make judgments about environmentally friendly products, specifically about their quality or efficacy. As the outcome variable of the decision making process, purchase intention which is formed through judgments about product attributes like efficacy and sustainability (Carrington et al., 2010; Robinson & Wood, 2018; Schamp et al., 2019), is measured as it reveals if efficacy or sustainability is the dominant characteristic in how decisions are made.

It stands to reason that the impact of an environmentally friendly product attribute on purchase intention is not unidirectional because the simple presence of an ethical product characteristic may change the perception of other product attributes, the Halo effect being a well-established example (C. Chang, 2011; Chernev & Blair, 2015). Current literature suggests that there may be a negative effect of ethicality on the perceived quality, in particular its effectiveness (Luchs et al., 2010; Robinson & Wood, 2018; Sen & Bhattacharya, 2001).

Hence, the first attribute that needs to be examined is the sustainability of the product as perceived by the consumer. This is associated with a positive direct effect on purchase intention (Carrington et al., 2010). The second attribute to be examined is the product's perceived efficacy. Less intuitively, a strong CSR rapport may signal to consumers that the product is of inferior quality which of course will negatively affect purchase intentions (Luchs, Brower, & Chitturi, 2012; Newman, Gorlin, & Dhar, 2014; Robinson & Wood, 2018). Hence, there may be two conflicting effects at play when a product is environmentally friendly: A positive effect on perceived sustainability and a negative effect on perceived efficacy. Consequently, consumers may have both positive and negative emotions i.e. ambivalent attitudes, when purchasing green products (Chang, 2011).

To understand when positive or negative emotions to CSR prevail, LOC is analyzed as a factor underlying consumer's intuitive decision making. We propose that part of the way judgments about a green product are formed, is based on a person's LOC as it is considered to be an important antecedent of ethical behavior (Chwialkowska, 2019; Cleveland, Kalamas, & Laroche, 2012; Cleveland et al., 2005; Schwepker & Cornwell, 1991).

Finally, implications need to be drawn about how marketing communication can ultimately be more effective at addressing certain target segments by understanding the relationship of perceived efficacy and sustainability, locus of control and purchase intentions. Accordingly, this dissertation will focus on the effect that the communication of sustainability has on consumer perceptions.

Therefore, the following research questions are addressed:

*RQ1*: *What is the effect of promoting a product's sustainability on perceived efficacy and perceived sustainability?*

*RQ2: How does a person's locus of control affect the perception of a product's efficacy and sustainability?*

*RQ3: Is a high or low focus on sustainability in marketing communications beneficial?*

## 1.3 Scope of Analysis

While many findings in the literature and of this dissertation may apply to ethical products in general, the present study seeks to analyze green and sustainable CSR activities and as such is not necessarily generalizable to other pillars of CSR.

This research will exemplarily use laundry detergent in the experiment, a category which has previously been identified as strength-related (Luchs et al., 2010). According to Luchs et al. (2010) consumers may prefer less ethical products in categories where they primarily value strength-related attributes, since ethicality is generally associated with gentleness. That means that especially in these categories, brands will have difficulty to effectively promote their sustainability. Lin & Chang (2012) come to a similar conclusion, they find that customers consider sustainable cleaning products in particular as inferior to their non-sustainable alternatives. Hence, laundry detergent was identified as a suitable product category for the experiment since it will likely result in clearer consumer responses.

## 1.4 Theoretical and Managerial Relevance

Understanding how to communicate a company's social involvement effectively is crucial to marketing managers. Even more so for companies whose CSR endeavors are at the heart of their brand identity. The attitude-behavior gap poses a problem to both academia and businesses alike (Carrigan & Attalla, 2001; Cowe & Williams, 2000). While the factors impeding ethical consumption have received a lot of attention, we still lack understanding of how to bridge the attitude-behavior gap (Chwialkowska, 2019). To make suggestions how CSR should be marketed and to facilitate further research, we first need to have a solid idea about how consumers behave concerning ethical brands. While there have been reasonable models to understand ethical consumer behavior, a large part of the problem is still unexplained (Chatzidakis, Kastanakis, & Stathopoulou, 2014) or riddled with inconsistencies (Pancer et al., 2017). Considering the fact that research has shown that a strong CSR record may sometimes be detrimental to companies, amplifies the need for a deeper knowledge in this area (K.-H. Kim, Kim, & Qian, 2018; Luchs et al., 2010; Pancer et al., 2017; Robinson & Wood, 2018; Sen & Bhattacharya, 2001).

By expanding current research about when CSR works against companies and exploring how to increase consumer's purchase intentions for sustainable brands, this dissertation tackles important issues in both theory and business:

For managers it is important to identify the situations in which CSR is working well and when it is not. As of yet, there has been scarce research investigating how advertising content can alleviate the negative perceptions, increase purchase behavior and ultimately help bridging the attitude behavior gap (Chwialkowska, 2019). A difficult question is how much brands should emphasize their ethical qualities when consumers may end up punishing instead of rewarding ethical brands. By exploring the effect of marketing messages promoting the good behavior of companies, this dissertation will add to the literature of marketing communication for ethical products.

Furthermore, this thesis will examine what kind of product attribute, ethical or functional, is more important to consumers at the end. This, obviously, can be used to position brands on topics that consumers really value.

Analyzing how a person's locus of control impacts their decision making in the context of ethical consumption will allow marketing managers to better understand their customer segments and help them interpret potentially ambiguous market data about consumer's conflicting attitudes.

Academically, this dissertation expands previous findings about consumer behavior in the context of CSR. Since the topic is still charged with conflicting findings about the effects of CSR on perceived product quality in particular (compare e.g. Banerjee & Wathieu, 2017; Bray et al., 2011; Calveras & Ganuza, 2018), we will help explain the role of marketing communication by testing the effect of messages promoting sustainability and messages promoting product efficacy. By measuring perceived product efficacy as well as perceived sustainability, deeper insights about the inferences consumers make from information about CSR can be drawn. Pancer et al. (2017) emphasize the need to find out more about the inconsistent consumer responses to green products and explore the determinants of their perceptions.

Research on marketing communication for ethical brands is still in early development. Chang, Zhang and Xie (2015) point out that specifically research on the kinds of green appeals that are most effective in advertisement is lacking. Robinson & Wood (2018) and Luchs et al. (2010) have both suggested that combining a sustainable message with a message promoting product quality can alleviate the negative effects to some extent. This dissertation will build on these "dual promises" by examining the effects of incorporating both sustainable and functional appeals and using a brand slogan to emphasize either one of the two claims.

Robinson & Wood (2018) in particular identified dual promises as an area for future investigations.

A number of empirical studies have shown that a stronger internal locus of control leads to a more consistent relationship between ethical judgments and moral actions (Chiu, 2003; Trevino & Youngblood, 1990). Papers that identified negative inference making of ethical brands (e.g. Bray et al., 2011; Luchs et al., 2012, 2010; Robinson & Wood, 2018; Sen & Bhattacharya, 2001), have yet to evaluate the role that LOC plays. Examining the moderating role of LOC in the decision-making process, will provide valuable insights and simultaneously serve as a basis for future research.

Overall, this dissertation contributes to theory in the following ways:

1) It improves understanding about how information about sustainability affects the assumptions consumers make about product efficacy.
2) It builds on and expands previous findings about dual promises to find out how consumers react to an emphasized sustainability or efficacy message.
3) It investigates if locus of control acts as a moderator to consumer decision making in the context of sustainable consumption.

For businesses this dissertation is relevant due to the following reasons:

1) It expands the current understanding of how to effectively communicate the ethical attributes of sustainable products.
2) It gives an indication about which product attribute affects purchase intentions the most and how they are interlinked. This can be used for strategic positioning of brands.
3) It improves customer segmentation by examining the role of LOC as a psychometric characteristic.

## 1.5 Research Methods

To answer the research questions a quantitative study was conducted. The target population were people who regularly purchase or use laundry detergent. We obtained the data with an online survey using a nonprobability convenience sample distributed via social media and direct messaging. The goal of the study was to find out more about the cause-effect relationships of consumer perceptions toward sustainable products. The study followed an experimental design with a randomized two-group post-test comparison set-up where the type of message (environmental or functional) was manipulated. This type of experimental design

controls for history, maturation, and pre-testing (Engel & Schutt, 2014). The variables of interest were perceived sustainability, perceived efficacy, LOC and purchase intention. A model of moderated mediation was used to analyze the problem.

## 1.6 Dissertation outline

The following chapter gives an outline of the relevant topics from which the hypothesis for this research is formed. The literature review, thus, defines the fundamental terms and explain the current state of research on the relevant variables that impact purchase intentions for ethical products. The development of hypothesis for the study and the conceptual model conclude this part of the dissertation. The third chapter describes the study design including the measurement methods and the development of the stimuli in detail. In the last chapter the results will be analyzed and discussed. Based on the findings and literature review we draw conclusions about practical implications for managers and identify gaps for future research.

# 2. LITERATURE REVIEW

## 2.1 Corporate Social Responsibility and ethical attributes

CSR is defined as "*a voluntary corporate commitment to exceed the explicit and implicit obligations imposed on a company by society's expectations of conventional corporate behavior*" (Falck & Heblich, 2007, p. 247). This is expressed in practices that either aim to create a positive impact or minimize the negative impact of a corporation on society (Pride & Ferrell, 2006).

Such programs can take on many forms including philanthropy, corporate social advocacy, partnerships with advocacy groups, and sustainable business practices (Kotler & Lee, 2005). Fueled by growing consumer expectations, CSR has been becoming increasingly important for businesses; catching considerable momentum in the 1990s (Roberts, 1996; Singh, Iglesias, & Batista-Foguet, 2012). Gaining a competitive advantage, building brand equity or driving sales are typical motivations of managers for investing in CSR (Schamp et al., 2019).

As environmental concerns are growing, green (i.e. environmentally friendly) and sustainable business practices have become especially important to companies (Chwialkowska, 2019). Sustainable initiatives and other CSR activities that a corporation engages in are reflected in the products themselves as ethical attributes (Irwin & Walker Naylor, 2009). From a consumer point of view, ethical attributes consist of a broad array of topics that are based on a person's ethical values and thus reflect their conscience (Ehrich & Irwin, 2005). Consumer concerns are related to social and environmental issues of producing, marketing and using the product.

Ethical attributes are just one of many attributes of a product which consumers must screen when making a choice (Schamp et al., 2019). Due to the complex nature of moral values, other attributes that are easier to evaluate are dominant in the early stages of decision making, yet, with a reduced subset of choices, ethicality may become the convincing final argument (Schamp et al., 2019).

### 2.1.1 Perceived ethicality and the attitude-behavior gap

The net impact of CSR on financial performance has long been a controversial topic (Cotte & Trudel, 2009). Current research is narrowing its scope to understand more about the situations in which CSR is working well for companies and in which it is not (Luchs et al., 2010). Since academics and market researchers have been indicating high numbers of socially conscious consumers, investigations of the attitude-behavior gap have shed some light on why

subsequent sales of ethical brands have often fallen short of expectations (Carrigan & Attalla, 2001; Carrington et al., 2010; Cowe & Williams, 2000; Gordon & Euromonitor, 2010).

The existence of an attitude-behavior gap, however, does not mean that consumers do not care about ethical characteristics. In fact, if consumers purchase a product they perceive to be green, they receive an emotional payoff (Schuitema & De Groot, 2015) e.g. a feeling of pride (C. Chang, 2011), also referred to as the "*warm glow of giving"* (Kahneman & Knetsch, 1992, p. 64). This factor is often overlooked when analyzing consumer behavior as it is presumed that economic incentives overrule a person's urge to act in line with their moral standards (Bolderdijk, Steg, Geller, Lehman, & Postmes, 2012).Yet, the motivation to maintain a positive self-concept is a strong factor in guiding human behavior (Mazar, Amir, & Ariely, 2008).

For ethical brands, consumer's emotional incentives and attitudes may lead to higher brand loyalty (Aouina Mejri & Bhatli, 2014) and even higher purchase intentions (H. Kim, Youn, & Lee, 2019). These benefits naturally depend on the extent to which the products are perceived to be ethical. Therefore, a variety of product cues like the color of the packaging, imagery or eco-labels are used to signal that a product is ethical (Pancer et al., 2017). The primary rationale to explain why consumers still rarely follow their attitudes, is that they face certain barriers when shopping ethically (Bray et al., 2011).

There have been numerous studies directed at identifying the factors that constrain consumers acting on their ethical attitudes, with price and quality regularly pointed out as the main inhibitors (Auger & Devinney, 2007; Cotte & Trudel, 2009; Pelsmacker et al., 2006; Sen & Bhattacharya, 2001). While the gap between willingness to pay and high prices for ethical products is more intuitive (Cailleba & Casteran, 2010; Pelsmacker et al., 2006), research on the impact of CSR on perceptions of quality is more puzzling. To explain this, it is important to understand how consumers make decisions with limited knowledge about certain product attributes.

### 2.1.2 Consumer inference making about product efficacy

When making a purchase decision, consumers use brand cues to evaluate unobservable product attributes (Crane & Clarke, 1988; Olson, 1972). It can be distinguished between extrinsic cues that are tagged on to the product and intrinsic cues which are physically part of the product (Olson, 1972). E.g. specific claims, imagery or symbols are extrinsic cues while a product's material is an intrinsic cue. As environmental impact and a product's quality cannot

be fully observed, consumers must to some extent rely on extrinsic cues to evaluate the attributes (Jacoby, Olson, & Haddock, 1971; Pancer et al., 2017).

CSR in the form of eco-labels for instance, then becomes an extrinsic cue for consumers to evaluate product efficacy (Brown & Dacin, 1997; Pancer et al., 2017; Robinson & Wood, 2018). In line with findings on halo effects, this suggests that positive aspects on one dimension, e.g. CSR, positively influence the evaluation of the product on other dimensions e.g. quality (Chernev & Blair, 2015; Luchs et al., 2010). Chernev & Blair (2015) found that even product unrelated CSR activities like donating improved consumer evaluations of that company's products. However, others report lower perceived product quality for products with an observable ethical attribute (Luo & Bhattacharya, 2006; Newman et al., 2014; Robinson & Wood, 2018; Sen & Bhattacharya, 2001). This begs the question whether companies regard CSR and quality as strategic substitutes or complements and how the consumer really interprets the available cues.

One rationale is that consumers assume trade-off effects: companies that spend additional resources (time or money) on CSR or constrain their own production to ensure an ethical standard have less resources to develop other aspects of the product (Chernev & Carpenter, 2001). Indeed, Banerjee & Wathieu (2017) have developed an economic model that suggests that in common, albeit not all, market situations CSR and quality are strategic substitutes. This line of research suggests ceteris paribus, that selling an ethical product with no price premium signals a lower product quality. Yet, at least in certain scenarios e.g. in the hotel industry the two factors can very well function as complements i.e. ethicality signals higher quality (Calveras & Ganuza, 2018). It becomes clear that there are conflicting effects and more research is needed to clarify in which situations halo effects are predominant and in which consumers make negative inferences (Chernev & Carpenter, 2001; Luchs et al., 2010).

Based on research that proposes that people associate ethicality with gentleness, Luchs et al. (2010) have shown that in categories where consumers primarily value strength-related attributes, less ethical alternatives are preferred. They name e.g. car tires, car shampoo and laundry detergent as strength-related categories whereas baby shampoo, facial soaps and body lotion are considered to be gentleness-related categories. Note that this not generally presumes a dichotomous relationship, in other categories consumers may value both aspects highly or primarily value a different attribute. Most recently, Robinson and Wood (2018) have found that new brands touting their CSR activities leads to consumer skepticism about product efficacy and thus lower new product trial.

### 2.1.3 The impact on purchase intentions

As discussed above, the two variables, perceived ethicality and perceived efficacy, have their own impact on product choice. Either by means of an emotional payoff (Schuitema & De Groot, 2015) or by superior quality. The question is which one is dominant when the rewards contradict each other, i.e. what is the net impact on purchase intentions?

Purchase intention is the likelihood that a consumer "*will plan or be willing to purchase a certain product or service in the future*" (Wu, Yeh, & Hsiao, 2011, p. 32). It stands to reason that green product attributes in and of themselves are a positive influence for purchase intention (Schuitema & De Groot, 2015). Bolderdijk et al. (2012) even find that in some cases consumers place environmental appeals above economic appeals. Yet, most researchers agree that consumers are not willing to trade off price or quality in favor of ethical attributes (Aaker, Vohs, & Mogilner, 2010; Carrigan & Attalla, 2001; Deng, 2012). Accordingly, if consumers make negative inferences about product efficacy, potential positive effects of ethicality will likely be outweighed.

Considering these findings, it may be beneficial for some brands to communicate less about their good deeds. However, the relationship of CSR and consumer responses is nuanced and there are many variables that can play an influencing role (Peloza & Shang, 2011). One such variable is certainly the way ethical products are described in the advertising message, which has been shown to change product evaluations significantly (Luchs et al., 2010; Robinson & Wood, 2018).

## 2.2 The role of marketing communication for CSR

Effective marketing communication may, thus, present a solution to these problems. Marketing communication has two basic functions: to inform and to persuade (Narayanan, Manchanda, & Chintagunta, 2005). Information is especially important to create awareness and to reduce uncertainty about a product's quality (Byzalov & Shachar, 2004). In the market place consumers are faced with choices under imperfect information. They rely mainly on past experiences and on information from marketing communication to make a decision (Narayanan et al., 2005). Persuasion is what Narayanan et al. (2005, p. 278) refer to as direct effects i.e. those effects "*that influence preferences through goodwill accumulation*". Most of the CSR communication that consumers encounter happens at the point of sale often via eco-labels, cause related marketing or CSR awards (Creyer & Ross, 1996; Menon & Kahn, 2003; Schamp et al., 2019).

Jahdi & Acikdilli (2009) argue that marketing communication tools play a major role in presenting a company's CSR. Yet, they are also a source of consumer cynicism and mistrust themselves. In the wake of public uproar to green-washing, which refers to the demonstration of symbolic action without taking substantive action, some companies have received backlash for promoting their ethical activities (Walker & Wan, 2012). Judging from real examples and academic findings, it seems like the public is a lot more likely to punish a company's bad behavior than to reward good behavior (Creyer & Ross, 1996; Walker & Wan, 2012). Consequently, advertising remains under public scrutiny.

For this reason and the ones discussed under 2.1.1, overstating one's ethicality may backfire. The challenge is to strike the right balance in communication. Reinforcing functional attributes like a product's efficacy next to its ethical credentials partially alleviates the negative effect of only touting CSR (Luchs et al., 2010; Robinson & Wood, 2018). This approach was labeled "dual promise" and gives some indication that balancing the CSR claims with other messages is advisable. Likewise Pancer et al. (2017) find that isolated environmental cues cause ambiguity in the consumer by activating competing evaluation schemas about functionality and environmental friendliness. Their study concludes, however, that adding a second environmental cue will alleviate the negative effect of perceived efficacy as the consumer can clearly classify the product as environmentally friendly which means that the product is judged on the basis of other environmentally friendly products. This contradicts the intuition of the dual promise claims and highlights that there are not yet clear guidelines for marketing about how to communicate ethical attributes.

Simple messages spread awareness about CSR and thus help differentiating a brand from its competition (Calveras & Ganuza, 2018). Yet, it may not be enough to motivate ethical purchase behavior considering the various constraints people face in the market place (Carrington et al., 2010). Since most green products often do not reach the mass market appeal that marketers hope for based on promising research data about ethical consumers (Carrigan & Attalla, 2001; Carrington et al., 2010; Cotte & Trudel, 2009), one has to wonder who really are the buyers of sustainable products and what makes them different from regular customers?

## 2.3 The Green Consumer and Locus of Control

Early research has focused on demographic aspects of environmentally friendly consumers trying to identify clear segments of potential customers. However, the high diversity of the

results makes it impossible to describe the typical profile of the green consumer (Cotte & Trudel, 2009; D'Souza, Taghian, Lamb, & Peretiatko, 2007).

Also with psychometric aspects such as lifestyle, morals or attitudes, it proves to be difficult to put the various findings together into one coherent picture (Cotte & Trudel, 2009). Just having environmental concern for instance, does not necessarily translate to shopping behavior (Cleveland et al., 2005; Vermeir & Verbeke, 2006). Research on behavioral ethics suggest that bounded ethicality is a reason that people may not act in line with their ethical convictions (Chugh, Banaji, & Bazerman, 2005; Chugh & Kern, 2016). The concept describes that people are prone to ethical failure because they do not always recognize the ethical dimension of a decision situation. In other words, consumers may not even realize the ethical challenge that browsing through the shopping aisles poses. Carrington et al. (2010) argue that although consumers intend to consume more ethically, in the actual purchasing situation they are held back by practical barriers.

Skepticism about the positive impact of one's ethical purchasing is one such barrier to ethical consumption (Bray et al., 2011). It is intuitive that people who do not believe that their environmental contributions make a difference are less likely to engage in these behaviors. Basic psychology confirms that feeling confident and expecting a behavior to succeed makes it much more likely for people to actually engage in that behavior (Ajzen, 1991). Locus of Control (LOC), a psychological concept, was developed to describe this kind of belief.

Locus of control refers to the extent to which an individual believes that events taking place in his life are part of his control (Rotter, 1966). Research distinguishes between an internal and an external locus of control both representing ends of a continuum. Internal locus of control (ILOC) means that the individual believes that events taking place are mostly a consequence of their own behavior while external locus of control (ELOC) is the conviction that the events are largely out of an individual's control (Borden & Hendrick, 1973). It is, closely related to and sometimes used interchangeably with the concept of self-efficacy (e.g. Roberts, 1996). Nevertheless, LOC is among the most popular and accurate predictors in social sciences literatures (Bradley & Sparks, 2002).

In the context of sustainability LOC has been shown to predict environmental sensitivity (Bodur & Sarigollu, 2005) and sustainable behavior (Cleveland et al., 2012). Schwepker and Cornwell (1991) related ILOC to the purchase of ecologically packaged products. In an empirical study Chwialkowska (2019) has examined the impact of various primers such as

internal locus activation, status appeal, health appeal and effectiveness claims among others to test for their ability to activate green behavior. From all the primers tested, internal locus of control was the single best predictor of purchases with an odds ratio of 81.34 (Chwialkowska, 2019). In another study participants that were primed on the concept of superhero, were more likely to volunteer and help people (Nelson & Norton, 2005). Overall, numerous studies find that LOC is a good predictor for ethical behavior (Cheng et al., 2018; Cleveland et al., 2005; Roberts, 1996).

People with ILOC are prone to believe that behaving more sustainable can bring them happiness and will thus perceive a green message as more positive (Cheng et al., 2018). It will be interesting how LOC affects negative inferences made about ethical products. To the best of our knowledge, as of yet there are no studies that have tested that.

## 2.4 Conceptual Model and Hypothesis Development

Based on the findings in the literature review, the conceptual model and hypothesis are developed. The findings discussed above lead us to presume that under certain circumstances the presence of environmental cues may cause consumers to negatively evaluate a product. On the flipside, an environmental message will naturally increase consumer perception of the sustainability of the product. Analyzing how these two variables are correlated will give us a first insight into consumer decision making. This is why we hypothesize two direct effects of having a product promote its environmental aspects compared with a product that emphasizes functionality.

- ➔ **$H_1$:** Comparing the environmental message to the functional message results in two separate effects on consumer perceptions.
- ➔ **$H_{1a}$**: The environmental message has a negative effect on perceived efficacy compared to the functional message.
- ➔ **$H_{1b}$**: The environmental message has a positive effect on perceived sustainability compared to the functional message.

Numerous papers that relate LOC to environmental sensibility and subsequent behavior were reviewed. Overall, people with ILOC, i.e. high values of LOC, believe that their environmental behavior can make a difference. Therefore, we presume that people make different inferences about product attributes for an environmentally conscious product than for a functionality focused product.

- ➔ **$H_2$:** Locus of Control moderates the influence of the type of message (environmental vs. functional) on consumer inference making, so that:
- ➔ **$H_{2a}$**: Locus of Control moderates the influence of the type of message (environmental vs. functional) on perceived efficacy.
- ➔ **$H_{2b}$:** Locus of Control moderates the influence of the type of message (environmental vs. functional) on perceived sustainability.

Taking together the chapters discussed above, there is a strong case for a mediated relationship of a product's main message to purchase intention through perceived efficacy and perceived sustainability.

- ➔ **$H_3$:** The effect of the marketing message on purchase intention is mediated, so that:
- ➔ **$H_{3a}$**: Perceived efficacy mediates the relationship between message and purchase Intention.
- ➔ **$H_{3b}$**: Perceived sustainability mediates the relationship between message and purchase Intention.

Alongside the negative effect of CSR on purchase intention, we expect a positive direct effect of the environmental message on purchase intention e.g. through an emotional payoff or to maintain a positive self-concept. Based on findings that suggested that consumers do not trade-off price or quality for sustainability, we presume the negative effect of perceived efficacy dominates the positive effect of perceived sustainability.

- ➔ **$H_{3c}$:** Perceived efficacy has a stronger influence than perceived sustainability on purchase intentions.

To summarize, we first expect a direct effect of the message type on perceived efficacy and perceived sustainability. Second, this relationship is likely moderated by LOC and third, we presume a mediated relationship of the type of message to purchase intention with perceived efficacy being dominant. The hypothesized relationships of the variables are visualized in Figure 1.

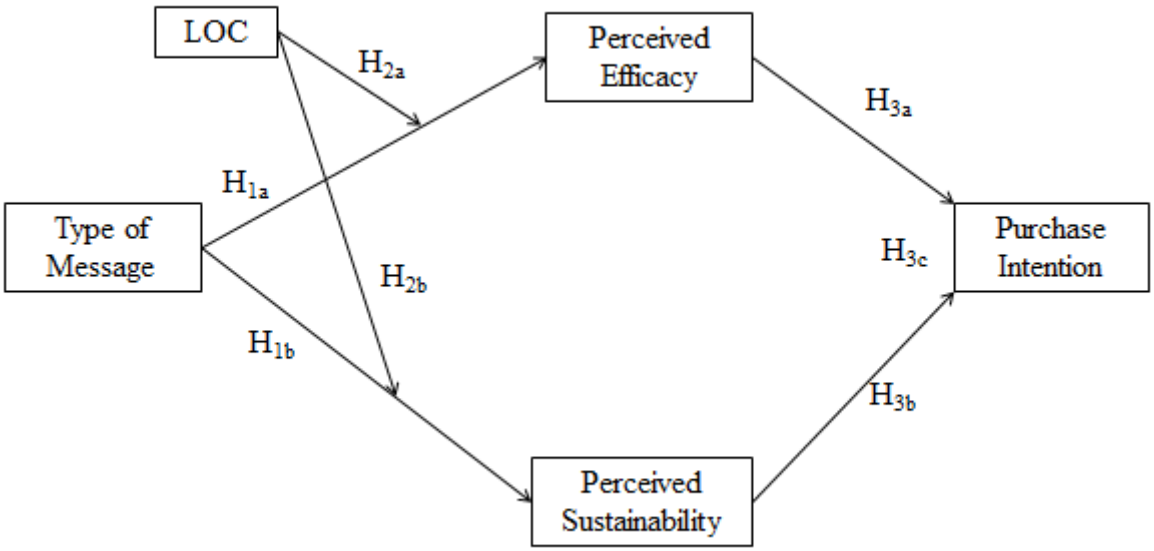


Figure 1 Conceptual model with hypothesis

# 3. METHODOLOGY

The next chapters explain the general approach of the study, outline how the data was collected including what kind of scales were chosen to measure the effects. Furthermore, it clearly explains how the experiment works and the stimuli developed for it.

## 3.1 Research Approach

To answer the research question, the causal relationship between variables had to be examined, hence an explanatory, quantitative approach was chosen (Saunders, Lewis, & Thornhill, 2009). Primary data was collected with an online survey to reach a large sample size across different locations in a time and cost efficient manner and allow for flexibility in presenting an experimental design (Lefever, Dal, & Matthíasdóttir, 2007; Malhotra & Birks, 2007). Additionally, self-administered questionnaires have been shown to reduce social desirability bias (Dillman, 2007). The randomized experimental research allows for evaluating the cause and effect relationship assumed in the conceptual model by creating groups that are probabilistically similar to each other (Shadish, Cook, & Campbell, 2002). To account for the different effects of the two types of messages (environmental vs. functional), a two group experimental design was set up.

Laundry detergent was chosen as the experimental product category because it has been identified as a category where consumers primarily value strength-related attributes and thus consumers tend to see CSR less positively (Luchs et al., 2010). It is also relatively clear what

product efficacy means to the consumer in this category as there is only one primary dimension that efficacy will be measured on, the ability to clean clothes (Newman et al., 2014). Another advantage of laundry detergent is, that it is consumed in private and therefore makes impression management behavior of consumers irrelevant (Griskevicius, Tybur, & Bergh, 2010).

Purchase intention in particular has been shown to be strongly dependent on attitudes and preferences toward a brand (Kim & Ko, 2010). Hence, a fake brand was created so that the results would not be hampered by preexisting positions which guide the interpretation of new information (Ahluwalia, Burnkrant, & Unnava, 2000). The fake brand was called "Roice" in an attempt to create a name for which respondents have no preexisting associations. Two types of messages were presented to the respondent that either promoted the efficacy or the sustainability of the laundry detergent.

## 3.2 Primary Data

### 3.2.1 Data Collection

The target population is customers of laundry detergent who purchase on a regular basis. To obtain a broad sample, the online survey was created in Qualtrics and distributed in social media networks as well as via direct messaging. The data was collected between April 12, 2019 and May 3, 2019. While convenience samples are associated with various limitations, chiefly selection biases, they are especially useful when the population is very large and when workforce, and resources are limited (Etikan, 2016). This type of sampling is also commonly used in comparable studies (e.g. Luchs et al., 2010; Robinson & Wood, 2018; Schamp et al., 2019). To ensure responses outside the target population were not measured; participants who do not regularly buy laundry detergent were identified and excluded. In regards to statistical power it was aimed at collecting about 150 responses which is an appropriate sample size when assuming a moderate effect size and an alpha of .05 (Hair, 2014). To incentivize responses, one Amazon voucher of 10€ was drawn among all participants.

### 3.2.2 Stimuli Development

When conducting an experiment it is important to develop stimuli that closely match reality to achieve higher external validity as long as it does not jeopardize the internal validity (Lynch, Jr., 1982). The CSR messages were sought to be realistically implemented in a way that resembles the way they would likely be presented in a shopping situation. That is why we attached them as claims on the product packaging alongside other typical information for laundry detergent. As discussed above, we opted to use a made up brand. Consequently, the

product package was designed from the ground up. The product shows the logo of our new brand "Roice", it then prominently features our manipulation message and two unchanging claims about its efficacy ("Deep Clean") and sustainability ("Natural Ingredients"). Thus, we are always displaying a product that is both functional ("Deep Clean") and environmentally conscious ("Natural Ingredients") and as such communicate a dual promise as advised by previous research (Luchs et al., 2010; Robinson & Wood, 2018). By changing the main message we emphasize one of the two aspects so that we can draw conclusions about the inferences that consumers make and how they react to it. The environmental message reads "We protect the environment" while the functionality message says "We fight stains effectively" (Figure 2). See Table 1 for the two-conditions set-up.


**Figure 2 Environmental stimulus and functional stimulus**

| Type of Message | |
|---|---|
| Environmental | Functional |
| Condition 1 | Condition 2 |

**Table 1 Experimental conditions**

### 3.2.3 Measurement / Indicators

As is common in comparable studies (e.g. Gosselt, van Rompay, & Haske, 2019), an unobtrusive introduction to the study and its purpose was given, to avoid participants

guessing the hypothesis. The introductory message informed them that they were partaking in a study to evaluate laundry detergents without mentioning anything about sustainability, CSR or marketing claims.

The categorical independent variable, message type (functional vs. environmental) was used to manipulate the sample. The dependent variables (DV), perceived ethicality, perceived efficacy and purchase intention, were measured using scales derived from literature. See Table 2 for an overview of the scales used and Appendix 1 for the full questionnaire.

Purchase intention was measured with three items on a 7-point Likert scale. The multi-item scale is concise and reported a high reliability (Putrevu & Lord, 1994). Perceived product efficacy was measured with three items on a 7-point scale which was adopted from Pancer et al. (2017) who have already successfully used this scale for examining sustainable laundry detergent. Perceived sustainability was measured with four items on a 7-point scale to match the rest of the variables, adapted from Pancer et al. (2017). Originally, the items were measured on a scale from 1 to 100, however, to bring it in line with the other dependent variables, it was adapted to a 7-point scale. Like perceived product efficacy this scale has the advantage that it was already successfully used in the same category for a comparable research approach.

The moderator, Locus of Control, was measured on a 10-item scale in the sphere of sociopolitical control (McCarty & Shrum, 2001). The construct originally belongs to three spheres of behavior, developed by Paulhus (1983) which can be used independently. McCarty and Shrum (2001) have already successfully used this sphere in the context of environmental beliefs and behaviors. The items are evaluated on a 6-point scale where higher scores indicate an internal locus of control.

| Variable | Scale | Questions | Source |
|---|---|---|---|
| Purchase Intention | 7-Point Likert | 3 items | Putrevu and Lord (1994) |
| Perceived Efficacy | 7-Point Likert | 3 items | Pancer et al., (2017) |
| Perceived Sustainability | 7-Point Likert | 4 items | Pancer et al., (2017) |
| Locus of Control | 6-Point Likert | 10 items | McCarty and Shrum (2001)<br>Paulhus (1983) |

**Table 2 Scales**

The survey included a manipulation check to verify if the treatments had been perceived by participants as intended (Bagozzi, 1977). The two different message type stimuli were checked by asking respondents to which degree the product packaging emphasized sustainability or cleaning effectiveness.

The survey continued with questions about the participant's demographics to get a grasp of sample characteristics and concluded by thanking them and providing the opportunity to sign up to the drawing of the Amazon voucher.

### 3.2.4 Data Analysis

The collected data was analyzed with IBM SPSS Statistics and the PROCESS macro version 3 by Andrew F. Hayes. Before testing the hypothesis, the data was screened for missing data and outliers, yet, no outliers were identified. To prepare for the analysis of the statistical model, the assumptions of additivity, normality and homoscedasticity were examined and approved albeit the normal distribution's peak is slightly skewed (see Appendix 2 for graphs of the assumptions). The statistical model 7 for PROCESS was selected based on the research question and the hypothesis drawn from the literature review. Model 7 tests for a moderated mediation and can include multiple mediators.

PROCESS is based on an advanced way to measure the indirect effect that is increasingly applied (Demming, Jahn, & Boztug, 2017). Although Baron and Kenny pioneered the methodology for mediation analysis with what is now known as the traditional approach, their methodology has been criticized in recent years for lacking explanatory power and being overly restrictive (Demming et al., 2017). In this analysis we used the regression-based bootstrap approach developed by Preacher and Hayes (2004). The main advantages are that it does not adhere to the overly restrictive assumptions of the traditional approach (Demming et al., 2017) while providing the necessary power to accurately test an indirect effect (Shrout & Bolger, 2002) even with small samples, without increasing type-I-errors (Preacher & Hayes, 2008).

The direct effects were examined with independent sample t-tests to compare the two experimental conditions while checking for the homoscedasticity and normality assumption with the Levene's and Kolmogorov-Smirnov tests. The overall sample was analyzed using frequencies.

# 4. RESULTS AND DISCUSSION

## 4.1 Results

The fourth chapter presents the outcome of the study. First the sample characteristics are described and then the manipulation check and the scale reliability are analyzed. In the second part of the chapter the tests for each hypothesis are reported and interpreted. The chapter concludes with an overview of the hypothesis in the statistical model.

### 4.1.1 Sample Description

A total of 208 people responded to the survey. From this data 59 data sets were deleted due to only partial completion of the questionnaire. Of the remaining answers, 22 indicated that they are neither buying nor using laundry detergent on a regular basis and were thus excluded from the analysis. Consequently, the final sample consisted of 127 respondents.

Demographically, the sample represents both male (54%) and female (46%) relatively equally. However, young adults (77%) and people with a university degree (84%) are strongly over represented in the sample. Most respondents are either employed (58%) or are students (27%). The nationalities are very varied, albeit most are German (50%), Indian (20%) or from the USA (16%). Please see Appendix 3 for a detailed overview of the sample characteristics.

The two experimental groups were made up of 62 people in the environmental condition and 65 people in the functionality condition. With Chi-Square tests the groups were compared for differences with no demographic variable being significant, thus, indicating a successful randomization of the groups.

### 4.1.2 Manipulation Check

To check for a successful manipulation of the stimulus, an independent samples t-test was conducted for the two items of the manipulation check, sustainability and cleaning effectiveness, which were measured on a 5-point scale. Levene's test for equal variances proved insignificant for both. The functionality stimulus, resulted in higher ratings of cleaning effectiveness ($M$ = 3.68; $SD$ = 0.99) compared to the environmental condition ($M$ = 3.00; $SD$ = 1.09) and the t-test for equal means indicated significant differences ($t(125) = -3.68$; $p < .001$). Likewise, the rating of sustainability differed significantly from the functionality condition ($M$ = 2.88; $SD$ = 1.33) to the environmental condition ($M$ = 3.76; $SD$ = 1.16; $t(125) = 3.98$; $p < .001$). Hence, the manipulation check worked as intended and the participants were successfully affected by the different stimuli.

### 4.1.3 Scale Reliability

To ensure a high internal reliability of the scales as they are used in the study, Cronbach's Alpha was assessed for each of the mediators, the moderator and the dependent variable. There is no clear consensus in literature on which values for alpha are good. Streiner (2003) argues that values between .7 and .9 are usually acceptable where lower values would indicate a low consistency of the scale and higher values would suggest unnecessary redundancy of the items.

All of the scales had acceptable reliabilities well above .70 except for the scale for perceived efficacy which had a Conbach's Alpha of only .44. The inversed item of the scale was slightly negatively correlated to the first item which could mean that the respondents did not correctly understand how the question was phrased. After dropping this item, which means reducing the scale of perceived efficacy to two items only, Cronbach's Alpha rose to .73.

Since all constructs now indicated an acceptable reliability, the single items were averaged into scale means.

## 4.2 Testing of the Hypothesis

The following subchapters will explain the results of the analysis concerning the hypothesis. The results will subsequently be followed up by a brief discussion. This structure was chosen to make it easier for the reader to connect the results to the interpretation.

### 4.2.1 Hypothesis Part 1: Direct effects

**$H_{1a}$: The environmental message has a negative effect on perceived efficacy compared to the functional message.**

To test for this hypothesis the difference in means of the two experimental conditions was compared with an independent samples t-test. The Levene's test indicated equal variances, the respective t-test, however, was not significant ($t(125) = -0.32$; $p = 0.75$). Thus, the Null-Hypothesis of equal means could not be rejected (see Table 3 for an overview of the results). Indeed, the reported means for perceived efficacy in the sustainable condition ($M = 4.76$; $SD = 1.24$) compared to the functionality condition (M=4.83; SD=1.28) are hardly indicating a negative effect of the sustainable message on the perceived efficacy of the product. Hence, this hypothesis is rejected.

It seems that consumers do not generally make negative inferences after all. This is somewhat surprising since numerous studies have suggested that there may be a negative correlation

(e.g. Luchs et al., 2010; Pancer et al., 2017; Robinson & Wood, 2018). However, as discussed in the literature review there is not yet a clear consensus about this question and the relationship between perceived ethicality and perceived efficacy is situational. For example, Robinson & Wood (2018) reported a negative effect only with young ethical brands as consumers trust that the longevity of established brands prove that they know how to make quality products. It may also be the case that we are seeing the same surprising effect that Pancer et al. (2017) discovered. They found that isolated environmental cues lead to negative perceptions about a product's efficacy due to ambiguity but multiple environmental cues could resolve that issue by activating a different decision schema. Remember that both our stimuli had the "natural ingredients" claim and the environmental condition paired that with a further message about sustainability.

Further arguments about the sample being younger than the average customers of laundry detergent can be made. The growing movement of green consumption is to a large part driven by younger people (Vermeir & Verbeke, 2006). However, more revealing about this issue is the role that LOC plays in moderating perceived efficacy, which is analyzed under $H_{2a}$.

➔ **$H_{1b}$: The environmental message has a positive effect on perceived sustainability compared to the functional message.**

Analogous to $H_{1a}$, this was tested with an independent samples t-test. The Levene's test indicated differences in variances here, so that the adjusted t-value was considered. The t-test itself was significant ($t(116,23) = 4.39$; $p < .001$) with reported means of 5.23 ($SD = 1.03$) in the environmental condition and 4.26 ($SD = 1.43$) in the functionality condition. Hence, this hypothesis is confirmed.

So, in contrast to perceived efficacy, perceived sustainability is strongly affected by the different messages. This is a very clear outcome as was to be expected. The environmental message naturally enhances the impression of a more sustainable product and the lack thereof reduces it. This relationship is very direct and straight forward, as seen in Table 3.

| | Stimulus | | | | |
|---|---|---|---|---|---|
| | Environmental (N=62) | | Functional (N=65) | | |
| Variable | Mean | SD | Mean | SD | t-value |
| Perceived efficacy | 4,76 | 1,24 | 4,83 | 1,28 | -0,32 |
| Perceived sustainability | 5,23 | 1,03 | 4,26 | 1,43 | 4,39*** |

Note: ***p ≤ .001, ** p ≤ .01, * p ≤ .05, $^{+}$p ≤ .1

**Table 3 Results of the independent samples t-test for $H_1$**

### 4.2.2 Hypothesis Part 2: Moderation

The following analyses are based on running the full statistical model in PROCESS as discussed in the conceptual model chapter. See also Figure 5 for an overview of the hypothesis in the statistical model.

**$H_{2a}$: Locus of Control moderates the influence of the message on perceived efficacy.**

**Interaction effect Stimulus x LOC**

To analyze if LOC moderates perceived efficacy, the interaction effect of LOC with the kind of stimulus given have to be examined. Indeed, there is an interaction effect present in this model (effect: -0.51; $t(123) = -1.79$; $p < .10$) that is significant to the 10% level. Figure 3**Fehler! Verweisquelle konnte nicht gefunden werden.**, clearly shows that there is a crossover interaction of the kind of stimulus used and LOC. The crossover interaction reveals that higher LOC leads to more favorable ratings of perceived efficacy for the environmental message compared to the functionality message and conversely, people with lower LOC perceive the more environmental product as less efficient.

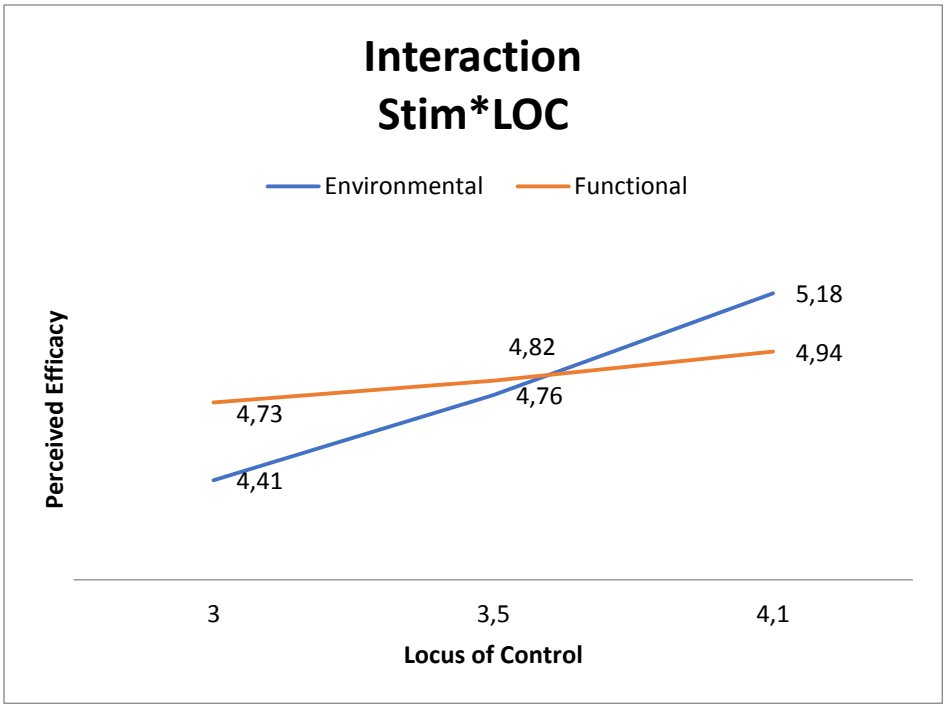


**Figure 3 Interaction effect of stimulus and LOC for perceived efficacy**

This leads to an interesting cue as to why $H_{1a}$ was rejected. The crossover interaction defies measuring differences in means of the overall effect since the environmental message leads to both lower and higher ratings of efficacy based on if a person has an ILOC or ELOC. The different directions of these differences subsequently neutralize each other when added together for the full effect which explains why the independent samples t-test is not significant. So the graph indicates that people with an ELOC will, indeed, perceive a sustainable product as less efficient like assumed in the literature $H_{1a}$ was derived from.

The more surprising part is that the opposite is true for people with an ILOC. This implies that to these people an ethical attribute is a cue for a well-made product. In other words, people that have a high confidence in their power to influence events around them (e.g. the environment) also perceive relatively ethical products (e.g. green products) as being better from a quality perspective. Theoretically, this seems to lean in the direction of findings about the halo effect of ethical products (Chernev & Blair, 2015) where the ethical attribute improved the perception of other attributes. However, we also do see the negative effect postulated by other researchers (e.g. Luchs et al., 2010; Robinson & Wood, 2018; Sen & Bhattacharya, 2001). The interesting fact is that LOC is determining which line of theory is applicable.

**Main effect of LOC**

Although not postulated in a hypothesis, the statistical model includes the main effect of LOC. Besides the interaction effect, Figure 3 also hints at such a main effect of LOC on perceived efficacy: Irrelevant of the experimental condition a higher LOC results in higher efficacy ratings. This effect is highly significant in the model (effect: .69; $t(123) = 3.53$; $p < .001$). The effect is visualized in the graph as efficacy values for both lines, regardless of experimental condition, are rising with higher LOC values. The differences are also quite large as an LOC of 3.0 results in an efficacy rating of 4.4 and a LOC of 4.1 results in an efficacy rating of 5.18.

Since the experimental conditions emphazised different aspects of the product, the laundry detergents shown to the respective groups were both ethical to some extent as they were labeled to have „Natural Ingredients“. So we might see a main effect due to the fact that with high LOC people in both conditions regarded the natural ingredients as more positive. Another interpretation could be that consumers with an ILOC see products across the board as more effective tools since they believe stronger in their ability to have an impact on their surroundings. Although both interpretations would find some support in the data, the former lines up better with other findings in the literature about ethical consumer behavior e.g. dual promises (Luchs et al., 2010; Robinson & Wood, 2018).

**$H_{2b}$: LOC moderates perceived sustainability.**

**Interaction effect Stimulus x LOC**

Again, the interaction between the stimulus and LOC has to be analyzed. The effect is significant to the 5% level (effect: -.6; $t(123) = -2.05$; $p < .05$). Here, the shape of the interaction effect (see Figure 4) emphasizes the differences in means discovered with the independent samples t-test in $H_{1b}$. As the LOC scores increase, so do the ratings of sustainability in the environmental condition, however, the ratings of sustainability in the functionality condition decrease.

Incidentally, people perceive the ethical laundry detergent as being better for the environment and the laundry detergent in the functional condition as more harmful for the environment. Hence, with higher LOC the differences between the stimuli grow stronger. Again, this underscores the relevance of LOC in ethical consumer behavior. It shows that in the market place, to people with an ILOC it makes a big difference whether a product is green or not whereas for people with an ELOC the differences are only minor.

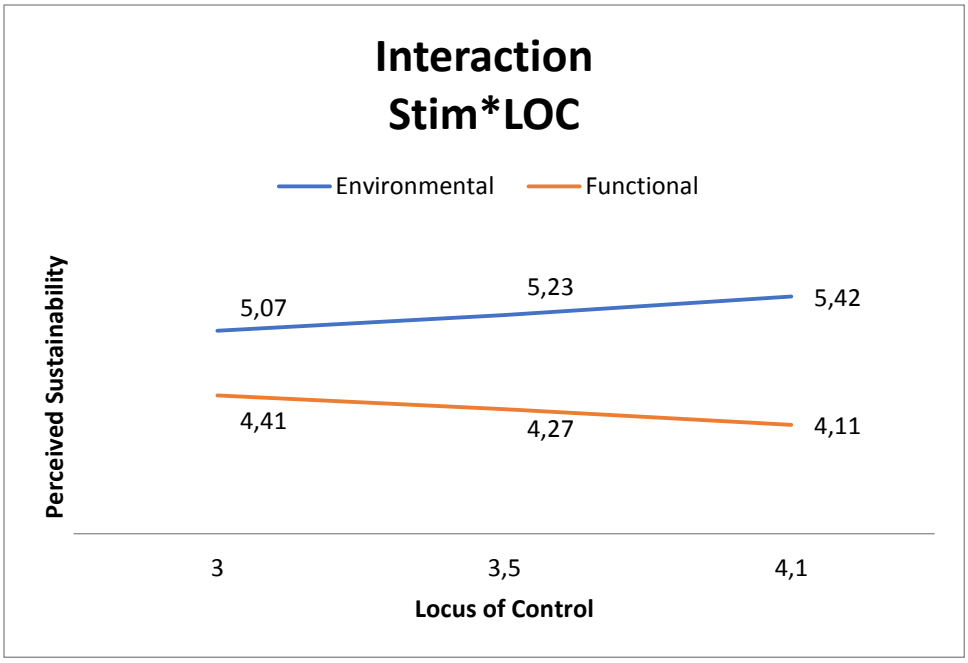


Figure 4 Interaction effect of stimulus and LOC for perceived sustainability

**Main effect of LOC**

There is no main effect of LOC on perceived sustainability (effect: .32; $t(123) = 1.57$; $p = .12$). Higher values of LOC do not lead to a unanimous response of sustainability ratings across the stimuli. So the diverging lines neutralize any overall effect of LOC.

### 4.2.3 Hypothesis Part 3: Mediation

A mediation effect is present when changes in the independent variable account for variation in the mediator and in turn, changes in the mediator cause variation in the dependent variable (Baron & Kenny, 1986). Thus, the independent variable is a causal antecedent to the mediator likewise the mediator is a causal antecedent to the dependent variable. For the statistical model this implicates that there are two stages, independent variable to mediator and mediator to dependent variable, that need to be significant for a mediation. Total mediation occurs when the mediation is significant and fully explaining the dependent variable, while the direct effect of the independent variable is not significant (Baron & Kenny, 1986).

The results of indirect effects are analyzed by examining the confidence interval of the bootstrap distribution. The indirect effect is statistically significant if the confidence interval does not include zero (Demming et al., 2017). When a moderated mediation is present, three representative values around the moderator mean can be examined to see if the mediation is significant at all values of the moderator. This is referred to as a "spotlight analysis" (Demming et al., 2017; Spiller, J. Fitzsimons, Lynch, & Mcclelland, 2013).

**$H_{3a}$: Perceived efficacy mediates the relationship between message and purchase Intention.**

**Indirect path through perceived efficacy**

The indirect path of the message type to purchase intention through perceived efficacy is analyzed. The bootstrap interval of moderated mediation (95% *CI*: - .95 to .15) crosses zero indicating that there is no moderated mediation present. Consequently, none of the bootstrap intervals in the spotlight analysis prove to be significant. This is likely due to the unclear direct effect of the message type. As tested under $H_{1a}$ we cannot say that, overall, the message type had a main effect on perceived efficacy. The interaction as discussed under H2a presents a good rationalization to this phenomenon but it has to be noted that it was significant at the 10% level. The hypothesis $H_{3a}$ has to be rejected since a mediation is only present when both stages of the mediation are significant. The second stage of the path, message type to perceived efficacy to Purchase intention, is discussed under H3c.

**$H_{3b}$: Perceived sustainability mediates the relationship between message and purchase intention.**

**Main effect of message type on perceived sustainability**

The analysis of moderated mediation for perceived sustainability is significant (95% *CI*: - .42 to - .01). The subsequent spotlight analysis confirms mediation for all three values of LOC with negative effect signs (stimulus code: 0 = environmental; 1 = functional): For low LOC (effect: -.21; 95% *CI* -.47 to -.01), for medium LOC (effect: -.31; 95% *CI* -.57 to -.09) and for high LOC (effect: -.42; 95% *CI* -.75 to -.13). These results confirm perceived sustainability as a mediator and that, analogous to the results of H2b, the functional stimulus has a growing negative impact on the path to purchase intention through perceived sustainability.

Furthermore, the direct effect of the stimulus on purchase intention is not significant ($p = .48$), therefore, there is a full mediation in the model.

**$H_{3c}$: Perceived efficacy has a stronger influence than perceived sustainability on purchase intentions.**

To test this hypothesis, the second stage of the model i.e. the direct effects of perceived efficacy and perceived sustainability on purchase intention are analyzed. The second stage of perceived efficacy proves to be highly significant (effect: .74; $t(123) = 8{,}81$; $p < .001$). Likewise, the effect of perceived sustainability on purchase intention, is highly significant

(effect: .32; $t(123) = 3{,}80$; $p < .001$). These are very expected, yet, important results as they confirm statistically the clear logic behind this relationship. Also it emphasizes that perceived efficacy is indisputably important for the decision to buy a product, despite not being an overall significant mediator in this study. In fact, the direct impact of perceived efficacy has a much higher coefficient (.74) than perceived sustainability (.32) which implies a stronger influence of perceived efficacy on purchase intention, therefore, confirming $H_{3c}$.

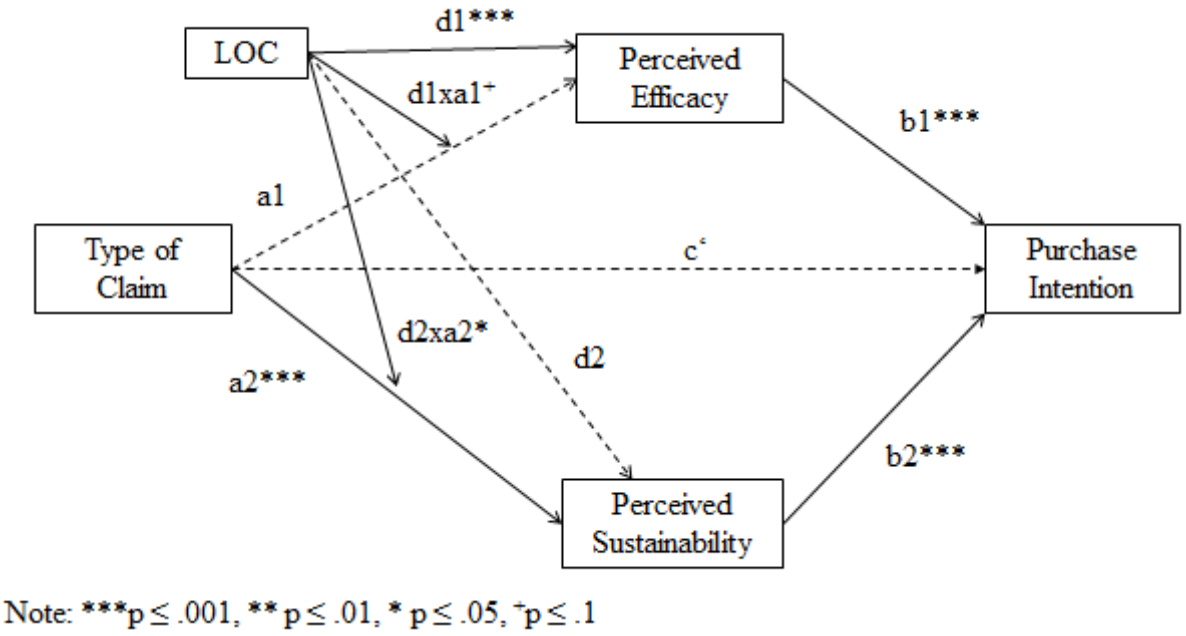


**Figure 5 Conceptual model with significance levels**

# 5. CONCLUSIONS AND LIMITATIONS

## 5.1 Main Findings & Conclusions

The overarching theme of this thesis was to analyze the underlying factors that impede or facilitate ethical consumer behavior. The goal in particular was to analyze the relationship between the perceived sustainability of a product and its perceived efficacy and how they affect decision making. It has long been suggested that ethical decision making is not as straight forward as it was originally made out to be (Carrigan & Attalla, 2001). More recently academics have identified implicit consumer doubts about the efficacy and overall quality of ethical products at large and green products in particular (Luchs et al., 2010; Pancer et al., 2017; Robinson & Wood, 2018).

An experimental study was conducted with a product that primarily communicated functional aspects and a product that primarily communicated sustainable aspects. 127 respondents of the convenience sample were randomly allocated to one of the two groups. The variables of interest were perceived efficacy, perceived sustainability and purchase intention. To examine in depth why respondents react in a certain way, locus of control was measured additionally. Based on the literature, a model of moderated mediation was proposed that featured perceived efficacy and perceived sustainability as mediators to purchase intention and locus of control as the moderator.

Based on the study's findings, the first and the second research question are discussed in unison.

*RQ1*: *What is the effect of promoting a product's sustainability on perceived efficacy and perceived sustainability?*

*RQ2: How does a person's locus of control affect the perception of a product's efficacy and sustainability?*

Overall, there is no direct negative effect of communicating sustainability on perceived efficacy. That means at first glance that H1a is rejected. However, we find that people with an ELOC do make these negative inferences based on perceived sustainability. It is just, that people with an ILOC make contrary inferences. In other words, they evaluate the efficacy of sustainable products more positively than of unsustainable products. Hence, the cross-over interaction of LOC moderates the relationship of the environmental message and perceived efficacy so that a main effect neutralized.

Putting this in the context of previous research on this topic, our result fits in right between the controversial findings about the effects of ethical attributes. While many have pointed out that there is a good case for CSR because sustainable products increase consumer evaluations of the product and in turn their purchase intentions (Chernev & Blair, 2015; Du, Bhattacharya, & Sen, 2007), others have shown that, clearly, this is not always the case and that ethical products may even be at a disadvantage to their regular competitors (Luchs et al., 2010; Pancer et al., 2017; Robinson & Wood, 2018; Sen & Bhattacharya, 2001). The results of our study increase the ability to understand and predict when ethical attributes can backfire. Among the most important previously identified reasons for negative inferences on product quality were: Isolated environmental cues (Pancer et al., 2017), having a new brand

(Robinson & Wood, 2018) and strength-related categories (Luchs et al., 2010; Newman et al., 2014). Locus of control now adds another dimension to understanding consumer judgments.

Ultimately, we can answer *RQ1* by saying, that promoting sustainability in a product can lead to both positive and negative inferences and *RQ2* by stating that LOC moderates this relationship.

The third and final research question asks for the overall impact of communicating sustainability.

*RQ3: Is a high or low focus on sustainability in marketing communications beneficial?*

In this regard the results of this study cannot give a definitive answer. Rather, it depends on the locus of control of a company's consumers. Some respond more positively, others more negatively to a sustainable message. It can be concluded, however, that when the direct impact of perceived sustainability and perceived efficacy on purchase intention (i.e. the second stage of the mediation) is compared, perceived efficacy will have a stronger effect on purchase intention. This means that potential positive effects of sustainability cannot overrule negative inferences made about a product's efficacy. This conclusion matches previous findings in academia (Aaker et al., 2010; Carrigan & Attalla, 2001; Deng, 2012).

Overall, there was no significant direct effect of the stimuli on purchase intention. The model showed that the effects were fully mediated by perceived sustainability. Perceived efficacy did not turn out to be a significant mediator in this study which led to the rejection of $H_{3a}$. Again, this finding can be attributed to the moderating effect of LOC that disrupts the indirect path to purchase intention through perceived efficacy since other studies have, in fact, found perceived efficacy to mediate purchase intention (Pancer et al., 2017).

This does not suggest that the way a product is communicated is irrelevant but rather that the communication needs to fit the type of customer it aims to reach. As such it must be adapted and consumer knowledge is crucial for that.

## 5.2 Academic Implications

This dissertation contributes to academia in several important ways:

First of all it puts together previous findings about consumer inference making for green products and presents a model that tests and measures the relationships between the major variables identified: perceived efficacy, perceived sustainability, purchase intention and LOC. From this, meaningful conclusions can be drawn about how and why consumers make certain

inferences and judgments about product attributes. As such the model expands previous endeavors e.g. by Pancer et al. (2017) who used a mediation model of perceived efficacy. By examining moderated mediation of perceived efficacy and perceived sustainability in parallel, this thesis created a more complex model that allows for understanding the intuitive evaluations that consumers make.

Furthermore, LOC was introduced to the study. Although LOC has been shown to be an important antecedent of ethical consumption, it has not previously been used in this context to understand how the internal consumer product evaluations are influenced. As such it gives valuable insights as a determinant of ethical inference making. It also hints at the reasons to why certain people react differently to green products and by extension why there is widespread controversy in academia in general about the business case for CSR (Carrington et al., 2010; Cotte & Trudel, 2009).

Consequently, this dissertation adds to the growing body of literature that examines in which cases consumers react positively to ethical products and in which they react negatively. We acknowledge that consumer decision making in this field is multilayered and there is no one-size-fits-all answer. But it is important to identify step by step which factors are crucial in influencing this important topic.

## 5.3 Managerial Implications

The present study has highlighted that just having a green product does not necessarily lead to higher purchase intentions, much less so considering that ethical products are often priced at a premium (Cailleba & Casteran, 2010; Pelsmacker et al., 2006). The overarching take-away for managers from this topic must be the factors they need to look out for when selling ethical products. As discussed above, research is merely beginning to unpack the internal evaluations of ethical consumer behavior.

Since other studies have suggested that the way an ethical product is promoted, changes the way that consumers evaluate it, we put specific relevance to finding out if a more functionality focused or a more environmental focused communication is successful. Ultimately, this question cannot be easily answered. There is not one way that is more successful than the other but it depends on the type of consumer. This does not mean that the communication is irrelevant but rather that it needs to be targeted to customer segments. Knowing how to appeal to your customers' attitudes is crucial for marketers. So we advise

marketing managers to add LOC to their market research studies and include it as a psychometric factor in their segmentation strategy.

Previous research has already suggested that green brands may need to emphasize the quality and efficacy of their products to alleviate the negative inferences of consumers (Luchs et al., 2010; Robinson & Wood, 2018). Based on our results, we agree with this as otherwise brands may unwillingly put off a major part of their potential customer base by overemphasizing their green appeal. In practice that means that a balance between ethical attributes and functionality must be achieved in the way a product is communicated also taking into account the cues (e.g. packaging color, eco-labels, product material etc.) that consumers use to evaluate the product. Smaller, more niche, ethical brands may have less trouble and even benefit from touting their CSR as the core green-customers are likely those with an ILOC who, according to our study, evaluated a product's efficacy as better for more environmentally conscious brands. Accordingly, mainstream brands may need to follow a different marketing approach than small brands or even social enterprises that appeal only to a certain segment anyway.

## 5.4 Limitations and Further Research

Like all research, this dissertation has certain weaknesses and limitations. The sample was collected as a convenience sample and as a result is not quite representative of any real population (i.e. customer group). Yet, similar studies exploring consumer behavior were conducted likewise (Luchs et al., 2010; Robinson & Wood, 2018; Schamp et al., 2019). Apart from the sample, a possible issue could be the social desirability bias. Especially in the context of ethical consumption this can likely sway the results (Cotte & Trudel, 2009). Respondents may inflate their true opinions about a product they believe to be considered as morally good. This is a problem that plagues many similar studies. Luchs et al. (2010) actually opted to use a projective technique in their questionnaire to reduce the influence of this bias. If this bias affected our results, then respondents understated their negative perceptions of efficacy. In any case, anonymous data collection which was also used in this thesis, has been shown to limit this issue (Fishbein & Ajzen, 2010).

As discussed in the literature review, there also seems to be a gap between stated intentions and actual purchase behavior for ethical consumption (e.g. Carrington et al., 2010). Schamp et al. (2019) argue that a lot of research for ethical consumption is inconclusive because respondents are not forced to make actual trade-offs and thus, do not reflect the real market place behavior. This applies to our analysis of purchase intentions, yet less to the main focus

of the study: Understanding why respondents have a certain purchase intention by analyzing the antecedents, perceived sustainability and perceived efficacy.

The study's scope was limited by using a specific kind of ethical attribute, namely sustainability. So the results are primarily applicable to green brands, however they may give cues about how consumers react also for other ethical issues. In any case, future research may adopt the idea of this study to test further ethical issues and examine if consumer reactions are comparable.

This dissertation was aiming to put multiple important factors for ethical decision making in one model and we propose that future research will increasingly do that as it allows for a deeper understanding about how different factors affect each other when consumers make a decision. Furthermore, our results suggest that treating certain variables in isolation may obscure the implicit interaction effects that drive the decision. With more complex models becoming more accessible through advances in statistical software, combining various important attributes in a single model can become a goal for further analysis of the underlying evaluations consumers make.

Another important objective for academia should be in examining how to capitalize on the findings of this study. Chwialkowska (2019) has recently started to look into how marketing communication can appeal to ethical consumers, e.g. by priming them on an internal locus of control. Using the knowledge about consumer behavior and finding ways how to speak to that through marketing communication will be very relevant going forward.

Overall, this thesis shows that ethical consumer behavior is rarely straight forward. More research should focus on finding out when ethicality becomes a liability to brands and about the various influencing factors to the relationship of ethicality and quality perceptions.

# Appendix

## 1. Questionnaire

Start of Block: Introduction

Dear respondent,

**Thank you** so much for taking part in my survey! Your answers will really help my study and thus, finish my master's degree. Doing the survey will take less than 10 minutes.

The survey is about **laundry detergent** and asks some general questions about your attitudes. There are **no right and wrong answers** and your responses will be treated anonymously. Please read the questions carefully and answer truthfully. At the end you can enter your e-mail for a chance to win a **10€ Amazon voucher.**

- Jonathan Franke

End of Block: Introduction

Start of Block: LOC

Q1 Please indicate your level of agreement to the following statements.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Somewhat agree (4) | Agree (5) | Strongly agree (6) |
|---|---|---|---|---|---|---|
| There is very little we, as consumers, can do to keep the cost of living from going higher. (1) | ○ | ○ | ○ | ○ | ○ | ○ |
| With enough effort we can wipe out political corruption. (2) | ○ | ○ | ○ | ○ | ○ | ○ |
| The average citizen can have an influence on government decisions. (3) | ○ | ○ | ○ | ○ | ○ | ○ |
| This world is run by the few people in power, and there is not much the little guy can do about it. (4) | ○ | ○ | ○ | ○ | ○ | ○ |
| By taking an active part in political and social affairs we, the people, can control world events. (5) | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | |
|---|---|---|---|---|---|---|
| When I look at it carefully, I realize it is impossible to have any really important influence over what politicians do. (6) | ○ | ○ | ○ | ○ | ○ | ○ |
| I prefer to concentrate my energy on other things rather than on solving the world's problems. (7) | ○ | ○ | ○ | ○ | ○ | ○ |
| One of the major reasons we have wars is because people don't take enough interest in politics. (8) | ○ | ○ | ○ | ○ | ○ | ○ |
| In the long run we, the voters, are responsible for bad government on a national as well as local level. (9) | ○ | ○ | ○ | ○ | ○ | ○ |
| It is difficult for people to have much control over the things politicians do in | ○ | ○ | ○ | ○ | ○ | ○ |

office. (10)

End of Block: LOC Check

Start of Block: Experiment Stimulus

**S1 Functionality:** Please closely consider this brand of laundry detergent to answer the questions on the next page.

S2 Environmental: Please closely consider this brand of laundry detergent to answer the questions on the next page.


End of Block: Experiment Stimulus

Start of Block: Manipulation check Stimulus

Q2 Please indicate how much the product packaging emphasizes...

| | Not at all (1) | A little (2) | A moderate amount (3) | A lot (4) | A great deal (5) |
|---|---|---|---|---|---|
| Cleaning effectiveness (1) | ○ | ○ | ○ | ○ | ○ |
| Sustainability (2) | ○ | ○ | ○ | ○ | ○ |

End of Block: Manipulation check Stimulus

Start of Block: Dependent Variables

Q3

Based on what you just saw of the laundry detergent,
please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
|---|---|---|---|---|---|---|---|
| It is environmentally friendly. (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| It is committed to making the environment better. (2) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| It is more environmentally friendly than similar products. (3) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| It is less harmful to the environment than other similar products. (4) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Q4

Based on what you just saw of the laundry detergent,
please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
|---|---|---|---|---|---|---|---|
| Do you believe the detergent is a quality product? (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Do you believe the detergent is effective? (2) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Do you believe the detergent is of poor quality? (3) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Q5

Based on what you just saw of the laundry detergent,
please indicate your level of agreement with the following statements.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
|---|---|---|---|---|---|---|---|
| It is very likely that I will buy this brand. (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I will purchase this brand the next time I need this type of product. (2) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I will definitely try this brand. (3) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

End of Block: Dependent Variables

Start of Block: Usage of Detergent

Q6

Please indicate if you buy or use laundry detergent on a regular basis (e.g. once a month or once every 6 months would be considered as regularly)

- ○ Yes, I use or buy laundry detergent regularly (1)
- ○ No I don't use or buy laundry detergent regularly (2)

End of Block: Usage of Detergent

---

Start of Block: Demographic

Q7 Almost done! Please answer the last few questions about yourself.

---

Q8 Please indicate your gender.

- ○ Male (1)
- ○ Female (2)
- ○ Other (3)

---

Q9 Please indicate your nationality.

- ○ Portuguese (1)
- ○ German (2)
- ○ French (4)
- ○ Other: (5) _____

Q10

Please select your age group.

- ○ 0-20 years old (1)
- ○ 21-30 years old (2)
- ○ 31-40 years old (3)
- ○ 41-55 years old (4)
- ○ 56-65 years old (5)
- ○ 66 years and above (6)

Q11 Please select your employment status.

- ○ Employed (1)
- ○ Self-employed (2)
- ○ Unemployed (3)
- ○ Student (School) (4)
- ○ Student (University) (5)
- ○ Retired (6)
- ○ Other (7)

Q12 What is your current monthly net income?

- ○ 500€ or lower (1)
- ○ 501-1500€ (2)
- ○ 1501-2000€ (3)
- ○ 2001-3000€ (4)
- ○ 3001-4000€ (5)
- ○ more than 4000€ (7)
- ○ prefer not to say (8)

---

Q13

Please select your highest completed level of education.

- ○ High School or lower (1)
- ○ Bachelor's Degree (2)
- ○ Master's Degree (3)
- ○ Ph.D. or higher (4)

End of Block: Demographic

---

Start of Block: E-Mail

E-Mail If you want you can type in your e-mail address for a chance to win a 10€ Amazon voucher. In any case proceed to the next page to end the survey. Thank you!

_____

---

End of Block: E-Mail

## 2. Assumptions

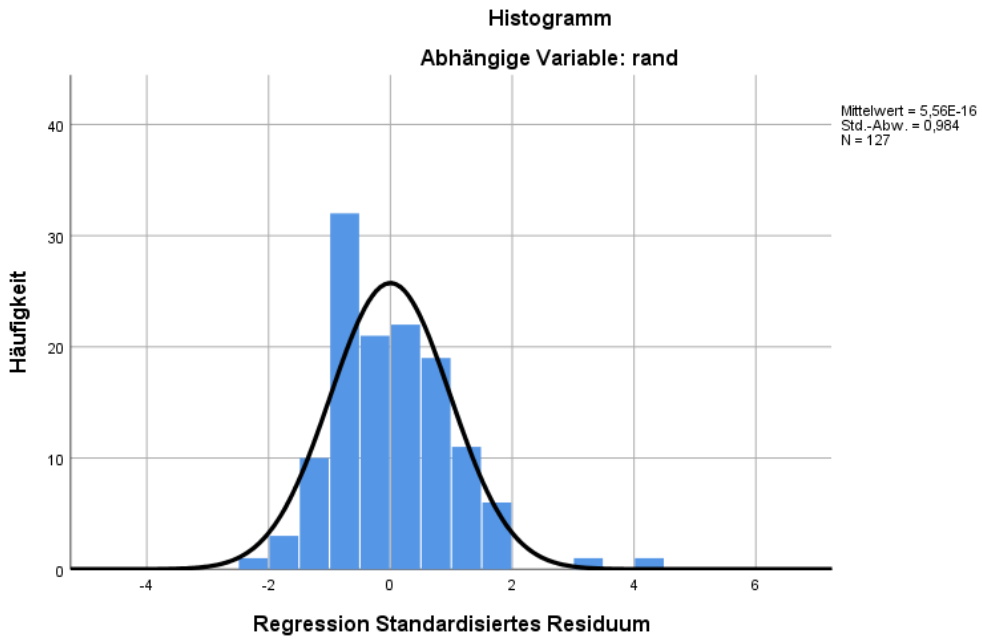


Figure 6 Assumption of normality

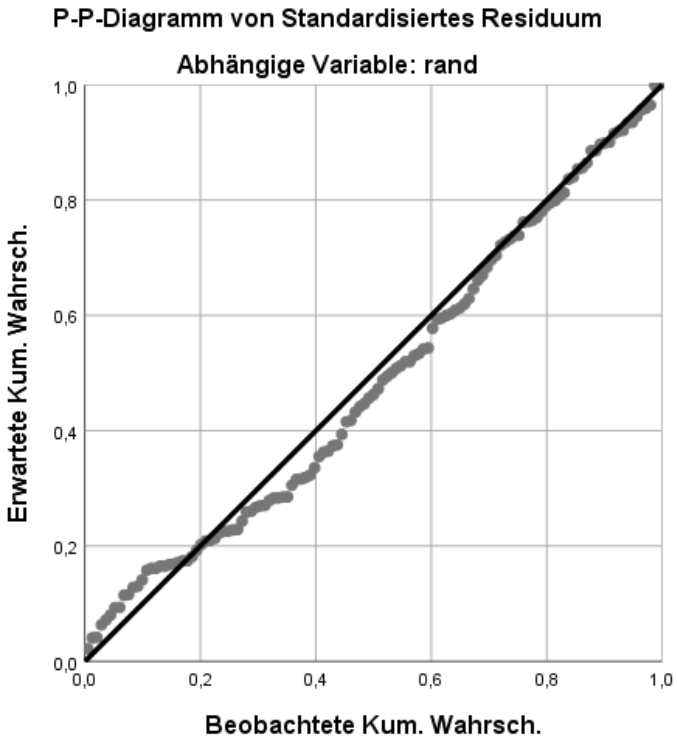


Figure 7 Assumption of linearity

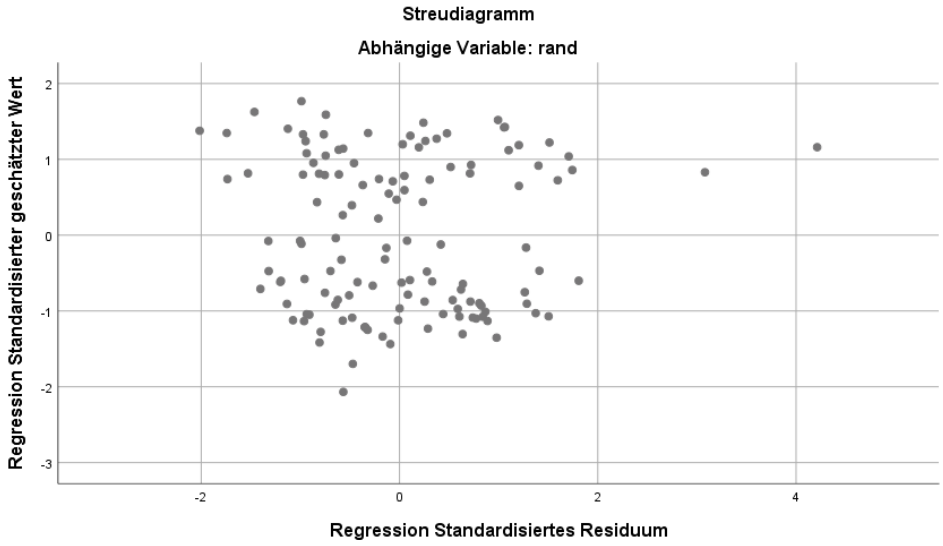


Figure 8 Assumption of homogeinity/ homoscedasticity

## 3. Sample overview

| Characteristic | Category | Sample in % |
|---|---|---|
| Gender | Male | 54% |
| | Female | 46% |
| Age | 0-20 | 2% |
| | 21-30 | 77% |
| | 31-40 | 13% |
| | 41-55 | 6% |
| | 56-65 | 2% |
| Profession | Employed | 58% |
| | Self-Employed | 9% |
| | Student (School) | 3% |
| | Student (University) | 27% |
| | Other | 3% |
| Education | High School or lower | 17% |
| | Bachelor's Degree | 56% |
| | Master's Degree | 27% |
| | Ph.D. or higher | 1% |
| Monthly Net Income | > 501€ | 20% |
| | 501-1500€ | 25% |
| | 1501-2000€ | 16% |
| | 2001-3000€ | 20% |
| | 3001-4000€ | 5% |
| | > 4000€ | 8% |
| Nationality | German | 48% |
| | Indian | 20% |
| | American | 16% |
| | Portuguese | 4% |
| | Other | 12% |

## 4. Process SPSS Output

This is the detailed Process analysis as used for the mediation section.

Variables are named as follows:

Tpurchas → purchase intentions

Stim → Stimulus i.e. type of message (environmental vs. functional)

teffic_r → perceived efficacy

Tenvrion → perceived sustainability

TLOC → locus of control

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.3 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : Tpurchas
    X  : Stim
   M1  : teffic_r
   M2  : Tenviron
    W  : TLOC

Sample
Size:  127

**************************************************************************
OUTCOME VARIABLE:
 teffic_r

Model Summary
          R         R-sq          MSE            F          df1          df2
p
      ,3144        ,0989       1,4629       4,4989       3,0000    123,0000
,0050

Model
              coeff         se          t          p       LLCI       ULCI
constant     2,3123      ,7090     3,2613      ,0014      ,9089     3,7157
Stim         1,8369     1,0215     1,7982      ,0746     -,1852     3,8589
TLOC          ,6991      ,1979     3,5335      ,0006      ,3075     1,0908
Int_1        -,5070      ,2834    -1,7888      ,0761    -1,0680      ,0540

Product terms key:
 Int_1    :        Stim     x        TLOC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0234     3,1999     1,0000   123,0000      ,0761
----------
    Focal predict: Stim     (X)
          Mod var: TLOC     (W)

Conditional effects of the focal predictor at values of the moderator(s):

       TLOC      Effect           se            t            p         LLCI
ULCI
```

```
     3,0000        ,3159        ,2611       1,2099        ,2286       -,2009
,8328
     3,5000        ,0624        ,2149        ,2904        ,7720       -,3630
,4879
     4,1000       -,2418        ,2699       -,8959        ,3721       -,7760
,2924

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   Stim       TLOC       teffic_r   .
BEGIN DATA.
      ,0000     3,0000     4,4096
     1,0000     3,0000     4,7255
      ,0000     3,5000     4,7592
     1,0000     3,5000     4,8216
      ,0000     4,1000     5,1787
     1,0000     4,1000     4,9369
END DATA.
GRAPH/SCATTERPLOT=
 TLOC     WITH     teffic_r BY       Stim     .

************************************************************************
OUTCOME VARIABLE:
 Tenviron

Model Summary
          R         R-sq          MSE            F          df1          df2
p
      ,4005         ,1604       1,5433       7,8335       3,0000    123,0000
,0001

Model
              coeff         se          t          p       LLCI       ULCI
constant     4,1113      ,7282     5,6456      ,0000     2,6698     5,5528
Stim         1,1275     1,0492     1,0746      ,2846     -,9493     3,2044
TLOC          ,3197      ,2032     1,5733      ,1182     -,0825      ,7220
Int_1        -,5952      ,2911    -2,0446      ,0430    -1,1714     -,0190

Product terms key:
 Int_1    :        Stim     x        TLOC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0285     4,1805     1,0000   123,0000      ,0430
----------
    Focal predict: Stim     (X)
          Mod var: TLOC     (W)

Conditional effects of the focal predictor at values of the moderator(s):

       TLOC      Effect           se            t            p         LLCI
ULCI
     3,0000      -,6581       ,2682     -2,4538       ,0155     -1,1889      -
,1272
     3,5000      -,9557       ,2208     -4,3291       ,0000     -1,3927      -
,5187
     4,1000     -1,3128       ,2772     -4,7361       ,0000     -1,8615      -
,7641

Data for visualizing the conditional effect of the focal predictor:
```

```
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   Stim       TLOC       Tenviron   .
BEGIN DATA.
      ,0000     3,0000     5,0705
     1,0000     3,0000     4,4124
      ,0000     3,5000     5,2304
     1,0000     3,5000     4,2747
      ,0000     4,1000     5,4222
     1,0000     4,1000     4,1094
END DATA.
GRAPH/SCATTERPLOT=
 TLOC     WITH     Tenviron BY       Stim     .

************************************************************************
OUTCOME VARIABLE:
 Tpurchas

Model Summary
          R         R-sq          MSE            F          df1          df2
p
      ,7463         ,5569       1,1235      51,5332       3,0000     123,0000
,0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     -,6899      ,4652    -1,4831      ,1406    -1,6107      ,2309
Stim         -,1457      ,2062     -,7065      ,4812     -,5538      ,2625
teffic_r      ,7351      ,0835     8,8061      ,0000      ,5699      ,9003
Tenviron      ,3195      ,0841     3,7965      ,0002      ,1529      ,4860

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

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
     -,1457      ,2062     -,7065      ,4812     -,5538      ,2625

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 Stim        ->    teffic_r    ->    Tpurchas

       TLOC     Effect     BootSE   BootLLCI   BootULCI
     3,0000      ,2322      ,2401     -,2211      ,7175
     3,5000      ,0459      ,1620     -,2631      ,3687
     4,1000     -,1777      ,2012     -,6048      ,1815

      Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
TLOC     -,3727      ,2803     -,9474      ,1449
---

INDIRECT EFFECT:
 Stim        ->    Tenviron    ->    Tpurchas

       TLOC     Effect     BootSE   BootLLCI   BootULCI
     3,0000     -,2102      ,1184     -,4699     -,0131
     3,5000     -,3053      ,1232     -,5696     -,0903
     4,1000     -,4194      ,1551     -,7521     -,1335

      Index of moderated mediation:
```

```
          Index     BootSE   BootLLCI   BootULCI
TLOC     -,1901      ,1063     -,4207     -,0031
---

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

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: Variables names longer than eight characters can produce incorrect
output.
      Shorter variable names are recommended.

------ END MATRIX -----
```

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