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Master Thesis

Choosing Meat Substitutes: The Power of Packaging when Marketing Towards a Sustainable Future

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Executive Summary

The meat consumption of the modern world is slowly eating away at our planet's natural resources. Consumer awareness and governmental regulations surrounding more sustainable food production, has created an area of innovation for products that are meant to replace meat in the diet. Meat substitutes are entering the market in a rapid pace but are yet to gain consumers' acceptance and share of wallet. The purpose of this study is to determine how to take advantage of visual stimuli on product packaging to increase purchase intention for this relatively new and unexplored food category.

An experimental survey using a within-subjects factorial design was selected to investigate drivers behind purchase intention and the participants' belief in the environmental friendliness of meat substitutes, as well as the effect of environmental involvement. The results show that using the color green on product packaging is an important driver for both environmental belief and purchase intention for meat substitutes. There is a striking difference between men and women in terms of intent to purchase but they have similar beliefs in environmental friendliness of meat substitutes. Participants with different levels of environmental involvement portray contrasting behaviors in relation to the belief in the environmental friendliness of meat substitutes and intent to purchase. The study also suggests that the belief in environmental friendliness of meat substitutes do not mediate the relationship between visual stimuli on the product package, gender and purchase intention.

The study provides insight into future directions for marketing managers of meat substitutes. The results indicate that a sustainability approach to marketing of meat substitutes will only be effective for some groups of consumers. The thesis contributes with an understanding of consumers perception of marketing tools used on product packaging, and recommendations on how to take advantage of these tools.

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1.0 Introduction

One of the fundamental challenges the world is facing is preventing the permanent loss of natural resources and limiting global warming, while providing a growing world population with sufficient nutrition (Ferk, Grujić & Krešić, 2018). A diet low in fruit and vegetables and high in red and processed meat is the reason for more than a quarter of all greenhouse gas emissions, and a major driver of climate change (Springmann, Godfray, Rayner & Scarborough, 2016). As reducing meat consumption is an important factor for creating a more sustainable way of life, therein lies huge potential for product categories such as meat substitutes to take part in this change.

The rise of the meat substitute category in the Norwegian market is increasing the number of options consumers there can choose from when opting for a meat-free meal (Thanem, 2019). Despite the growing interest for meat substitutes, the average Norwegian still consumes 53,3 kg of meat a year (Animalia, 2019), creating a large window of opportunity for meat substitutes to enter the Norwegian diet. The challenge of getting consumers to choose them over meat is a convoluted issue, and there are many barriers to break down to reach the goal of a more sustainable way of life. Exploring the motives for purchasing meat substitutes and differences between segments, may be useful in developing more effective marketing and tailored product packages. The current study is only a drop in the ocean for what is needed to position meat substitutes as a strong contender for replacing meat in an everyday diet, but hopefully it will shed some light on how to market meat substitutes as the product of choice.

Exploring how we can take advantage of the power of packaging to influence the consumer to choose meat substitutes is an exciting field of study which can be helpful for companies marketing these products, as well as contributing towards a more sustainable future. The focus on visual stimuli on the product packaging for this study is due to the value that resides in product packaging at the point of purchase, and its ability to alter consumers purchase intention (Peck & Childers, 2006). Visual design elements on product packaging are effective tools in conveying symbolic meaning (Mai, 2016), such as the environmental friendliness

of a product. The product packaging is also an important part of creating first impressions of a product and create long-lasting relationship between a brand and consumers (Krishna, Cian & Aydınoğlu, 2017). Investigating which visual elements of the product packaging aids companies in reaching the right customers and increasing purchase intention for meat substitutes, can contribute in setting an agenda for research within best-practice marketing strategies for meat substitutes.

When preparing the scope for the current study, the topic of meat substitutes was discussed with a marketing manager in Orkla Foods Norge, who was in the process of launching a new series of meat substitutes on the Norwegian market. A need for more information on the diversity between genders and attitudes towards meat substitutes in a younger segment (i.e., people in a pre-establishment phase of life) was expressed as areas of interest. This helped setting the guidelines for our thesis and narrow the demographic focus.

The paper is organized as follows. First we give an overview of the background this study builds on and present the research question. Then we provide a definition of meat substitutes and inquire into previous literature, followed by our conceptual framework. Section three provides insight into our method, including the procedure and a description of variables and measurements, along with our analysis. Finally we present the results and discussion before we reflect on possible directions for future research and account for the limitations we have identified in our study.

1.1 Background

Sustainability is not just a trend in the fast-moving consumer goods industry; it is a world-wide initiative to reach the common goal of conserving the planet for future generations. In 2015, all members of the United Nations (UN) adopted 17 sustainable development goals that sees the environmental, economic and social development in context towards 2030. They apply to all countries and constitute a roadmap for the global effort for sustainable development. The 12th goal focuses on responsible consumption and production, and according to the UN, the food sector accounts for 30% of the world's total energy consumption, and 22% of total greenhouse gas emission. Sustainable production and consumption involves creating more with fewer resources, resulting in the reduction of the material

footprint. This designation represents the number of commodities consumed to satisfy the demand in a country, and according to the UN Statistic Division for the Sustainable Development Goals Indicators (2019), present levels are not sustainable today. Actions that can be taken to reduce personal consumption and the material footprint are to reduce food waste, recirculate, save water and power, and eat less meat.

The massive industrialization of the meat industry is causing major environmental hazards. Two of the main reasons for this are the inefficient conversion of animal feed into dietary protein and the change in meat consumption during the 20th century, which has made animals, instead of bread, the main source of protein in developed countries (Grigg, 1999; Smil, 2002). The future of the world's protein supply is a serious problem, and the growth of the world population and per capita income, is projected to increase the demand for livestock products by 70% by the end of 2020 (De Boer, Schösler and Aiking, 2014; Gerber et al., 2013).

Despite the fact that meat is an integrated part of the Norwegian diet, meat consumption there is at an all-time low. In 2019 its total consumption of meat was at its lowest since 2007 (Animalia, 2019); however, the amount consumed is still higher than the Nordic Nutrition Recommendations (Helsedirektoratet). It is also interesting that 55% of Norwegian men eat more meat than recommended, while 67% of women are consuming the recommended amount (Animalia, 2019). Finding ways to incorporate meat substitutes as an alternative into people's diets will therefore be an important future direction for both reducing meat consumption and ensuring it is done responsibly.

The trend amongst consumers for reducing meat consumption, along with pressure on firms to become more environmentally friendly, have created a boom in the production of meat substitutes. During the last few years in Norway, several companies have launched their own product lines with meat substitutes, including Rema 1000 with Meatish, Orkla Foods with Naturli, Tine with VGTR and Coop with their Vegetardag line. Additionally, McDonalds and Burger King are examples of fast-food chains that have integrated meat substitute products onto their menus to offer consumers a more sustainable food choice. As the meat

substitute category is growing, so is the need for insight into consumer behavior and understanding how to market these products effectively.

Despite the growing interest for environmentally friendly products, consumers often make trade-offs between product attributes and environmental friendliness, and consumers' concern for the environment does not always translate into green purchase behavior (e.g., Ginsberg & Bloom, 2004; Thøgersen, 1999; Uusitalo & Rokka, 2008; Pancer, McShane & Noseworthy, 2017). Therefore, understanding how to close the gap between consumer attitudes and actual purchasing behavior is an important topic of interest when marketing green products.

Negative associations towards meat-substitution and plant-based diets are prevalent in society today. Although alternatives to meat are increasingly associated with benefits, most Western societies are still characterized by a high meat consumption, a low regard for meat substitutes, and a lack of willingness to adopt a more plant-based diet (Graca, Calheiros & Oliveira, 2015). Negative associations towards a vegan or vegetarian lifestyle is related to disruption in social conventions related to food and vegans are prone to stigma (Markowski & Roxburgh, 2019), a term that refers to bodily signs designed to expose something unusual and bad about the moral status of the signifier (Goffman, 1963).

It is interesting to look at the shift in generation and between gender when studying meat consumption. Pribis, Pencak and Grajales (2010) elaborate on how the motivation for reducing meat consumption differs between generations. While younger vegetarians are often swayed by environmental reasons, people from 40 to 60 are considered to be more concerned with personal health, and they often use this as an argument to eat less meat. The reasoning behind dietary habits often varies, given the different nature of health and ethics motivation. According to Lea and Worsley (2003) the main barrier for both men and women when reducing their meat consumption is the enjoyment of eating meat, followed by an unwillingness to change eating habits. In the same study, they uncovered that men believe humans are meant to eat meat more often than women, and that women were more likely than men to report that the most significant barrier for reducing meat consumption was the unwillingness to do so by family members or spouse.

One way of making consumers aware of how their purchasing decisions are affecting the environment is to provide them with more environmental information (Uusitalo & Rokka, 2008). A useful mechanism to do so is to use visual elements on a product's packaging to increase awareness and encourage pro-environmental behavior. To date, little research has been done on how to increase the intention to purchase meat substitutes through product packaging efforts. Convincing consumers to value the attributes that come with green purchasing behavior directly through the product packaging of meat substitutes is therefore an interesting and progressive research area.

1.2 Objectives and Research Question

The growing demand for meat substitutes, the increase in new entrants on the market, and the interest in meat reduction are setting an agenda for marketing research to better understand how to increase purchase intention for meat substitutes, despite existing barriers towards meat replacements. The main objective for this study is to determine how to use product packaging as a tool when marketing meat substitutes in order to increase purchase intention. These findings can be useful for well-established market players within the meat substitute category, as well as for new entrants seeking a better understanding of drivers that influence consumers' purchase intention for meat substitutes.

The factors motivating consumers to purchase meat substitutes include, but are not limited to, environmental concerns, health concerns or animal welfare. Environmental concern has been recognized as being an important driver behind the change in consumers' preference for eating less meat (Dagevos & Voordouw, 2013). A sustainability angle was chosen for this study, as such requirements are having a growing impact on businesses, due to the UN's sustainable development goal to ensure sustainable production and consumption patterns.

If the growing trend amongst consumers requires a more sustainable option to reduce meat consumption, how can marketing efforts increase purchase intention towards meat substitutes? To contribute to this subject, the following research question was outlined:

How are consumers' purchase intention for meat substitutes affected by different green marketing efforts on product packaging?

Based on this research question, our specific objectives will be to test which visual elements on the product packaging have the largest effect on consumers' purchase intention. We are also interested in exploring the relationship between consumers' belief in the environmental friendliness of different products, their environmental involvement, and purchase intention. This will provide additional insight to explain potential differences in purchase intentions among consumers.

2.0 Previous Research

2.1 Definition of Meat Substitute Products

In the broader sense of the term, meat substitutes can comprise every food option available that can be consumed as an alternative to eating meat. As the category has grown into a large variety of specialized products targeted at replacing meat as an element of a meal, and not replace the meal itself, a more specific definition of meat substitutes has emerged in the literature. Meat substitutes can be defined as vegetable-based food products containing proteins made from pulses, cereal protein or fungi (Hoek et al., 2011) that have been developed to replace meat in the diet (Elzerman, Van Boekel & Luning, 2013). During the last few decades, meat substitutes have evolved, and the growing demand has spurred innovation in the category, resulting in a range of products using a variety of ingredients to imitate the texture of meat (Sadler, 2004).

Even though meat substitute products have been on the market for a few decades, the acceptance of them are still low (Elzerman, Hoek, Van Boekel & Luning, 2011). For consumers to replace their regular meat product with a substitute, it is required that sensory properties like taste, texture, and appearance are close to identical to the meat being replaced, in addition to meal preparation (Elzerman, 2006). Additionally, consumers have to be able to acknowledge the meat substitute as a product that can replace meat, indicating that the usage situation

has to be similar: for example, a shake or soup would not be recognized as a meat substitute (Elzerman et al., 2011).

2.2 Green Marketing

In their article "Ecological Imperatives and the Role of Marketing," Sheth and Parvatiyar (1995) propose that sustainable development can be achieved only by proactive corporate marketing and active government intervention, as they highlight the new role of marketing in improving our environmental situation. The Brundtland Report called "Our Common Future" (1987) focuses on climate changes, and sustainable development was discussed in the context of consumption and production, as well as reflections on imbalances in the existing pattern. After the topic of green marketing took off in the late 1980s (Peattie & Crane, 2005), it has continued to stay relevant as a much-discussed topic by several authors (Peattie & Crane 2005; Grimmer & Woolley, 2014) and has received both support and criticism (Grant, 2007).

As more people are expressing their concerns about environmental issues, green marketing has become more relevant than ever, increasing the focus on the marketing of environmentally friendly products and services. The term *green marketing* refers to the planning, development and promotion of products or services that satisfy the consumer's need for quality, output, accessible prices, and service - all without a negative effect on the environment in terms of the use of raw materials, energy consumption, etc. (Papadopoulos, Karagouni, Trigkas & Platogianni, 2010). Peattie and Crane (2005) challenge the concept of green marketing by stating that much of what have been referred to as such has not been underpinned by either a marketing or an environmental philosophy. They explain how companies are launching fewer green products than before in fear of being accused of *greenwashing*, and they question whether the history of the green marketing concept shows a failure in marketing these products. Greenwashing refers to companies misleading consumers about their environmental performance or the environmental benefit of their product or service (Delmas & Burbano, 2011). Delmas and Burbano (2011) also put forth the dilemma that green marketers are facing the risk of being able to change very little if their focus is solely on a niche market of environmentally involved customers while

simultaneously, they encounter difficulties in moving the mass market towards sustainability, due to lack of understanding about it amongst these consumers.

Green marketing may also encounter resistance through what Grant (2007, p. 311) refers to as *greenphobia*, whereby customers view green products as more expensive, less effective, and meant for "weird" people, making an argument for how lack of knowledge in regard to these products can cause a false perception of what they are. Young, Hwang, McDonald and Oates (2010) noted that although 30% of consumers claim to be very concerned about the environment, this does not always translate into green purchase behavior. Habits have also been found to play an important role in the context of food choice, including meat consumption (Saba & Di Natale, 1998), and recent findings have uncovered how some consumers develop an attachment towards meat (Graça, Calheiros & Oliveira, 2016). This attachment can potentially play an important role in their willingness to change consumption habits (Graça et.al., 2016), which is also likely to reduce the effects of green marketing.

2.3 Environmental Cues on the Product Packaging

It is widely accepted in the literature that consumer choice behavior is not solely derived from an economic perspective. Factors such as personal beliefs, preferences and attitudes may influence them during a choice situation, and product packaging at the point of purchase can influence consumers to purchase more green products (e.g., Uusitalo & Rokka, 2008; Cho, 2015). Companies regularly use product packaging to signal environmental benefits to alter consumer behavior towards more green consumption. This provides an exciting opportunity to adopt environmental cues on the product package as a part of the marketing strategy for the product.

Product packaging is an important factor in a purchase situation, as it stimulates purchasing behavior through attention, information, quality and aesthetics (Bech-Larsen, 1996). The literature has acknowledged product packaging as having a prominent role in the marketplace, and as an important product-related attribute for communicating the brand identity (Underwood, 2003). In their research, Uusitalo and Rokka (2008) found support for the importance of packaging by

confirming that sustainable packaging had a positive effect on consumers' choice of environmentally friendly alternatives. For meat substitutes, the product packaging may be a valuable tool for marketing efforts designed to increase consumers purchase intentions. A potential problem with marketing through product packaging is the limited space the medium offers for conveying information, and marketing efforts have to compete for the space on the packaging against impartial information about the product that accords with legal requirements (Wagner, 2015).

Previous literature has highlighted the insufficient information on product packaging as an important factor for when consumers choose non-green products over green ones. Inadequate information can make it difficult for consumers to distinguish between the most environmentally friendly alternative, as well as to understanding the connection between their purchase decision and environmental consequences (Uusitalo & Rokka, 2008). Despite the need to provide consumers with more information through product packaging, Tørgersen (1999) warns against over-communicating environmental benefits on the product packaging meant to pressure consumers into choosing sustainable products, while suggesting a more open form of communication that leaves room for consumers' own reasoning to reduce the risk of skepticism and defiance. Lack of attention to environmental issues in the shopping situation has been found to be a driver for consumers choice of a non (or less) environmentally friendly product option, an occurrence that can be reduced by increasing the number of environmental cues on the product packaging (Tørgersen, 1999). Such cues include different packaging attributes - such as color, labels, materials and supplementary information - meant to inform customers about the product's environmental impact.

Despite some authors' concern about the overuse of environmental cues on products, previous research on the topic has provided evidence that single environmental cues (e.g., green color or eco-labels) may have a negative effect on consumers' purchase intentions (Pancer et al., 2017). Substantiating environmental cues, such as adding an eco-label to a green-colored product, might mitigate this effect (Pancer et al., 2017). These findings are based on what

Gregan-Paxton, Hoeffler and Zhao (2005) refer to as categorization ambiguity, which exists when a new product is difficult or impossible to place in a unique existing category due to the information on the packaging. Adding more than one environmental cue seemed to assure consumers of the product's category and provide more trust in the product's efficacy, which ultimately increased purchase intention for it (Pancer et al., 2017).

2.3.1 The Color Green

Color information is an important decision factor in every visual stimulus processed by the human perceptual system (Elliot et al., 2010). Colors are used strategically in marketing to create symbolic links to a brand's image by activating psychological cues in the consumer' minds (Madden, Hewett & Roth, 2000), and they are a strong driver for consumer response to packaging (Tutssel, 2000). Congruence between colors used in marketing and brand image may increase brand value (Bottomley & Doyle, 2006), and color has been acknowledged as the design variable on product packaging with the strongest influence on willingness to buy (Rebollar, Lidón, Serrano, Martín & Fernández, 2012).

A wide range of literature has acknowledged the use of the color green to provoke environmentally related thought processes in the minds of consumers (Labrecque, Patrick & Milne, 2013; Labrecque & Milne, 2013; Schuldt, 2013; Pancer et al., 2017), as well as creating associations with nature (NAz & Epps, 2004) and the promotion of healthiness (Schuldt, 2013). Using package color as a cue has been seen to influence consumers perception and purchase intention for a product and to evoke cognitive associations related to taste and flavor (Huang and Lu, 2016). The color green has been adopted to the entire sustainability movement through the use of terms such as *green marketing*, *green buying*, and *green strategies*, and it is highly relevant in relation to products like meat substitutes.

Little research has been done to investigate the results of the close relationship between the color green and sustainability on meat substitute product packaging. Pancer et al., (2017) found negative consequences on product efficacy perceptions from its use, which mediated consumers purchase intentions. Due to the

prominent position of the color green in relation to environmentally friendly products, we hypothesize that it will be a strong driver for consumers' belief in the environmental friendliness of meat substitutes, as well as having a stronger effect on purchase intention compared to an alternative color.

> *H1a: The color green on product packaging will have a stronger effect on consumers' belief in the environmental friendliness of meat substitutes than an alternative color.*

> *H1b: The color green on product packaging will have a stronger effect on purchase intentions of meat substitutes than an alternative color.*

2.3.2 Environmental Labels

Environmental cues in the form of labels on product packaging has become a popular form of brand communication for increasing consumers' willingness to buy environmentally friendly products (e.g., Grunert, Hieke & Wills, 2014; Bradu, Orquin, & Thøgersen 2014). Environmental labels are a tool marketers use to convey an environmentally friendly image towards consumers symbolically, as well as making it possible for consumers who are interested in reducing their environmental footprint to differentiate between the sustainability level of different products (Pancer et al., 2017).

Although labels can be used to clarify the environmental impact of different products, they can also function as elements of confusion or doubt for consumers. Too much information, a range of different labels on the market, and time restraints during shopping result in consumers using environmental labels less in purchase situations (Horne, 2009). Environmental labels may also provoke confusion in the mind of the consumer, as they may be perceived as misleading (Polonsky et al., 1998) or as a tool used by companies to participate in greenwashing (Magnier & Crie, 2015). Grunert, Hieke and Wills (2014) found that consumers' use of environmental labels is related to motivation, as consumers with a higher degree of concern for sustainability issues have a higher usage level of environmentally friendly labels in the purchase situation.

Environmental labels are gaining more awareness among researchers, but the evidence for the positive effect on purchase intentions of such labels has been mixed. Grankvist and Biel (2007) found a significant increase in purchase intention among consumers for products with environmental labels over time. Hoogland, DeBoer and Boersema (2007) found positive effects on consumer attitudes for products with environmental labels, but a marginal impact of environmental labels on purchase intention. Grunert (2011) also discusses possible trade-off effects of environmental labels, arguing that in relationship with other factors such as price, sustainability will seldom be the preferred factor. Therefore, environmental labels may have an undesired effect that causes lower purchase intention due to trade-offs made by the consumer (Grunert, 2011).

The current study focuses on environmental labels as part of several cues that represent the environmental friendliness signaled to the consumer. We are interested in understanding the effect of having environmental cues in the form of labels, without having to account for the associations that established labels carry with them (Horne, 2009). To the best of our knowledge, this is the first study that tests the effects of environmental labels on meat substitutes. For this study we hypothesize that consumers' environmental beliefs and purchase intention will increase in relation to the number of environmental labels apparent on the product packaging.

H2a: Increasing the number of labels will increase consumers' belief in the environmental friendliness of meat substitutes.

H2b: Increasing the number of labels will increase consumers' intentions to purchase meat substitutes

2.4 Differences in Meat Consumption Amongst Men and Women

2.4.1 Gender and Meat Consumption
Tobler, Visschers, and Siegrist (2011) uncovered that gender was the strongest predictor for meat consumption. When looking at how marketing efforts should be tailored to increase purchase intentions, it is therefore interesting to evaluate the

diversity between men and women in their attitudes towards meat reduction and interest in meat substitute products.

Men and women interact with meat on fundamentally different levels, in addition to also having very different views on vegetarianism in general (Ruby, 2012). Many authors have argued that meat is a symbol of a man's strength and masculinity (Twigg, 1979; Rozin, Hormes, Faith, & Wansink, 2012). Men tend to eat more meat than women and are less willing to consider reducing their consumption (Stoll-Kleemann & Schmidt, 2017; Ruby, 2012). A sample of university students in Pennsylvania uncovered that women were more likely to avoid red meat on a general basis (Rozin et al., 2012), and a sample of adults in the Midwest United States uncovered that women had more positive attitudes towards nutritious meals (Rappoport, Peters, Downey, McCann, & Huff-Corzine, 1993). Among Western non-vegetarians, women consume considerably less meat than men (Beardsworth & Bryman, 1999).

2.4.2 Women's Attitudes Towards Meat Consumption

Studies show that women express a higher degree of emotional engagement in general, as well as being more concerned with the environmental crisis we are facing and having a higher willingness to change (Kollmuss & Agyeman, 2002). On average, consumers with high interest in more environmentally friendly products are more likely to be female (Uusitalo & Rokka, 2008), and women also show greater support for producing food in a way that minimizes animal suffering as well as greater tendency to purchase environmentally friendly products (Beardsworth et al., 2002)

Meat consumption can be framed as a morally significant behavior and conceptualized as a moral choice (Bastian, Loughnan, Haslam & Radke, 2012). People choosing to avoid or heavily reduce meat consumption refer to this as a moral issue (Ruby, 2012), and previous studies uncover that even meat eaters envy and admire vegetarians although they respond defensively to their presence (Graca, Oliveira & Calheiros, 2015). Graça et al., (2015) elaborate on how, according to moral disengagement theory, individuals will be particularly driven to employ disengagement mechanisms when adopting or maintaining harmful behaviors that are valued and desired, and that men tended to score higher than

women in their measure of moral disengagement. Kruse (1999) found that women express a higher level of animal rights advocacy than men, being more in favor of giving moral rights to non-human animals.

In their studies, Ruby (2012) and Mullee et al (2017) concluded that women have more positive attitudes towards vegetarianism than men. They found that women were more likely than men to believe that meat consumption is bad for the environment as well as for personal health. Mullee et al. (2017) also showed that women have more positive attitudes towards vegetarianism, and that it is both healthy and achievable. This finding is again supported by Gossard and York (2003) who uncovered that women showed more interest in health, which lead to a greater appreciation of plant-based food.

2.4.3 Men and Masculinity

A study conducted by Rothgerber (2013) showed that male undergraduates justified eating meat by using direct strategies like denying animal suffering and providing health and religious justifications, while women in the same study used more indirect strategies, like avoidance of thinking about animal treatment. In a second study, it was concluded that these male strategies were due to the feeling of masculinity, and that the more traditional male roles were endorsed, the more direct pro-meat attitudes were presented (Rothgerber, 2013). Men also express that the number of vegetarian and non-vegetarian friends are the most influential predictors for the frequency of meat consumption (Lea & Worsley, 2001). According to Sobal (2005), men do not consider a meal to be "real" if it does not consist of meat, and when Stibbe (2004) analyzed issues of *Men's Health* for six months they found that being a meat eater was one attribute that identified the "ideal man." This is also supported by Gossard and York (2003), who showed that men associate meat and its consumption with masculinity. Piazza et al. (2015) discovered that men were more likely to endorse the four "N's" of justification for eating meat; normal, natural, necessary and nice.

There is much consensus among researchers that men and women portray large differences in relation to consuming meat substitutes. Despite this consensus on the role of gender as a driver for environmental consumption, some studies have

found that it does not influence ethical decision making (Sikula & Costa, 1994), and that the sexes use similar processes when evaluating ethical situations (Tsalikis & Ortiz, 1990). It will be interesting to see if we find any support for this assertion in the current research. Previous research indicates that women show higher accept towards vegetarianism than men, and that men's barriers towards reducing meat consumption are different than women's, i.e., they reflect self-image and social acceptance rather than environmental concern. As meat is often seen in relation to men's masculinity, it is less likely that they would replace it with beans and lentils, and meat substitutions could therefore be a possible way for them to reduce meat consumption. The discrepancy amongst the two genders is likely to be an important factor when designing product packages for meat substitutes with the aim of increasing purchase intentions. In the current study we hypothesize that women will show a higher belief in the environmental friendliness of meat substitutes, as well as a higher intention to purchase them.

> *H3a: Women have higher beliefs in the environmental friendliness of meat substitute compared to men.*

> *H3b: Women have higher purchase intention for meat substitutes compared to men.*

2.5 Consumers' Belief in the Environmental Friendliness of Products

Consumers are becoming progressively more aware of the environmental impact caused by the products they purchase (Zeng, Qin & Zeng, 2019), and the relationship between firm and consumer is increasingly focused on sharing common environmental values (Abbati, 2019). As a result, consumers play an integral role in a more environment friendly method of food production, both by guiding the demand for more sustainable food choices and by reacting to existing offers on the market (Johnston, Fanzo & Cogill, 2014). Simultaneously, firms are stepping up to the challenge by creating an environmentally friendly image of their brands in the minds of consumers, to be able to promote themselves as environmentally friendly (Punyatoya, 2014)

The growing amount of environmental concerns in society is priming consumers to purchase more environmentally friendly products (Peattie, 1995). For

sustainable consumption decisions, some researchers argue for the importance of consumers believing in the environmental friendliness of a product and in the effectiveness of purchasing environmental products (Antonetti & Maklan, 2014). Consumers are more likely to engage in pro-environmental consumption when they feel that their decisions will make a difference (Rice, 2006) and consumers' belief in the environmental friendliness portrayed by a product has been linked to higher purchase intentions (Vermeir & Verbeke, 2006; Kotler, 2011). The perception of a brand's environmental friendliness has also been found to elicit trust in a brand and subsequently to lead to higher purchase intention for a brands' products (Punyatoya, 2014).

One potential hazard between consumers' belief in the environmental friendliness of a product and subsequent purchase behavior can be that ethical shopping, such as purchasing meat substitutes, do not provide immediate feedback on the consumers' contribution to the environment (Antonetti & Maklan, 2014), which weakens their feeling of making a difference. Another potential explanation of the gap between perceived environmental friendliness and purchase behavior is that other attributes - such as price, quality, convenience and brand familiarity - are important decision criteria (Carrigan & Attalla, 2001; Weatherell Tregear & Allinson, 2003), while ethical concerns such as environmental friendliness may only attract consumers with specific environmental profiles (Vermeir & Verbeke, 2006). Additionally, some argue that green marketing will be the most effective if the emphasis is on how a product is both environmentally friendly and meets personal needs, as focusing on environmental friendliness by itself will not hold (Hartmann & Ibanez, 2006).

Previously, we discussed how environmental cues in form of color and labels would influence consumers' purchase intention, and to what extent these effects differ amongst men and women. One important benefit of purchasing meat substitutes is the positive environmental impact that replacing red meat will have on the environment (Smetana, Mathys, Knoch & Heiz, 2015). It is therefore interesting to understand the importance of consumers' belief in meat substitutes as environmentally friendly products. Further, we are also interested to see whether the different environmental cues on product packaging are driving

purchase intention alone, or if consumers' belief in the environmental friendliness of meat substitutes is a prerequisite for the effects of environmental cues and gender on purchase intention. In the current study, we refer to environmental belief as the degree of how environmentally friendly a consumer believes a product is. We hypothesize the following effects of consumers' belief in this environmental communication:

> *H4: The effect of the environmental cues on purchase intention is mediated by consumers belief in the environmental friendliness of meat substitutes.*

> *H5: The higher purchase intention for women compared to men is mediated by their belief in the environmental friendliness of meat substitutes.*

2.6 Environmental Involvement

Environmental involvement is defined as the degree of personal relevance and importance associated with protecting the environment (Lee, 2010). Individual differences among consumers are acknowledged as having a strong influence on the effectiveness of green marketing. Previous literature recognizes that consumers who are more involved in green buying behavior and the environment find green advertising more favorable, rate it as more believable, and portray greater purchase intentions, as well as more favorable brand attitudes (Schuhwerk and Lefkoff-Hagius, 1995; D'Souza & Taghian, 2005; Chang, 2011). Cho (2015) found that the degree of consumers' environmental involvement influenced how they preferred different green marketing on products.

Schuhwerk and Lefkoff-Hagius (1995) elaborate on how consumers with strong environmental beliefs are likely to pay attention to environmental attributes of products. This study is supported by previous findings suggesting that consumers with higher environmentally involvement are more likely to purchase green products (Schwepker & Cornwell, 1991; Alwitt & Berger, 1993). For consumers with relatively average or low environmental involvement, choosing meat substitutes over regular meat is likely to involve some trade-offs in terms of both

taste and texture (Grunert, Bredahl & Brunsø, 2004). Therefore, it is of great importance to find ways to encourage consumption of more sustainable products, even when the choice depends upon accepting some degree of a trade-off with functional performance (Luchs, Browe & Chitturi, 2012)

Among the frameworks developed to measure consumers' environmental involvement is the widely used and much cited New Environmental Paradigm (NEP) (Dunlap, 2008), which captures their worldviews and attitudes towards the environment (Coşkun, Vocino & Polonsky, 2017). Coşkun et al. (2017) apply the NEP in their literature and elaborate on how the rationale, that one's overarching environmental orientation is an attitude, will affect purchase intentions among consumers. Involvement refers to the degree of personal relevance and importance of the attitude object to oneself (Petty & Cacioppo, 1990).

Consumers with high involvement will consider the elements they believe are relevant to a meaningful and logical evaluation of the object, whereas consumers with low involvement will form impressions of the product based on exposure to information that is readily available and easy to process (Grimmer & Woolley, 2014). The former are more likely to notice information that expresses companies' environmental performance, as it is relevant for them (Klein & Dawar, 2004). On this basis and given that they are evaluated as more stable and easily recalled in consumption context (Glasman & Albarracin, 2006) these consumers are expected to have a higher purchase intention.

Although a growing body of literature is acknowledging environmental involvement as an important predictor of purchase intention (Cheng, Chang & Lee, 2020), little research has been done on the relationships between consumers belief in the environmental friendliness of a product, their environmental involvement, and ultimate purchase intention. The current study will investigate if differences in consumers' environmental involvement affects the relationship between how environmentally friendly consumers believe a product is and their intention of purchasing said product. This relationship has the potential of providing insight into how marketers can close the gap between environmental attitudes and purchase intention.

Environmental involvement is likely to be an important driver for consumers when choosing a substitute for meat products. Previous research has acknowledged that consumers with high environmental involvement have higher willingness to purchase green products, as well as paying more attention to their environmental attributes. This research will study if the same holds when choosing meat substitute products, as consumers see meat as a product that is important for self-image, tradition, and habits.

> *H6: Consumers' belief in the environmental benefits and purchase intention of a product is moderated by environmental involvement.*

2.7 Conceptual Framework

Based on the findings in previous literature, the following framework (Figure 1) was created to illustrate the relationship between the hypothesized drivers of purchase intention, the mediating effect of consumers' environmental belief and the moderating effect of environmental involvement.
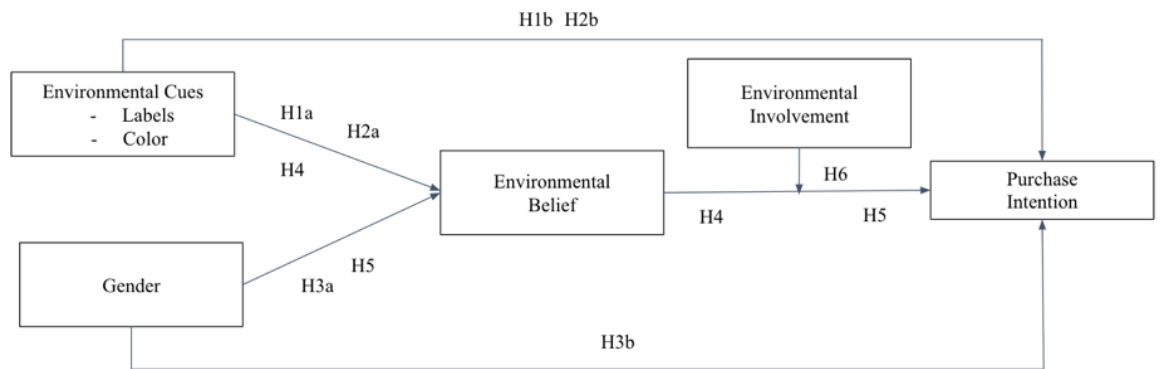
Figure 1 Conceptual Framework

3.0 Research Methodology

For the present research, one main study was conducted for testing the conceptual framework. A quantitative approach was the method of choice, as it was necessary to collect primary data from a wide selection of participants in a relatively short amount of time. The main study consisted of a questionnaire using a within-subject factorial design. The following section describes the data collection process and design of the study used in this research in more detail.

3.1 Participants

During a two-week data collection period, 399 responses were collected through an online survey experiment distributed through Qualtrics Survey Software. A non-probability convenience sampling (Malhotra, 2010) was applied by collecting participants through the social media platforms Facebook and LinkedIn, as well as the learning management system Itslearning. On every platform, participants were encouraged to share the survey to create a snowball effect. We wanted to collect a wide representation of participants in regard to different demographics, but children under 16 were eliminated from the study, as they are rarely responsible for the grocery shopping for the household. As we used a convenience sampling technique, a large majority of the respondents were Norwegians and the results will reflect this.

From the 399 collected responses, 165 were deleted due to either (1) incomplete responses (N = 147), (2) children under the age of 16 (N = 2), or (3) response time shorter than 60 seconds (N= 16). The average response time for the survey was 5,2 minutes, making responses below 60 seconds likely to be rushed, with participants not looking closely enough at the different treatments presented to them and thereby reducing the reliability in the study. The final sample (N = 234) consisted of 68 males and 166 females, with a preponderance of respondents between the ages of 17 and 25, which was to be expected given our convenience sampling methods. This demographic was in alignment with what Orkla Foods Norge highlighted as areas of interest for research on meat substitutes during the initial discussion for the project. Participants' living situation was also recorded, as it has been documented that one's family, spouse, or partner are potential

barriers for becoming vegetarian (Lea & Worsley, 2003), a finding that may also be relevant for meat substitutes. A majority of the respondents were recorded as living in shared housing or with a significant other without children, indicating a preponderance of participants in an early establishment phase of life. A summary of demographics can be found in Table 1.

Table 1 Summary of Demographics

Variable	N	%
Age		
17-25	129	55.1
26-35	40	17.1
36-45	14	6.0
46-55	32	13.7
56-65	19	8.1
Total	*234*	*100*
Gender		
Male	68	29.1
Female	166	70.9
Total	*234*	*100*
Living situation		
I live with parents	19	8.1
I live with significant other with child(ren)	34	14.5
I live with significant other without child(ren)	60	25.6
I live in a shared housing (roomates)	79	33.8
I live with my child(ren)	11	4.7
I live alone	27	11.5
Other	4	1.7
Total	*234*	*100*

3.2 Procedure

3.2.1 Design

Respondents that elected to participate in the study completed an online survey with an experimental design (see Appendix 1) using Qualtrics Survey Software. A quantitative research method was chosen, as it examines the relationship between variables measured numerically, and analyses them using a range of statistical graphical techniques, increasing the quality of the study.

A 2 (Male vs. Female)×2 (Green vs. Red)×3 (No labels vs. Two labels vs. Five labels) within-subjects factorial design was conducted. Also known as repeated measures, this designation refers to a single group of participants who are all exposed to the planned intervention or series of intervention (Saunders, Lewis & Thornhill, 2019). Individual differences can be extraneous variables, confounding the dependent variable in a way that weakens the result of the experiment. Therefore, a within-subjects factorial design was used for the study, reducing this risk by exposing the participants to every condition.

3.2.2 Stimuli

Six fictitious product packages were created, inspired by the design of one of Orkla Foods Norge's meat substitute products recently launched on the Norwegian market, with consent granted from one of their marketing managers. Elements that could be easily connected to the existing product were replaced, but the overall design is similar to ensure that the products were believable. To create a randomization effect, participants were randomly assigned the order of the six product packages to block potential threats to the internal and external validity (Malhotra, 2019). To get the complete randomization effect, the participants did not have the option of going back and changing their answers as they were being exposed to the different product packages. The meat substitute product used in the experiment was minced meat, as this is a versatile food option that can be included in many dishes and has a wider usage area than other meat substitutes, such as hamburgers.

Initially, the products for the survey were labelled as meat substitutes based on soy. After verbal feedback from the respondents in a pretest this was replaced by "plant-based" (several of the participants communicated negative associations with soy products, both when it comes to purchase intention and belief in their environmental friendliness). The term "plant-based" did not receive the same unfavorable treatment by the participants, and was thus chosen as the described protein source of the meat substitutes. The six product packages had different combinations of color and labels as presented in Figure 2.
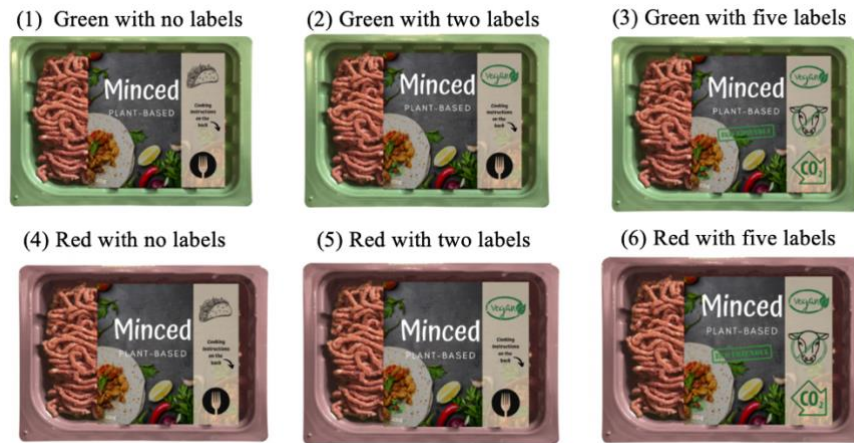
Figure 2 Stimuli of Product Packages

3.2.2.1 Color on Product Packages

The study contained two different treatments for color to identify differences among consumer purchase intention and belief in the environmental friendliness of the product. The color of product packages may have an even more important effect when consumers are encountering new products, such as the fictitious products in this study. When participants lack relevant brand associations, color will have an important referential meaning by activating associations in the minds of the participants (Labrecque & Milne, 2012).

The color green was used for three of the product packages to investigate its impact in relation to the environmental belief of the product and purchase intention. For the second treatment of color, a dimmed red hue was used for a sufficient contrast between the two treatments. As a mechanism to ensure that participants were paying attention and were able to differentiate between the color treatments, the contrasting effect was an important part of the study. As it is a stimulating color, red was also a beneficial color to use in this study, with both it and green being primary colors (Labrecque & Milne, 2012).

3.2.2.2 Labels on Product Packages

Consumers use the cues on product packages to predict certain benefits of the products, reduce risk, and compensate for a lack of involvement - also referred to as the cue utilization process (Olson & Jacoby, 1972). This process can be divided into two phases. Phase one refers to the belief formation process, where consumers use their cognitive structure to form perceptions of the presented stimuli (Olson, 1978). For consumers to experience any benefits from the environmental label as a cue, the label must first be perceived by them. However, only the cues that are sufficiently salient to the consumer will be perceived by them (Olson & Jacoby, 1972; Steenkamp, 1990). In phase two we can consider the assumptions that consumers make from the cue perceptions; in other words, to what extent the cues are used to anticipate their essence on the product packaging (Steenkamp, 1990). It is therefore beneficial to uncover what level of labels are desired in order for them to be sufficiently salient, and persuade the consumer to strengthen the environmental belief and purchase intention.

This study contained three different levels of labels on the product packaging (No labels vs. Two labels vs. Five labels) to test the effect of the different label conditions on participants' perception of the environmental friendliness and their purchase intention for each product. To measure the respondents opinion about the labels on the packaging, general labels were chosen over ones already known in the market such as "Fairtrade" or "Nyt Norge." This was because consumers' experience with a label can influence whether they are skeptical or trusting towards products with environmental labels (Zepeda, Sirieix, Pizarro, Corderre & Rodier, 2013). To avoid any bias created by previous experiences, unknown labels were used to examine the effect of labels being present on the product packages more accurately. The environmental cues used as stimuli for the label condition were chosen based on elements used on the packaging of similar products, as well as being prototypical for conveying sustainability. The five labels (Figure 3) represented that a product was eco-friendly, vegan, recyclable, had lower CO_2 emissions and did not contain animal ingredients.
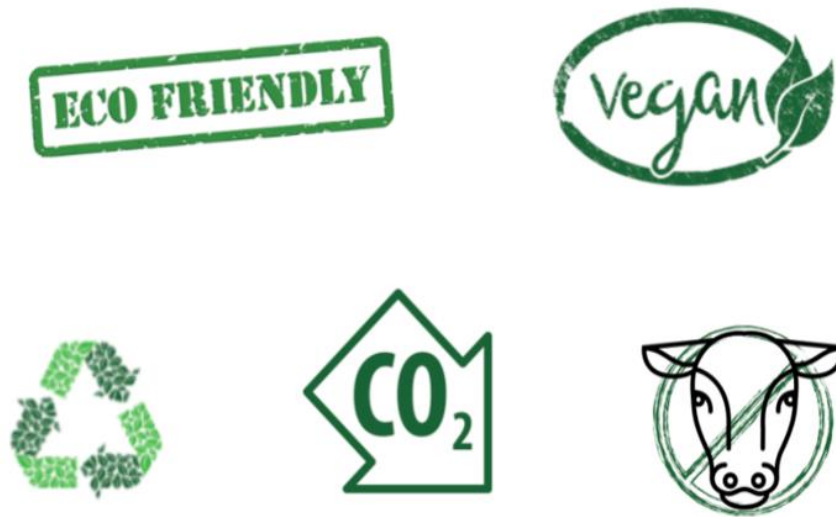
Figure 3 Stimuli for labels

Two of the product packages consisted of five environmental labels, all chosen to strengthen the belief in the products' environmental friendliness and to increase purchase intention. For the remaining products with two and no environmental labels, the stimuli for the environmental labels were replaced by generic labels with no indications of product benefits (Figure 4). For the two products with no environmental label, the product itself was presented as "plant-based." This term was necessary to include, as participants would still have to be aware that they were looking at a meat substitute product, even with the absence of any environmental labels. The different stimuli aimed to uncover the level of labels required to be sufficiently salient to increase the environmental belief and purchase intention.

Figure 4 Stimuli for Generic Labels

3.3 Description and Measurements of Variables

In the following section, scales measuring the constructs of interest are presented. The complete questionnaire of the experiment can be found in Appendix 1. An overview of the variables and how they were measured can be found in Table 2.

Table 2 Overview of Variables and Measurements

Variable	Scale	Measurement	Mean	Std.dev
Purchase Intention	1-7	If given the opportunity I would purchase this product	3.97	1.50
Environmental Belief	1-7	I believe that this is an environmentally friendly product	5.07	1.16
Environmental Involvement	1-7	Item 1 – We are approaching the limit of the number of people the earth can support	5.12	1.44
		Item 2 – Humans have the right to modify the natural environment to suit their needs	3.83	1.50
		Item 3 – When humans interfere with nature it often produces disastrous consequences	3.44	1.21
		Item 4 – Humans are severely abusing the environment	5.72	1.09
		Item 5 – The earth has plenty of natural resources if we just learn how to develop them	5.34	1.40
		Item 6 – Plants and animals have as much right as humans to exist	5.29	1.60
		Item 7 – The balance of nature is strong enough to cope with the impacts of modern industrial nations	2.78	1.27
		Item 8 – The so-called "ecological crisis" facing humankind has been greatly exaggerated	2.60	1.53
		Item 9 – The earth is like a spaceship with very limited room and resources	4.50	1.61
		Item 10 – Humans were meant to rule over the rest of nature	2.70	1.54
		Item 11 – The balance of nature is very delicate and easily upset	4.68	1.30

Purchase Intention

The dependent variable in the model was measured using a 7-point Likert scale, ranging from "Strongly disagree" to "Strongly agree." The statement given in the survey, "If given the opportunity I would purchase this product," was inspired by previous research measuring purchase intention (Pancer et al., 2017; Chen & Barnes, 2007). Mainieri, Barnett, Valdero, Unipan and Oskamp (1997) also used a 7-point Likert scale to measure the general environmental buying behavior. The statement was repeated for all six product variations making it desirable to keep the questioning about purchase intention short and concise (Gibson, 2001).

Environmental Belief

The mediating effect of consumers' environmental belief was measured on a 7-point Likert scale, ranging from "Strongly disagree" to "Strongly agree". This item was constructed to measure consumers' belief in the environmental friendliness conveyed through the product packages. The statement given to the participants was "I believe that this is an environmentally friendly product". Previous research that tested the effect of adding environmental cues as a way of strengthening a brand or product's perceived environmental friendliness has used similar approaches by asking respondents how environmentally friendly they believe a product is before and after adding the cues (Seo & Scammon, 2017). Mainieri et al., (1997) measured the product's environmental friendliness with three 7-point Likert scales about the perceived environmental effects of various products.

Environmental Involvement

An index of participants environmental involvement was needed to test the moderating effect of the variable. This data were collected through the well-established revised NEP scale (Dunlap, Van Liere, Mertig & Jones, 2000). This broad measuring scale includes beliefs, attitudes, and concerns about nature and the role of human in environmental issues. As suggested by Krosnick, Juss and Wittenbrink (2005), a 7-point Likert scale was used instead of the original 5-point scale. Although, the NEP scale is recommended to be used in its entirety, many other researchers have successfully adapted the scale to fit the needs of the

research at hand (see Hawcroft & Milfont, 2010). For the current study, one facet relating to items 4, 9 and 14 of the revised NEP scale was removed to limit the number of questions in the survey (Table 3). A reliability test was run to test the items and a Cronbach's Alpha of .795 confirmed an acceptable level of reliability, even with the removal of one facet.

Table 3 NEP Items used for this research with inspiration from Revised NEP (2000)

NEP items used for this research	Revised NEP items (2000)
1. We are approaching the limit of the number of people the earth can support	1. We are approaching the limit of the number of people the earth can support
2. Humans have the right to modify the natural environment to suit their needs	2. Humans have the right to modify the natural environment to suit their needs
3. When humans interfere with nature it often produces disastrous consequences	3. When humans interfere with nature it often produces disastrous consequences
4. Humans are severely abusing the environment	4. Human ingenuity will ensure that we do NOT make the earth unlivable
5. The earth has plenty of natural resources if we just learn how to develop them	5. Humans are severely abusing the environment
6. Plants and animals have as much right as human to exist	6. The earth has plenty of natural resources if we just learn how to develop them
7. The balance of nature is strong enough to cope with the impacts of modern industrial nations	7. Plants and animals have as much right as human to exist
8. The so–called ''ecological crisis'' facing humankind has been greatly exaggerated	8. The balance of nature is strong enough to cope with the impacts of modern industrial nations
9. The earth is like a spaceship with very limited room and resources	9. Despite our special abilities humans are still subject to the laws of nature
10. Humans were meant to rule over the rest of nature	10. The so–called ''ecological crisis'' facing humankind has been greatly exaggerated
11. The balance of nature is very delicate and easily upset	11. The earth is like a spaceship with very limited room and resources
12. If things continue on their present course, we will soon experience a major ecological catastrophe	12. Humans were meant to rule over the rest of nature
	13. The balance of nature is very delicate and easily upset
	14. Humans will eventually learn enough about how nature works to be able to control it
	15. If things continue on their present course, we will soon experience a major ecological catastrophe

3.4 Analysis

To ensure the quality of our collected data, our approach was based on Malhotra's (2019) data-preparation process. This approach has merit when the proportion of unsatisfactory responses for each of these respondents is large, or when key variables are missing (Malhotra, 2019).

To prepare the data for hypothesis testing, the anti-environmental items in the NEP scale (2, 5, 7, 8 and 10) were re-coded to get the correct measurement to calculate the NEP score for the participants. As most questions were measured on a 7-point Likert scale (purchase intention, environmental belief and environmental

involvement), these were fixed-field codes, meaning the number of records for each respondent is the same, and appears in the same column for each respondent (Malhotra, 2019). Remaining questions such as dietary habits and demographics were automatically coded in SPSS (such as gender, with values 1 = male, 2 = female).

3.4.1 Consistency Checks

To test for any extreme values, descriptive statistics were computed to check for values that could be a potential threat to the reliability of the data. To identify any outliers in the dataset, we looked at the maximum and minimum values of variables in the data where potential outliers could exist (Malhotra, 2010). No extreme values were found.

3.4.2 Variable Respecification

For further analysis, some respecification of different measures was needed. Purchase intention and environmental belief for each product package variation were kept as scale variables. For environmental involvement, more analysis was needed to get a meaningful measurement variable. The next section describes the factor analysis whereby items were extracted to work with environmental involvement as a single measurement

3.4.3 Factor Analysis

A factor analysis was conducted to identify a single set of variables from the 12-item NEP scale for use in subsequent analysis (Malhotra, 2019 p. 609). According to Janssens, Wijnen, De Pelsmacker and Van Kenhove (2008) three assumptions must be met in order to perform a factor analysis. Malhotra (2019) states that an appropriate sample size should be at least four or five times as many observations as variables, and the requirements regarding number of respondents met (N=234). Further, all variables were measured on the same 7-point Likert scale, which is commonly treated as an interval-scale because of the "assumption of equal appearing intervals" (Janssens et al., 2008). Moreover, the variables must be correlated with each other sufficiently to perform a factor analysis (Malhotra, 2019). To confirm this, we conducted a Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measuring of sampling adequacy.

To assess which items that were best fitted to be a representation of participants NEP, a factor analyses with all twelve items was run (Appendix 2a). The determinant value of the correlation matrix showed adequate correlation for the matrix, indicating that a factor analysis was meaningful (.042 > .001). KMO test showed significant magnitudes (.830 > .5) of the observed correlation coefficients to the magnitudes of the partial correlations' coefficients (Malhotra, 2019). Bartlett's Test of Sphericity was significant ($p < .000$), saying that the NEP variables were significantly correlated. The three assumptions were therefore met, confirming that a factor analysis was appropriate. Together, the extracted variables explained 54.56% of the variance in the data.

Extracting only one factor from the NEP scale was considered expedient to get a reliable measure of participants' NEP score. Items with low extraction scores from the communalities output were removed before running the analysis again with the remaining items (1, 3, 4, 8 and 12) (Appendix 2b). The KMO (.780 > .5) and Bartlett's Test of Sphericity ($p < .000$) were significant and the extracted variable explained 55.83% of the variance in the data. An index was created by computing the variables in the factor, creating a measurement of environmental involvement for each participant. A reliability analysis was conducted to ensure for the internal consistency reliability of the new index. The Cronbach's Alpha for the extracted factor showed a satisfactory reliability of .792.

3.4.4 Linear Mixed Model

A linear mixed model approach was elected as the procedure of choice for hypothesis testing. When working with data where repeated measurements of the same subject are collected, a linear mixed model is a fitting approach due to the assessment of within-subject variances. A linear mixed model has several advantages compared to the more general linear regression model as it is able to illustrate several observations of Y taken at each value of X (Galwey, 2014). In addition, this type of model is able to handle correlated data and unequal variances, useful when dealing with datasets such as the one in the current study.

Prior to working with a linear mixed model, it was necessary to restructure the dataset from a wide to a long format. The Restructure Data Wizard in SPSS was

used to restructure variables into groups of related cases. Four variable groups were restructured using Purchase Intention, Environmental Belief, Color and Label, with Id as the case group identification. All other variables in the data were kept as fixed and kept in the restructured dataset. The restructuring process resulted in a dataset were each observation (N = 1404) for the different product packages were stacked as related cases. After stacking the data, two nominal variables were created for Color (Green and Red) and Label (No labels, Two labels and Five labels) to use as factors in the model. When using the linear mixed model approach we accounted for Type 1 errors in the model, as all covariates in the model were scale variables.

Two linear mixed models were created to test for the effects of the factors Color (Red vs Green), Labels (No labels vs Two labels vs Five labels) and Gender (Female vs Male) on participants belief in the environmental friendliness and their purchase intention for the six different package treatments. For both models, Environmental Involvement was set as a covariate. The first model was fitted with Environmental Belief as the dependent variable and Purchase Intention as covariate, to test for H_{1a}, H_{2a}, and H_{3a} (see Appendix 3a). The second model was fitted using Purchase Intention as the dependent variable and Environmental Belief as a covariate, to test the support for H_{1b}, H_{2b} and H_{3b} (see Appendix 3b).

To test the mediating effect of environmental belief between the environmental cues (H_4) and gender (H_5) on purchase intention, nine linear mixed models were fitted using Baron and Kenny's (1986) method for mediation (see Appendix 4). Baron and Kenny (1986) state that to establish mediation effect, the following conditions must be met: (1) The independent variable must affect the mediator, (2) the independent variable must be shown to affect the dependent variable, and (3) the mediator must affect the dependent variable. To have perfect mediation, the independent variable must show no effect when the mediator is controlled. This procedure was carried to test if the effects of color, label and gender were mediated strictly by participants belief in the environmental friendliness of the meat substitutes, by checking if significant effects of the independent variables are distinguished by adding environmental belief as a covariate. The method of using linear mixed models to test the effects of covariates as mediators, has been

acknowledged by literature as being an effective way to estimate the effects of independent variables (e.g., Cabral, Heeren, Cheng & Blood, 2010).

The moderating effect of environmental involvement in H_6 was tested using the model with Purchase Intention as the dependent variable (see Appendix 3b). Labels, Color, and Gender continued to be the factors of the model, while both Environmental Involvement and Environmental Belief were used as covariates to measure the interaction effect between the two. To create an interaction plot and explore differences in levels of environmental involvement, a new categorical variable was computed from the existing 7-point scale variable of environmental involvement, with participants scoring from 1 through 3.4 in it being labeled as low. Participants scoring from 3.5 through 5.4 were labeled as medium, and those scoring from 5.5 through 7 were labeled as high.

4.0 Results

4.1 The Effect of Environmental Cues

4.1.1 The Color Green

Two models were fitted to test for differences in effect between the colors green and red on belief in environmental friendliness and purchase intention. In the first model with Environmental Belief as the dependent variable, Hypothesis H_{1a} was supported by the significant main effect of the package color (F (1380) = 11.58, p < 0.000) and, as seen in Figure 3, the means for the products with color as the only stimulus showed that participants believed that the products with green packaging (M = 5.03, SD = 1.25) were more environmentally friendly than the red ones (M = 4.61, SD = 1.45). The model showed that the color green as an environmental cue has a larger effect on consumers' beliefs in the environmental friendliness than an alternative color. When checking the main effect of color on purchase intention in the second model with Purchase Intention as the dependent variable, H_{1b} was supported and color was documented as having a significant effect on participants purchase behavior (F (1356) = 11.58, p < 0.05). The mean for the product packaging with color as the only treatment also showed that participants had higher purchase intention for green products (M = 4.06, SD = 1.64) over red ones (M = 3.82, SD = 1.65). In the model, participants showed

significantly higher purchase intention for green products packages than for the red ones, verifying that the color green has a larger impact on consumers purchase intention than red does.

Another interesting finding from the model is that men show lower purchase intention for the product with green as the only stimuli (M = 3.29, SD = 1.66) than for the product with red as the only stimuli (M = 3.32, SD = 1.63). Although the differences are minimal, they are interesting when looking at the higher purchase intention for women for the product with green as the only stimuli (M = 4.38, SD = 1.54) compared to the product with red as the only stimuli (M = 4.02, SD = 1.57). Due to the minimal difference in mean (M_{diff} = .03), a paired samples t-test was conducted (see Appendix 5), which showed that the differences in males' purchase intention for green and red were not significant (t (67) = −.189, $p > .05$) The differences for women (M_{diff} = .36) were significant (t (165) = 4.68, p < .000).

Overall, as illustrated in Figures 5 and 6, participants had higher scores for environmental belief than purchase intention for both colors. This was confirmed by a paired samples t-test (see Appendix 6) which showed that environmental belief (M = 5.03, SD = 1.35) was significantly higher than Purchase Intention (M = 4.06, SD = 1.65) for products with green as the only environmental cue (t (233) = 9.26, $p < .000$). For products with red as the only environmental cue, the average score for Environmental Belief (M = 4.61, SD = 1.45) compared to Purchase Intention (M = 3.82, SD = 1.62) was also significantly higher (t (233) = 7.46, $p < .000$).

Figure 5 Visualization of the Effect of Color on Environmental Belief
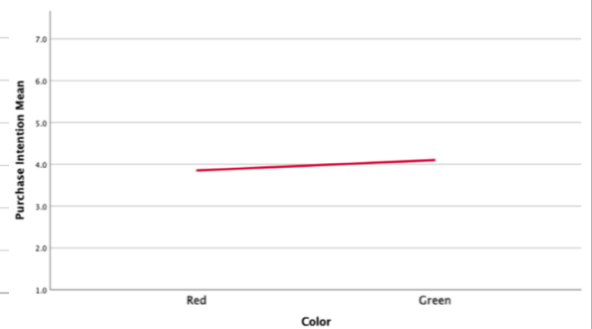
Figure 6 Visualization of the Effect of Color on Purchase Intention

4.1.2 Environmental Labels

Two models were fitted to test for differences in effect between the three treatments of Label on participants belief in the environmental friendliness of a product and purchase intention. Hypothesis H2a was supported by the significant fixed effect of labels in the model with Environmental Belief as the dependent variable (F (1380) = 28.16, *p* < .000), and descriptive statistics showed that respondents believe products with five labels are more environmentally friendly (M = 5.46, SD = 1.43) than those with two (M = 4.93, SD = 1.43) and no labels (M= 4.82, SD = 1.41), as seen in Figure 7. Further, the minimal difference in the mean for two and no labels indicate that respondents do not show a different belief in the environmental friendliness of product packages with two or no labels (Meandiff = − .11). In the second model, with purchase intention as dependent variable, similar results appear when investigating the descriptive statistics. Respondents report a higher purchase intention for product packages with five labels (M = 4.07, SD = 1.76) and show little difference on product packages with two labels (M = 3.92, SD = 1,65) and no labels (M = 3.94, SD = 1,64), as can be seen in Figure 8. However, H2b was not supported by the model (F (1356) = 1.638, *p* = .195), indicating that increasing the number of labels on product packaging alone will not raise consumers' purchase intention.
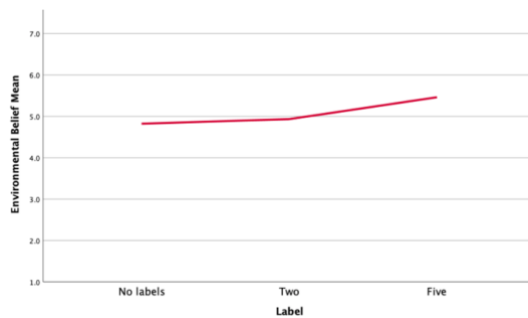
Figure 7 Visualization of the Effect of Labels on Environmental Belief
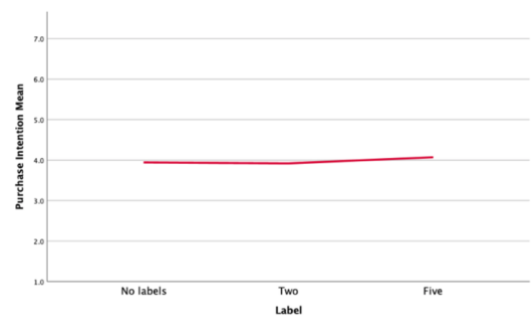
Figure 8 Visualization of the Effect of Labels on Purchase Intention

4.2 The Effect of Gender

H$_{3a}$ was supported by the first model with Environmental Belief as dependent variable (F (1380) = 7,455, p < 0.05), and descriptive statistics indicate that females have higher environmental belief (M = 5.14, SD = 1.36) than males (M = 4.91, SD = 1.62). The second model revealed a significant level of gender with Purchase Intention as the dependent variable (F (1356) = 177.352 p < .000), and H$_{3b}$ is also supported. Descriptive statistics show that females have higher purchase intention (M = 4.29, SD = 1.606) than males (M = 3.21, SD = 1.63) for meat substitutes. There is a steeper relationship between gender and purchase intention than between gender and environmental belief (Figure 9 and Figure 10), proving that the sexes have more similar beliefs in the environmental friendliness of meat substitutes, but they vary in their intent to purchase these products.
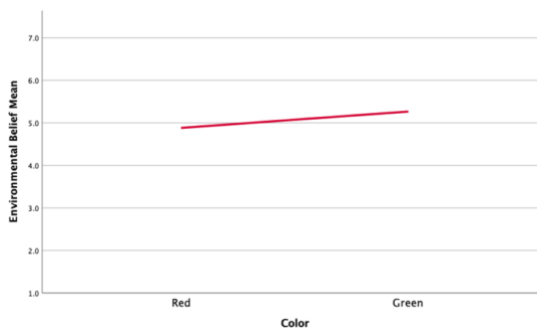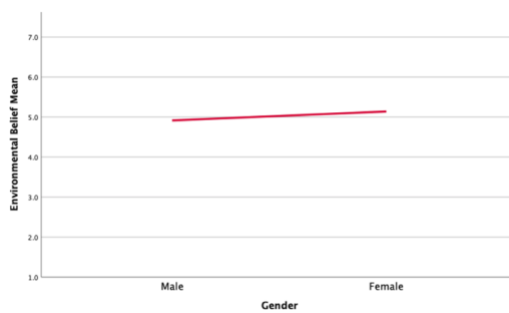
Figure 9 Visualization of the Effect of Gender on Environmental Belief
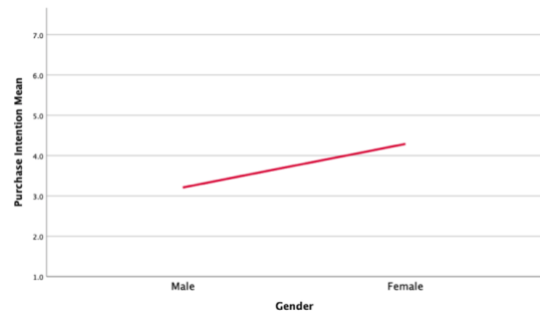
Figure 10 Visualization of the Effect of Gender on Purchase Intention

4.3 The Mediating Effect of Environmental Belief

4.3.1 Environmental Cues, Environmental Belief and Purchase Intention

When testing for the mediating effect of consumers' environmental belief, Baron and Kenny's (1986) method for mediation was followed. First, color's (IV) influence on Environmental Belief (M) was significant (F (1402) = 25.183, *p* < .000). Second, its effect (IV) in the model without Environmental Belief (M) as a covariate showed a significant total effect of Color on Purchase Intention (DV) (F (1402) = 7.809, *p* = .005). In the final step, respondents' Purchase Intention was analyzed in the model explained by Color with Environmental Belief (M) as a covariate variable, showing that the effect of Color was still significant (F (1400) = 9.672, *p* = .002). The model without Environmental Belief as a covariate

captures the total effect of Color as an independent variable, and this effect is still significant when adding Environmental Belief as a covariate. Therefore, it is not feasible to conclude that the effect of product packaging color on consumers' purchase intention is solely mediated by their environmental belief.

The same steps were followed with Label as an independent variable. Label's (IV) influence on Environmental Belief (M) showed a significant effect (F (1401) = 26.96, $p < .000$). The total effect of Label (IV) on Purchase Intention (DV) was not significant (F (1401) = 1.099, $p = .333$) in the model without Environmental Belief (M), or in the model with Environmental Belief (M) as a mediator (F (1398) = 1.369, $p = .255$). The labels on the product packages have no total effect on participants' purchase intention, nor an indirect effect through their environmental belief. Neither of the environmental cues had an effect on purchase intention mediated by environmental belief, showing no support for H4.

4.3.2 Gender, Environmental Belief and Purchase Intention

The three steps were also followed when testing the relationship between gender, environmental belief and purchase intention. The influence of Gender (IV) on Environmental Belief (M) showed a significant effect (F (1402) = 6.912, $p = .009$). A significant total effect of Gender (IV) on Purchase Intention (DV) (F (1402) = 129.928, $p = .000$) was also found, as well as for the final model with Environmental Belief (M) as a covariate (F (1400) = 168.003, $p = .000$). The relationship between participants gender and purchase intention is therefore not mediated by their environmental belief in a product and H5 is not supported.

4.4 The Moderating Effect of Environmental Involvement

In the model with Purchase Intention as dependent variable, we found a significant interaction effect between Environmental Belief and Environmental Involvement (F (1356) = 36.56, $p < .000$), validating the moderating effect of participants' environmental involvement. The strength of the relationship between participants' belief in a product's environmental friendliness and their intention of purchasing a meat substitute is affected by their level of environmental involvement, showing support for H6. The steeper line for high involvement indicates that to increase purchase intention, belief in environmental friendliness

is more important for consumers with high involvement than for consumers with medium and low involvement (Figure 11). It is also interesting that participants with low and medium environmental involvement show higher purchase intention when environmental belief is low (strongly disagree and disagree), indicating that it is less important for these groups of consumers to believe in the environmental friendliness of meat substitutes. For consumers with high environmental involvement, the belief in the environmental friendliness of meat substitutes is more important in facilitating purchase intention.

Additionally, we found it interesting to take a deep dive into how environmental involvement correlates with gender. An independent samples t-test showed that men (M = 5.04, SD = 1.15) portrayed lower environmental involvement than women (M = 5.61, SD = .83) at a significant level (t (1402) = -10.30, $p < .000$) (see Appendix 7). Running a one-way ANOVA (see Appendix 8) confirmed that participants with high environmental involvement (M = 4.42, SD = 1.64) had significantly higher purchase intentions (F (2, 1401) = 73.77, $p < .000$) than those with medium environmental involvement (M = 3.68, SD = 1.57) and low environmental involvement (M = 2.30, SD = 1.54). The same was found for environmental belief, where high involvement participants (M = 5.25, SD = 1.38) had significantly higher belief in the environmental friendliness of the meat substitutes (F (2, 1401) = 22.64, $p < .000$) than medium and low environmentally involved participants (M = 4.99, SD = 1.37) and (M = 4.06, SD = 2.19), respectively.
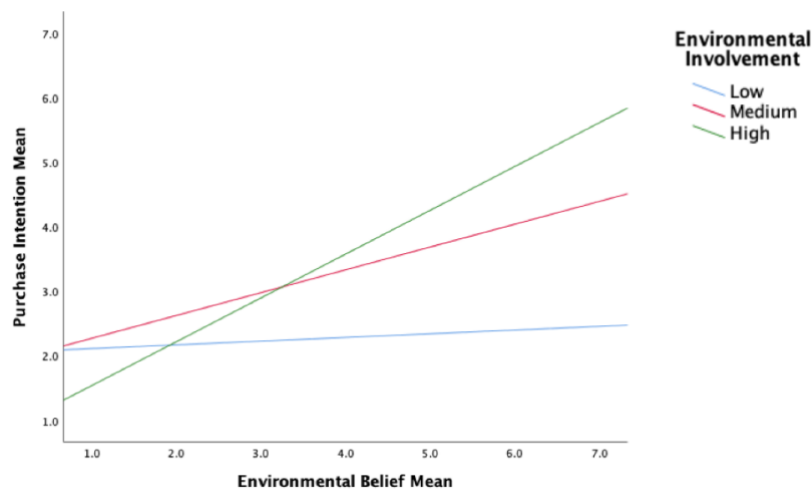
Figure 7 Visualization of the Moderating Effect of Environmental Involvement Between Purchase Intention and Environmental Belief

5.0 Discussion

The present study provides insight on how to increase consumption of meat substitutes, by using product packaging as a mean to affect consumers purchase intention. More specifically, the study takes into account different drivers behind consumers' belief in the environmental friendliness of meat substitutes and the intention to purchase these products. We also explore environmental involvement as a moderator between environmental belief and purchase intention, to shed light on the well-known paradox that consumers believe in the environmental friendliness of certain products, but that this belief does not translate into purchase behavior. The following section reviews the results from our analyses, and provides insight into the research question on how consumers' purchase intentions for meat substitutes is affected by different green marketing efforts on product packaging.

The support we found for the effect of the color green on both participants environmental belief (H1a) and purchase intention (H1b) was not surprising as previous literature has accounted for the importance of color when marketing green products (e.g., Rebollar, et al., 2012, Labrecque & Milne, 2013; Pancer et.al, 2017). The color green was a significant driver behind increasing participants' purchase intention for the meat substitutes in the study, as well as having a strong effect on consumers' belief in the environmental friendliness of the products. Green was the most effective color in increasing consumers' belief in the environmental friendliness of the meat substitutes, and it had a stronger effect on purchase intention than the alternative color. Using the color green on the product packaging of meat substitutes should therefore be considered as a strategic tool to increase consumers' belief that meat substitutes are environmentally friendly, as well as increasing purchase intention. When looking at the effect of the color green on gender, it is interesting that it does not increase purchase intention for men, but is a driver amongst women. In the current study, the color green by itself was not sufficient to increase purchase intention for meat substitutes amongst men.

A more surprising finding was the insignificant effect of labels on consumers' purchase intention. Environmental labels are widely used in product marketing, but

according to the results of this study, they will not affect consumers' intention to purchase meat substitutes. However, environmental labeling does influence consumers' perception of the environmental friendliness of meat substitutes. In this study, environmental labels were able to convince participants that the meat substitutes were environmentally friendly, but they were not able to sway their purchase intention the same way as the color green did. We do see a distinct difference in the effect of five versus two or none labels, which indicates that a higher number of labels is needed to see an effect in purchase intention and belief in environmental friendliness. Labels that consumers are more attuned to may have a different effect on consumer's purchase intention for meat substitutes (McEachern & Warnaby, 2008). Another reason behind our findings may perhaps be that consumers had difficulties noticing the differences in labels in the current study. When environmental labels are not able to capture the attention of consumers, the process of their being an influence on consumers' purchase decision will cease (Palomo, Martinez & Bosch, 2015).

The support for the effect of gender on consumers' belief in the environmental friendliness of meat substitutes (H3a) was not surprising, but it raises questions about what other factors could explain the divide between gender when researching meat substitutes. The smaller variances between men and women with belief in environmental friendliness compared to purchase intention are interesting as they indicate that men believe that some products are more environmentally friendly than others, but they do not turn this belief into action the same way that women do.

Men and women have different barriers towards reducing their meat intake, and it is therefore interesting to explore how different attitudes towards meat consumption can be seen in relation to acceptance of meat substitutes, and if gender is as strong of a predictor for meat substitutes as for meat consumption. As previous research has expressed that gender is the strongest predictor for meat consumption (Tobler et al., 2011; Sobal, 2005; Gossard & York, 2003), a significant effect of gender and support for H3b was not surprising. The higher purchase intention for meat substitutes for women compared to men was in

alignment with previous research that women have both a higher acceptance for meat reduction and a higher willingness to change (Kollmuss & Agyeman, 2002).

As it was predicted that consumers belief in the environmental friendliness of meat substitutes would explain the relationship between gender and purchase intention, the lack of support for H5 was surprising. Even though we found differences between the genders both for belief in environmental friendliness of meat substitutes and purchase intention, it is not feasible to conclude that the differences in purchase intention is due to the differences in environmental belief. Our analysis revealed no significant mediating effect of environmental belief between gender and purchase intention and we cannot confirm that this relationship is explained by belief in the environmental friendliness of meat substitutes.

Furthermore, the mediating effect of environmental belief between the environmental cues and purchase intention (H4) was not supported in the sense that first, the single effect of color on product packaging significantly influenced purchase intention, whereas when adding environmental belief as a covariate, the effect of color on purchase intention was still significant, thus indicating that the effect of package color on purchase intention was not mediated through environmental belief. Furthermore, label was not significant in either of the models, indicating that labels have no effect on purchase intention through a mediator or as a single variable. The effect of the environmental cues on purchase intention was not mediated by consumers' belief in a product's environmental friendliness.

The moderating effect of environmental involvement that confirmed H6 is an interesting finding as it opens up a research field of marketing towards people with different levels of environmental involvement. Consistent with previous findings, our results showed that the influence of environmental involvement affects the relationship between consumers' belief in the environmental friendliness of a product (Cho, 2015) and their purchase intention (Arısal & Atalar, 2016). This study shows that compared to participants with lower environmental involvement, those with higher environmental involvement are

more likely to believe in the environmental friendliness of meat substitutes and that this belief is more likely to transfer into purchase intention. Another interesting finding is that when environmental belief is low, participants with low or medium environmental involvement show higher purchase intention for meat substitutes than those with high environmental involvement. This indicates that high involved consumers need to believe in a product's environmental friendliness, while for lower involved consumers, belief in environmental friendliness is not necessarily a prerequisite for purchasing meat substitutes. Additionally, our results suggests that when marketing meat substitutes towards men, appealing to their environmental consciousness is likely to be less effective as men tend to have lower levels of environmental involvement.

Table 4 Summary of Results

Hypotheses	Variables	Results
H1a	The color green on product packaging will have a stronger effect on consumers' belief in the environmental friendliness of meat substitutes than an alternative color.	Supported
H1b	The color green on product packaging will have a stronger effect on purchase intentions of meat substitutes than an alternative color.	Supported
H2a	Increasing the number of labels will increase consumers' belief in the environmental friendliness of meat substitutes.	Supported
H2b	Increasing the number of labels will increase consumers' intentions to purchase meat substitutes	Not supported
H3a	Women have higher beliefs in the environmental friendliness of meat substitute compared to men.	Supported
H3b	Women have higher purchase intention for meat substitutes compared to men.	Supported
H4	The effect of the environmental cues on purchase intention is mediated by consumers belief in the environmental friendliness of meat substitutes.	Not Supported
H5	The higher purchase intention for women compared to men is mediated by their belief in the environmental friendliness of meat substitutes.	Not supported
H6	Consumers' belief in the environmental benefits and purchase intention of a product is moderated by environmental involvement.	Supported

6.0 Conclusion and Recommendations

In their choice of fast-moving consumer goods, shoppers are becoming increasingly aware of their power over food production and the reduction of greenhouse gas emissions. Reducing meat intake to contribute to a more environmentally friendly food path has resulted in diets that focus on replacing meat with a more sustainable option, which have become more popular and widespread in Norwegian society. As the market for meat substitutes continues to grow, so does the need for understanding how to best market these products to increase the purchase intention and consumption amongst consumers, in addition to differentiating them from competitors. The objective for this thesis was to get a better understanding of how to market meat substitutes and to investigate the impact of product packaging elements on consumers' purchase intention. We were also interested in looking at how differences in environmental involvement amongst consumers influenced how they perceive the environmental friendliness of a product, along with how this perception materializes into purchase intention.

More than ever before, consumers are looking at ways to decrease their material footprint. Reducing meat consumption is a relatively simple way of doing this, and more consumers are looking into meat substitutes as a tool for being an active part of the sustainability movement. As has been uncovered by researchers before us, a discrepancy exists between what consumers are interested in doing and what they actually end up doing. We see that even though 72.2% of respondents stated that they were interested in reducing their meat intake, only 47.4% have actually replaced meat with a meat substitute product during the last month. This fact creates both challenges and opportunities when marketing green products such as meat substitutes. On one hand, consumers interested in reducing their meat intake represents a largely untapped market. On the other hand, this situation indicates that certain barriers are preventing these shoppers from adopting meat substitutes in their diet. Marketers can tackle these challenges and opportunities by working strategically to understand consumer behaviors for adopting meat substitutes, along with tools they can use to break down any mental barriers for doing so.

One of these tools is adopting the color green on the product packages of meat substitutes. Green packages were able to drive purchase intention on a significant higher scale than did red ones. In addition, the positive effect of the color green is also present in consumers' perception of the environmental friendliness of the meat substitutes. Green product packages are viewed as more environmentally friendly than red ones, providing evidence for synergistic effects between the color green and sustainability.

Many firms rely on product packaging labels for promotion and to increase purchase intention. The current research finds no statistical evidence of the effect of labels in regard to consumers' intent to purchase. However, environmental labels are useful when it comes to increasing consumers' belief in the sustainability of the product. These results contribute to the ongoing discussion amongst academics about the effectiveness of environmental labels in promoting purchase intention. Our lack of support for such an effect cannot be used to conclude that labels on a product package have no effect on consumers' purchase intention, as this effect might be motivated by drivers other than sustainability, such as health or nutrition rather than sustainability.

This study supports previous findings of clear differences in purchase intention between men and women (Beardsworth et.al., 2002; Uusitalo & Rokka, 2008). When measuring the belief in environmental friendliness, both men and women show similar beliefs. Therefore, it is interesting to see that women nonetheless show a significantly higher purchase intention towards meat substitute products. Hence, the belief in a meat substitutes' environmental friendliness will not sway men and increase purchase intention, while women show higher acceptance of this sort of marketing effort.

Consumers with higher environmental involvement are more positively inclined towards meat substitutes, both in terms of believing in their environmental friendliness and in purchase intention. Lower environmentally involved consumers might need a different marketing approach to increase their purchase intention. Consumers with lower environmental involvement do not rely on their belief in the environmental friendliness of a meat substitute when it comes to

purchase intention in the same way as high involved consumers do. When using visual elements on the product packaging to increase purchase intention for meat substitutes, a sustainability approach will not hold as a motivation to purchase for consumers with low environmental involvement.

Our findings around consumers' environmental involvement support the dilemma put forth by Delmas and Burbano (2011) that green marketers will not create growth by focusing on a niche market of environmentally concerned consumers, nor will they reach the mass market of less environmentally involved consumers with a sustainability approach, due to a lack of understanding amongst these consumers. However, the current research do see a potential in reaching the mass market, if marketers shift their marketing efforts away from a sustainability angle as this have little effect on both males and low involved consumers.

6.1 Managerial Implications

This study presents several findings with interesting implications for managers and academics interested in green marketing. Marketing meat substitutes is still a new area within marketing and no clear best practice has been set by the industry. Navigating the waters on how to best market such products (which are often met with skepticism in the mass market) is a comprehensive task, and the current study focuses on a small portion of it only.

The color green will be a valuable tool for managers wishing to increase purchase intention for meat substitutes. Due to its ability to activate environment-related thought processes in the mind of the consumer (Labrecque et.al., 2013), the use of green on product packaging will be very valuable when the goal is to provoke environmentally friendly associations towards the product or brand. Our findings further build upon the importance of making strategically sound decisions regarding the color chosen for product packaging. Choosing the right color can help increase the purchase intentions amongst consumers, while choosing wrongly may damage the intended positioning and sales for the product.

The insignificant results found for labels' effect on purchase intention in this study should be noted by managers, as it might shed some light on how much they

should trust environmental labels to do the job they are designed to do. Managers should be careful not to rely on labels alone to increase purchase intention for meat substitutes. Environmental labels can be useful when the goal is to market the product as environmentally friendly, as it can contribute to increased purchase intention towards consumers with high environmental involvement. However, marketing managers should take the limited space on product packages into account, as environmental labels may take up valuable areas that can be used for other cues that will have a larger impact on purchase intention for those with lower environmental involvement.

Gender is an important factor when understanding the meat substitute market, as it is the strongest predictor for meat consumption (Tobler et al., 2011). Even though women show higher purchase intention towards meat substitutes, more than half of all men participating in the current study expressed an interest in reducing their meat consumption. Finding ways to recruit these men into the meat substitute category, calls for a different approach than when recruiting women. Incorporating men's masculinity into the marketing of meat substitutes might be an area of interest. This study shows that men are almost equal to women when it comes to believing in the environmental friendliness of a product, but they lag behind in terms of purchase intention. Therefore, the sustainability angle is likely to be less effective when targeting men compared to women.

Individual differences among consumers is far from a new phenomenon within marketing, and they are present in the current study as well. Managers should try to understand their target customers and any differences among the consumers environmental involvement. Our results indicate that environmental involvement can both strengthen and weaken the relationship between how environmentally friendly a product is perceived to be, along with intention to purchase. By finding ways to make meat substitutes attractive for consumers with lower environmental involvement, managers may have an opportunity to increase penetration by accessing the mass market and then move out of the niche market, which comprised of consumers with high levels of environmental involvement.

6.2 Limitations and Future Research

As with all other research, the current study is subject to some limitations. One important one to take into account is that the study measured purchase intention and not actual purchase behavior. Previous research has accounted for the discrepancies between consumers' reported purchase intention and their actual behavior (De Groeve, Bleys & Hudders, 2019). It is likely that our study is confounded by self-desirability bias, as respondents may have reported higher purchase intentions to come across as more environmentally concerned. For future research, different methods can be used for data collection (such as in-store experiments and observations) to account for the actual purchasing behavior amongst consumers.

The study was conducted with the intention of gaining a deeper understanding of consumers' attitudes towards meat substitute products. Given the timeframe and financial resources available, as well as practical reasons when collecting data for this study, it cannot be generalized for the entire Norwegian population (although this was never the intention). The same group's characteristics are unlikely to be representative of the population, as there was an underrepresentation of men (with only 30% of the sample size in the study) and an overrepresentation of a younger segment (with 55% of the respondents being between 17 and 25 years). This is not representative for the Norwegian population (Statistics Norway, 2020), making it difficult to validate a generalization of the results for it. The nature of the sample characteristics should be noted before referring to this research as a representation of the Norwegian market.

This study used linear mixed models as the primary analysis for hypothesis testing. Mixed models have emerged as very popular tool for data analysis due to its flexibility and accuracy in datasets were repeated measurements are nested within an individual (Lebeau, Song & Liu, 2018). Despite the popularity of the method, some researchers have highlighted that its rapid growth has caused an uncertainty about how to fit, understand, and report mixed models (Meteyard & Davies, 2020). Such uncertainty may lead to conclusions based on assumptions, an increased risk of mis-specified models, and biased parameter estimates (Meteyard & Davies, 2020). However, as this study reports on main effects and F-

values, these limitations are in large part accounted for. Clearer guidelines and best practice frameworks for the use of mixed models in the field of marketing is an interesting research area for the future.

Another limitation of the study is the restriction of only two environmental cues, color and label, with two treatments for color and three for labels. There are many other attributes on the product packaging that can be utilized by marketers to portray the sustainability of the product and measure purchase intention. However, to limit the scope of the research and analysis requirements, color and label were selected as interesting and important environmental cues. Future research should investigate the possibilities of using other cues as stimuli in the research (such as wording or nutritional information) or expanding the number of different treatments used for the study. The current research only studies the colors green and red. Had we used a different color than red in comparison with green, there could perhaps have been differences in the superior function of the color green. Future research could test the effect of other colors, such as blue or white, in comparison with green.

The labels used in the study were also fictitious and therefore not established on the Norwegian market. Using labels that are well known to the consumers and have a strong position in the market could possibly lead to significant results when measuring the effect of labeling (Zepeda et.al., 2013). Furthermore, this study focuses solely on labels that symbolize extrinsic motivation in reinforcing the environmental belief. For future research it could be interesting to measure the effect of labels symbolizing intrinsic motivations like health benefits, as they are known to be an important factor for consumers when choosing to reduce their meat intake (YouGov, 2016).

The current study explored the relationship between gender and intent to purchase meat substitutes. A limitation for these analyses was the skewed relationship between men and women in the data sample, as women were overrepresented. For more accurate results, future researchers should focus on having a more even distribution between the genders. Another interesting future research area for gender is to look at other factors explaining the lower purchase intention for men,

and at factors that might increase their purchase intention.

When measuring environmental involvement, the revised version of the New Ecological Paradigm scale was used, consisting of 15 items. As many researchers have done in the past, a sample of items from the scale was chosen to measure environmental involvement. Any changes to the wording of the question, order of question asked or changes in scale format can have an impact on the result and cause limitations to the study. Hawcroft and Milfont (2010) have expressed their concern about how not using the NEP scale in its entirety can harm the comparability and possibly the validity of the scores. To compensate for the reduction in items chosen, a balanced set of pro- and anti-NEP items was chosen after recommendation from Hawcroft and Milfont (2010). An additional limitation that must be considered when measuring environmental involvement is the possibility of social desirability bias, - i.e., respondent's desire to project a favorable image to the researcher (Fisher & Tellis, 1998). Today, much focus is dedicated to high-involvement consumers as they report higher purchase intention for meat substitute products. For future research it would be interesting to delve into low-involvement segment and study how to reach this untapped market.

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8.0 Appendices

8.1 Appendix 1 - Questionnaire

Q1

Thank you for taking the time to participate in our study for our master thesis in Strategic Marketing Management at BI Norwegian Business School. Our study is aiming at better understanding consumer attitudes towards meat substitutes.

This survey will take about 6 minutes to complete, and we encourage you to read the questions carefully. There are no right or wrong answers, and your honest opinion will be the most valuable for us.

You can choose to complete the survey in English or Norwegian, and you can change language setting at any point during the survey. All your answers from the survey will be anonymous and treated with confidentiality.

We are extremely appreciative of your time and effort to help us finalize our thesis. For any questions regarding the survey, please do not hesitate to contact us at juliaurang@gmail.com or johanneriise.johnsen@gmail.com

Q2 Part 1
You will now be presented six product packages for a meat substitute. Please study the pictures carefully before you answer the following questions.

Q3

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	○	○	○	○	○	○	○
If given the opportunity I would purchase this product (3)	○	○	○	○	○	○	○

End of Block: Block 3

Start of Block: Block 4

Q4

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	○	○	○	○	○	○	○
If given the opportunity I would purchase this product (3)	○	○	○	○	○	○	○

End of Block: Block 4

Start of Block: Block 5

Q5

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	○	○	○	○	○	○	○
If given the opportunity I would purchase this product (3)	○	○	○	○	○	○	○

End of Block: Block 5

Start of Block: Block 6

Q6

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	◯	◯	◯	◯	◯	◯	◯
If given the opportunity I would purchase this product (3)	◯	◯	◯	◯	◯	◯	◯

End of Block: Block 6

Start of Block: Block 7

Q7

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	○	○	○	○	○	○	○
If given the opportunity I would purchase this product (3)	○	○	○	○	○	○	○

End of Block: Block 7

Start of Block: Block 8

Q8

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I believe that this is an environmentally friendly product (1)	○	○	○	○	○	○	○
If given the opportunity I would purchase this product (3)	○	○	○	○	○	○	○

End of Block: Block 8

Start of Block: Block 9

Q9

Part 2 You will now be asked some questions regarding the environment.

Q30 To what extent do you disagree or agree 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)
We are approaching the limit of the number of people the earth can support (1)	○	○	○	○	○	○	○
When humans interfere with nature it often produces disastrous consequences (2)	○	○	○	○	○	○	○
Humans are severely abusing the environment (3)	○	○	○	○	○	○	○
Plants and animals have as much right as humans to exist (5)	○	○	○	○	○	○	○

Q10 To what extent do you disagree or agree with the following statements:

	Strongly disagree (7)	Disagree (6)	Somewhat disagree (5)	Neither agree nor disagree (4)	Somewhat agree (3)	Agree (2)	Strongly agree (1)
Humans have the right to modify the natural environment to suit their needs (5)	◯	◯	◯	◯	◯	◯	◯
The earth has plenty of natural resources if we just learn how to develop them (3)	◯	◯	◯	◯	◯	◯	◯
The balance of nature is strong enough to cope with the impacts of modern industrial nations (4)	◯	◯	◯	◯	◯	◯	◯
The so–called ''environmental crisis'' facing humankind has been greatly exaggerated (6)	◯	◯	◯	◯	◯	◯	◯
Humans were meant to rule over the rest of nature (7)	◯	◯	◯	◯	◯	◯	◯

End of Block: Block 11

Start of Block: Block 12

Q11 To what extent do you disagree or agree 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)
The earth is like a spaceship with very limited room and resources (2)	○	○	○	○	○	○	○
The balance of nature is very delicate and easily upset (3)	○	○	○	○	○	○	○
If things continue on their present course, we will soon experience a major environmental catastrophe (4)	○	○	○	○	○	○	○

End of Block: Block 12

Start of Block: Block 13

Q12

Part 3 We are interested in understanding your dietary habits better. You will now be asked three simple questions about your food choices.

Q13 Which of these dietary choices do you associate yourself with the most?

◯ Vegan (Resist from consuming animal products)   (1)

◯ Vegetarian (Resist from consuming meat and fish) (2)

◯ Meat eater (Meat regularly included in the diet) (3)

◯ Pescetarian (Resist from consuming animal products except fish and

seafood) (4)

◯ Flexitarian (Primarily vegetarian diet but occasionally eats meat and fish)

(5)

◯ Other (6)

Q14 During the last month I have replaced meat with a meat substitute (e.g. meatfree burger)

○ Yes (1)

○ No (2)

○ I choose not to answer (3)

Q15 I am interested in reducing my meat intake

○ Yes (1)

○ No (2)

○ I choose not to answer (3)

Q16
Part 4
Before you finish we would like to know a little more about you

Q17 Age

Q18 Gender

○ Male (1)

○ Female (2)

○ Other (3)

Q19 Which of the following best describes your current living situation

○ I live with parents (1)

○ I live with significant other with child(ren) (2)

○ I live with significant other without child(ren) (3)

○ I live in a shared housing (roommates) (4)

○ I live with my child(ren) (5)

○ I live alone (6)

○ Other (7)

8.2 Appendix 2: Factor Analysis

8.2.1 Appendix 2a: Factor Analysis for 12 Item NEP Scale

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	722.007
	df	66
	Sig.	.000

Communalities		
	Initial	Extraction
Item 1 – We are approaching the limit of the number of people the earth can support	1	.573
Item 2 – Humans have the right to modify the natural environments to suit their needs	1	.524
Item 3 – When humans interfere with nature it often produces disastrous consequences	1	.626
Item 4 – Humans are severely abusing the environment	1	.504
Item 5 – The earth has plenty of natural resources if we just learn how to develop them	1	.524
Item 6 – Plants and animals have as much right as humans to exist	1	.577
Item 7 – The balance of nature is strong enough to cope with the impacts of modern industrial nations	1	.663
Item 8 – The so-called "environmental crisis" facing humankind has been greatly exaggerated	1	.522
Item 9 – The earth is like a spaceship with very limited room and resources	1	.524
Item 10 – Humans were meant to rule over the rest of nature	1	.416
Item 11 – The balance of nature is very delicate and easily upset	1	.473
Item 12 – If things continue on their present course we will soon experience a major environmental catastrophe	1	.620

Extraction Method: Principal Component Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.073	33.939	33.939	4.073	33.939	33.939
2	1.270	10.579	44.519	1.270	10.570	44.519
3	1.205	10.043	54.562	1.205	10.043	54.562
4	.910	7.587	62.149			
5	.827	6.891	69.040			
6	.784	6.535	75.575			
7	.683	5.695	81.269			
8	.567	5.724	85.993			
9	.506	4.214	90.207			
10	.456	3.802	94.010			
11	.386	3.219	97.228			
12	.333	2.772	100.000			

Extraction Method: Principal Component Analysis

Component Matrix

	Component 1	Component 2	Component 3
Item 1 – We are approaching the limit of the number of people the earth can support	.662	-.131	-.343
Item 2 – Humans have the right to modify the natural environments to suit their needs	.450	-.166	.543
Item 3 – When humans interfere with nature it often produces disastrous consequences	.713	-.159	-.303
Item 4 – Humans are severely abusing the environment	.703	-.103	.004
Item 5 – The earth has plenty of natural resources if we just learn how to develop them	.096	.716	.053
Item 6 – Plants and animals have as much right as humans to exist	.565	-.504	-.062
Item 7 – The balance of nature is strong enough to cope with the impacts of modern industrial nations	.531	.336	.518
Item 8 – The so-called "environmental crisis" facing humankind has been greatly exaggerated	.656	.188	.237
Item 9 – The earth is like a spaceship with very limited room and resources	.469	.278	-.477
Item 10 – Humans were meant to rule over the rest of nature	.538	-.216	.283
Item 11 – The balance of nature is very delicate and easily upset	.514	.383	-.251
Item 12 – If things continue on their present course we will soon experience a major environmental catastrophe	.785	.065	-.006

Extraction Method: Principal Component Analysis

a. 3 components extracted

8.2.2 Appendix 2b: Factor Analysis of NEP Scale with One Extracted Factor

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.780
Bartlett's Test of Sphericity	Approx. Chi-Square	352.639
	df	10
	Sig.	.000

Communalities

	Initial	Extraction
Item 1 – We are approaching the limit of the number of people the earth can support	1	.552
Item 3 – When humans interfere with nature it often produces disastrous consequences	1	.554
Item 4 – Humans are severely abusing the environment	1	.578
Item 8 – The so-called "environmental crisis" facing humankind has been greatly exaggerated	1	.463
Item 12 – If things continue on their present course we will soon experience a major environmental catastrophe	1	.644

Extraction Method: Principal Component Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.791	55.825	55.825	2.791	55.825	55.825
2	.816	16.312	72.138			
3	.590	11.802	83.939			
4	.405	8.097	92.037			
5	.398	7.963	100.000			

Extraction Method: Principal Component Analysis

Component Matrix

	Component 1
Item 1 – We are approaching the limit of the number of people the earth can support	.743
Item 3 – When humans interfere with nature it often produces disastrous consequences	.745
Item 4 – Humans are severely abusing the environment	.760
Item 8 – The so-called "environmental crisis" facing humankind has been greatly exaggerated	.680
Item 12 – If things continue on their present course we will soon experience a major environmental catastrophe	.802

Extraction Method: Principal Component Analysis

a. 1 components extracted.

8.3 Appendix 3: Linear Mixed Model

8.3.1 Appendix 3a: LMM with Environmental Belief as DV

Descriptives

Color	Label	Gender		Count	Mean	Std.dev	Coefficient of variation
Green	Five	Male	Environmental Belief	68	5.37	1.66	30.9 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	5.73	1.25	21.7 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	5.63	1.40	24.6 %
			Environmental Involvement	234	5.45	.97	17.8 %
	Two	Male	Environmental Belief	68	5.01	1.52	30.3 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	5.18	1.26	24.3 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	5.13	1.34	26.1 %
			Environmental Involvement	234	5.45	.97	17.8 %
	No labels	Male	Environmental Belief	68	4.88	1.56	32.0 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	5.10	1.25	24.5 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	5.03	1.35	26.7 %
			Environmental Involvement	234	5.45	.97	17.8 %
	Total	Male	Environmental Belief	204	5.09	1.59	31.2 %
			Environmental Involvement	204	5.05	1.15	22.9 %
		Female	Environmental Belief	498	5.34	1.28	24.0 %
			Environmental Involvement	498	5.61	.83	14.8 %
		Total	Environmental Belief	702	5.26	1.38	26.2 %
			Environmental Involvement	702	5.45	.97	17.8 %
Red	Five	Male	Environmental Belief	68	5.04	1.68	33.3 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	5.40	1.35	25.0 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	5.29	1.46	27.5 %
			Environmental Involvement	234	5.45	.97	17.8 %
	Two	Male	Environmental Belief	68	4.63	1.61	34.8 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	4.78	1.43	29.9 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	4.74	1.48	31.3 %
			Environmental Involvement	234	5.45	.97	17.8 %
	No labels	Male	Environmental Belief	68	4.54	1.61	35.3 %
			Environmental Involvement	68	5.05	1.16	23.0 %
		Female	Environmental Belief	166	4.64	1.38	29.8 %
			Environmental Involvement	166	5.61	.83	14.8 %
		Total	Environmental Belief	234	4.61	1.45	31.4 %
			Environmental Involvement	234	5.45	.97	17.8 %
	Total	Male	Environmental Belief	204	4.74	1.64	34.6 %
			Environmental Involvement	204	5.05	1.15	22.9 %
		Female	Environmental Belief	498	4.94	1.42	28.8 %
			Environmental Involvement	498	5.61	.83	14.8 %
		Total	Environmental Belief	702	4.88	1.49	30.5 %
			Environmental Involvement	702	5.45	.97	17.8 %
Total	Five	Male	Environmental Belief	136	5.21	1.67	32.1 %
			Environmental Involvement	136	5.05	1.16	22.9 %

	Female	Environmental Belief	332	5.57	1.31	23.5 %
		Environmental Involvement	332	5.61	.83	14.8 %
	Total	Environmental Belief	468	5.46	1.43	26.2 %
		Environmental Involvement	468	5.45	.97	17.8 %
Two	Male	Environmental Belief	136	4.82	1.57	32.6 %
		Environmental Involvement	136	5.05	1.16	22.9 %
	Female	Environmental Belief	332	4.98	1.36	27.3 %
		Environmental Involvement	332	5.61	.83	14.8 %
	Total	Environmental Belief	468	4.93	1.43	28.9 %
		Environmental Involvement	468	5.45	.97	17.8 %
No labels	Male	Environmental Belief	136	4.71	1.59	33.7 %
		Environmental Involvement	136	5.05	1.16	22.9 %
	Female	Environmental Belief	332	4.87	1.33	27.4 %
		Environmental Involvement	332	5.61	.83	14.8 %
	Total	Environmental Belief	468	4.82	1.41	29.3 %
		Environmental Involvement	468	5.45	.97	17.8 %
Total	Male	Environmental Belief	408	4.9	1.62	33.0 %
		Environmental Involvement	408	5.05	1.15	22.8 %
	Female	Environmental Belief	996	5.14	1.38	26.6 %
		Environmental Involvement	996	5.61	.83	14.8 %
	Total	Environmental Belief	1404	5.07	1.45	28.5 %
		Environmental Involvement	1404	5.45	.97	17.8 %

Model Dimension

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	Color	2	1
	Label	3	2
	Gender	2	1
	Environmental Involvement	1	1
	Color * Label	6	2
	Color * Gender	4	1
	Color * Environmental Involvement	2	1
	Label * Gender	6	2
	Label * Environmental Involvement	3	2
	Color * Label * Gender	4	1
	Label * Gender * Environmental Involvement	6	2
	Color * Label * Gender * Environmental Involvement	12	2
Residual			1
Total		72	25

a. Dependent Variable: Environmental Belief

Information Critera

-2 Restricted Log Likelihood	**4939.623**
Akaike's Information Criterion (AIC)	4941.623
Hurvich and Tsai's Criterion (AICC)	4941.626
Bozdogan's Criterion (CAIC)	4947.853
Schwarz's Bayesian Criterion (BIC)	4946.853

The information criteria are displayed in smaller-is-better form.

a. Dependent Variable: Environmental Belief

Type I Tests of Fixed Effects

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1380	18656.869	.000
Color	1	1380	26.814	.000
Label	2	1380	28.159	.000
Gender	1	1380	7.455	.006
Environmental Involvement	1	1380	38.819	.000
Color * Label	2	1380	.129	.879
Color * Gender	1	1380	.099	.753
Color * Environmental Involvement	1	1380	.129	.703
Label * Gender	2	1380	.702	.496
Label * Environmental Involvement	2	1380	1.884	.152
Gender * Environmental Involvement	1	1380	2.734	.098
Color * Label * Gender	2	1380	.043	.958
Color * Label * Environmental Involvement	2	1380	.053	.949
Color * Gender * Environmental Involvement	2	1380	.013	.910
Label * Gender * Environmental Involvement	2	1380	.419	.658
Color * Label * Gender * Environmental Involvement	2	1380	.375	.688

a. Dependent Variable: Environmental Belief

8.3.2 Appendix 3b – LMM with Purchase Intention as DV

Descriptives

Color	Label	Gender		Count	Mean	Std.dev	Coefficient of Variation
Green	No Labels	Male	Purchase Intention	68	3.29	1.658	50.3%
			Environmental Belief	68	4.88	1.560	32.0%
			Environmental Involvement	68	5.0471	1.15958	23.0%
		Female	Purchase Intention	166	4.38	1.543	35.2%
			Environmental Belief	166	5.10	1.247	24.5%
			Environmental Involvement	166	5.6120	.83025	14.8%
		Total	Purchase Intention	234	4.06	1.650	40.6%
			Environmental Belief	234	5.03	1.345	26.7%
			Environmental Involvement	234	5.4479	.96999	17.8%
	Two Labels	Male	Purchase Intention	68	3.18	1.564	49.2%
			Environmental Belief	68	5.01	1.521	30.3%
			Environmental Involvement	68	5.0471	1.15958	23.0%
		Female	Purchase Intention	166	4.42	1.593	36.0%
			Environmental Belief	166	5.18	1.262	24.3%
			Environmental Involvement	166	5.6120	.83025	14.8%
		Total	Purchase Intention	234	4.06	1.679	41.4%
			Environmental Belief	234	5.13	1.341	26.1%
			Environmental Involvement	234	5.4479	.96999	17.8%
	Five Labels	Male	Purchase Intention	68	3.18	1.639	51.6%
			Environmental Belief	68	5.37	1.656	30.9%
			Environmental Involvement	68	5.0471	1.15958	23.0%
		Female	Purchase Intention	166	4.60	1.706	37.1%
			Environmental Belief	166	5.73	1.246	21.7%
			Environmental Involvement	166	5.6120	.83025	14.8%
		Total	Purchase Intention	234	4.18	1.803	43.1%
			Environmental Belief	234	5.63	1.385	24.6%
			Environmental Involvement	234	5.4479	.96999	17.8%
	Total	Male	Purchase Intention	204	3.22	1.614	50.2%
			Environmental Belief	204	5.09	1.586	31.2%
			Environmental Involvement	204	5.0471	1.15385	22.9%
		Female	Purchase Intention	498	4.47	1.615	36.2%
			Environmental Belief	498	5.34	1.281	24.0%
			Environmental Involvement	498	5.6120	.82857	14.8%
		Total	Purchase Intention	702	4.10	1.710	41.7%
			Environmental Belief	702	5.26	1.380	26.2%
			Environmental Involvement	702	5.4479	.9686	17.8%
Red	No Labels	Male	Purchase Intention	68	3.32	1.634	49.2%

		Environmental Belief	68	4.54	1.606	35.3%
		Environmental Involvement	68	5.0471	1.15958	23.0%
	Female	Purchase Intention	166	4.02	1.572	39.1%
		Environmental Belief	166	4.64	1.380	29.8%
		Environmental Involvement	166	5.6120	.83025	14.8%
	Total	Purchase Intention	234	3.82	1.619	42.4%
		Environmental Belief	234	4.61	1.447	31.4%
		Environmental Involvement	234	5.4479	.96999	17.8%
Two Labels	Male	Purchase Intention	68	3.16	1.654	52.3%
		Environmental Belief	68	4.63	1.611	34.8%
		Environmental Involvement	68	5.0471	1.15985	23.0%
	Female	Purchase Intention	166	4.03	1.543	38.3%
		Environmental Belief	166	4.78	1.429	29.9%
		Environmental Involvement	166	5.6120	.83025	14.8%
	Total	Purchase Intention	234	3.78	1.621	42.9%
		Environmental Belief	234	4.74	1.482	31.3%
		Environmental Involvement	234	5.4479	.96999	17.8%
Five Labels	Male	Purchase Intention	68	3.13	1.674	53.5%
		Environmental Belief	68	5.04	1.679	33.3%
		Environmental Involvement	68	5.4479	1.15958	23.0%
	Female	Purchase Intention	166	4.30	1.615	37.6%
		Environmental Belief	166	5.40	1.348	25.0%
		Environmental Involvement	166	5.6120	.83025	14.8%
	Total	Purchase Intention	234	3.96	1.713	43.3%
		Environmental Belief	234	5.29	1.457	27.5%
		Environmental Involvement	234	5.4479	.96999	17.8%
Total	Male	Purchase Intention	204	3.21	1.648	51.4%
		Environmental Belief	204	4.74	1.639	34.6%
		Environmental Involvement	204	5.0471	1.15385	22.9%
	Female	Purchase Intention	498	4.12	1.579	38.4%
		Environmental Belief	498	4.94	1.422	28.8%
		Environmental Involvement	498	5.6120	.82857	14.8%
	Total	Purchase Intention	702	3.85	1.651	42.9%
		Environmental Belief	702	4.88	1.490	30.5%
		Environmental Involvement	702	5.4479	.96860	17.8%
Total	No Labels	Male	Purchase Intention	136	3.31	1.640	49.6%
		Environmental Belief	136	4.71	1.587	33.7.6%
		Environmental Involvement	136	5.0471	1.15527	22.9%
	Female	Purchase Intention	332	4.20	1.566	37.3%
		Environmental Belief	332	4.87	1.333	27.4%
		Environmental Involvement	332	5.6120	.82899	14.8%
	Total	Purchase Intention	468	3.94	1.637	41.5%
		Environmental Belief	468	4.82	1.411	29.3%
		Environmental Involvement	468	5.4479	.96895	17.8%
	Two Labels	Male	Purchase Intention	136	3.17	1.603	50.6%
		Environmental Belief	136	4.82	1.572	32.6%

		Environmental Involvement	136	5.0471	1.15527	22.9%
	Female	Purchase Intention	332	4.23	1.578	37.3%
		Environmental Belief	332	4.98	1.361	27.3%
		Environmental Involvement	332	5.6120	.82899	14.8%
	Total	Purchase Intention	468	3.92	1.655	42.2%
		Environmental Belief	468	4.93	1.425	28.9%
		Environmental Involvement	468	5.4479	.96895	17.8%
Five Labels	Male	Purchase Intention	136	3.15	1.650	52.3%
		Environmental Belief	136	5.21	1.669	32.1%
		Environmental Involvement	136	5.0471	1.15527	22.9%
	Female	Purchase Intention	332	4.45	1.665	37.5%
		Environmental Belief	332	5.57	1.307	23.5%
		Environmental Involvement	332	5.6120	.82899	14.8%
	Total	Purchase Intention	468	4.07	1.760	43.2%
		Environmental Belief	468	5.46	1.430	26.2%
		Environmental Involvement	468	5.4479	.96895	17.8%
Total	Male	Purchase Intention	408	3.21	1.629	50.7%
		Environmental Belief	408	4.91	1.620	33.0%
		Environmental Involvement	408	5.0471	1.15243	22.8%
	Female	Purchase Intention	996	4.29	1.606	37.4%
		Environmental Belief	996	5.14	1.367	26.6%
		Environmental Involvement	996	5.6120	.82816	14.8%
	Total	Purchase Intention	1404	3.98	1.685	42.4%
		Environmental Belief	1404	5.07	1.448	28.5%
		Environmental Involvement	1404	5.4479	.96826	17.8%

Model Dimension

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	Color	2	1
	Label	3	2
	Gender	2	1
	Environmental_Belief	1	1
	Environmental_Involvement	1	1
	Color*Label	6	2
	Color*Gender	4	1
	Color*Environmental_Belief	2	1
	Color*Environmental_Involvement	2	1
	Label*Gender	6	2
	Label*Environmental_Belief	3	2
	Label*Environmental_Involvement	3	2
	Gender*Environmental_Belief	2	1
	Gender*Environmental_Involvement	2	1
	Environmental_Belief*Environmental_Involvement	1	1
	Color*Label*Gender	12	2
	Color*Label*Environmental_Belief	6	2
	Color*Label*Environmental_Involvement	6	2
	Color*Gender*Environmental_Belief	4	1
	Color*Gender*Environmental_Involvement	4	1
	Color*Environmental_Belief*Environmental_Involvement	2	1
	Label*Gender*Environmental_Belief	6	2
	Label*Gender*Environmental_Involvement	6	2
	Label*Environmental_Belief*Environmental_Involvement	3	2
	Gender*Environmental_Belief*Environmental_Involvement	2	1
	Color*Label*Gender*Environmental_Belief	12	2
	Color*Label*Gender*Environmental_Involvement	12	2
	Color*Label*Environmental_Belief*Environmental_Involvement	6	2
	Color*Gender*Environmental_Belief*Environmental_Involvement	4	1
	Label*Gender*Environmental_Belief*Environmental_Involvement	6	2
	Color*Label*Gender*Environmental_Belief*Environmental_Involvement	12	2
Residual			1
Total		144	49

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Information Criteria[a]

-2 Restricted Log Likelihood	4964.868
Akaike's Information Criterion (AIC)	4966.868
Hurvich and Tsai's Criterion (AICC)	4966.871
Bozdogan's Criterion (CAIC)	4973.080
Schwar'z Bayesian Criterion (BIC)	4972.080

Type I of Fixed Effects

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1356.000	11658.815	.000
Color	1	1356.000	11.582	.001
Label	2	1356.000	1.638	.195
Gender	1	1356.000	177.352	.000
Environmental_Belief	1	1356.000	368.010	.000
Environmental_Involvement	1	1356.000	63.399	.000
Color*Label	2	1356.000	.039	.962
Color*Gender	1	1356.000	3.771	.052
Color*Environmental_Belief	1	1356.000	.640	.424
Color*Environmental_Involvemet	1	1356	.249	.618
Label*Gender	2	1356.000	1.163	.313
Label*Environmental_Belief	2	1356.000	.270	.763
Label*Environmental_Involvement	2	1356.000	.243	.785
Gender*Environmental_Belief	1	1356	52.664	.000
Gender*Environmental_Involvement	1	1356.000	2.429	.119
Environmental_Belief*Environmental_Involvement	1	1356.000	36.568	.000
Color*Label*Gender	2	1356	.051	.950
Color*Label*Environmental_Belief	2	1356.000	.222	.801
Color*Label*Environmental_Involvement	2	1356	.022	.979
Color*Gender*Environmental_Belief	1	1356	.128	.720
Color*Gender*Environmental_Involvement	1	1356.000	.000	.996
Color*Environmental_Belief*Environmental_Involvement	1	1356.000	1.189	.276
Label*Gender*Environmental_Belief	2	1356	.634	.530
Label*Gender*Environmental_Involvement	2	1356	.478	.620
Label*Environmental_Belief*Environmental_Involvement	2	1356.000	.629	.533
Gender*Environmental_Belief*Environmental_Involvement	1	1356.000	1.238	.266
Color*Label*Gender*Environmental_Belief	2	1356.000	.709	.492
Color*Label*Gender*Environmental_Involvement	2	1356	.140	.869
Color*Label*Environmental_Belief*Environmental_Involvement	2	1356.000	.409	.664
Color*Gender*Environmental_Belief*Environmental_Involvement	1	1356	.375	.540

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Label*Gender*Environmental_Belief*Environmental_Involvement	2	1356.000	.581	.559
Color*Label*Gender*Environmental_Belief*Environmental_Involvement	2	1356.000	.510	.601

a.   Dependent Variable: Purchase_Intention

8.4 Appendix 4: The Mediating Effect of Environmental Belief

8.4.1 Appendix 4a: Colors Mediating Effect on Environmental Belief

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1402	17522.127	.000
Color	1	1402	25.183	.000

a.   Dependent Variable: Environmental_Belief

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1402	7860.390	.000
Color	1	1402.000	7.809	.005

a.   Dependent Variable: Purchase_Intention

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1400.000	9736.309	.000
Color	1	1402	9.672	.002
Environmental_Belief	1	1400.000	335.563	.000
Color*Environmental_Belief	1	1400.000	1.031	.310

a.   Dependent Variable: Purchase_Intention

8.4.2 Appendix 4b: Labels Mediating Effect on Environmental Belief

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1401	17862.676	.000
Label	2	1401.000	26.960	.000

a.   Dependent Variable: Environmental_Belief

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1401.000	7823.543	.000
Label	2	1401.000	1.099	.333
a. Dependent Variable: Purchase_Intention				

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1398.000	9743.229	.000
Label	1	1398	1.396	.255
Environmental_Belief	1	1398.000	346.723	.000
Label*Environmental_Belief	1	1398.000	.023	.977
a. Dependent Variable: Purchase_Intention				

8.4.3 Appendix 4c: Genders Mediating Effect on Environmental Belief

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1402	17297.807	.000
Gender	1	1402	6.912	.009
a. Dependent Variable: Environmental_Belief				

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1402	8541.269	.000
Gender	1	1402	129.928	.000
a. Dependent Variable: Purchase_Intention				

Type I Test of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1400	11044.210	.000
Gender	1	1400.000	168.003	.000
Environmental_Belief	1	1400.000	357.803	.000
Gender*Environmental_Belief	1	1400.000	55.040	.000
a. Dependent Variable: Purchase_Intention				

8.5 Appendix 5: Paired Samples t-test I

Paired Samples Statistics

		Mean	N	Std.dev	Std. Error Mean
Pair 1	Purchase Intention Green Male	3.29	68	1.66	.201
	Purchase Intention Red Male	3.32	68	1.63	.198

Paired Samples Correlations

		N	Correlation	Sig
Pair 1	Purchase Intention Green Male & Purchase Intention Red Male	68	.697	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. dev	Std. Error Mean	Lower	Upper			
Pair 1	Purchase Intention Green Male - Purchase Intention Red Male	-.0.3	1.28	.155	-.339	.281	-.189	67	.850

Paired Samples Statistics

		Mean	N	Std.dev	Std. Error Mean
Pair 1	Purchase Intention Green Female	4.38	166	1.54	.119
	Purchase Intention Red Female	4.02	166	1.57	.122

Paired Samples Correlations

		N	Correlation	Sig
Pair 1	Purchase Intention Green Female & Purchase Intention Red Female	166	.803	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Dev.	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Purchase Intention Green Female - Purchase Intention Red Female	.355	.979	.076	.205	.505	4.679	165	.000

8.6 Appendix 6: Paired Samples t-test II

Paired Samples Statistics

		Mean	N	Std.dev	Std. Error Mean
Pair 1	Environmental Belief Green	5.03	234	1.35	.088
	Purchase Intention Green	4.06	234	1.65	.108

Paired Samples Correlations

		N	Correlation	Sig
Pair 1	Environmental Belief Green – Purchase Intention Green	234	.442	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. dev	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Environmental Belief Green – Purchase Intention Green	.97	1.603	.105	.764	1.177	9.257	233	.000

Paired Samples Statistics

		Mean	N	Std.dev	Std. Error Mean
Pair 1	Environmental Belief Red	4.61	234	1.45	.095
	Purchase Intention Red	3.82	234	1.62	.106

Paired Samples Correlations

		N	Correlation	Sig
Pair 1	Environmental Belief Red – Purchase Intention Red	234	.445	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. dev	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Environmental Belief Red – Purchase Intention Red	.79	1.621	.106	.582	.999	7.458	233	.000

8.7 Appendix 7: Independent Samples t-test

Group Statistics

	Gender	N	Mean	Std.dev	Std. Error Mean
Environmental Involvement	Male	408	5.05	1.152	.057
	Female	996	5.61	.828	.026

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Environmental Involvement	Equal Variances Assumed	35.609	.000	-10.292	1402	.000	-.565	.055	-.673	-.457
	Equal Variances Not Assumed			-8.997	586.669	.000	-.565	.063	-.688	-.442

8.8 Appendix 8: One-way Anova

Descriptives

						95% Confidence Interval for Mean			
		N	Mean	Std.dev	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Purchase Intention	Low	66	2.29	1.54	.189	1.91	2.67	1	7
	Medium	654	3.68	1.57	.062	3.56	3.80	1	7
	High	684	4.42	1.64	.063	4.30	4,54	1	7
	Total	1404	3.98	1.69	.045	3.90	4.07	1	7
Environmental Belief	Low	66	4.06	2.19	.270	3.52	4.60	1	7
	Medium	654	4.99	1.37	.054	4.89	5.10	1	7
	High	684	5.25	1.38	.053	5.14	5.35	1	7
	Total	1404	5.07	1.45	.039	5.00	5.15	1	7

Anova

		Sum of Squares	df	Mean Square	F	Sig.
Purchase Intention	Between Groups	379.522	2	189.761	73.772	.000
	Within Groups	3603.749	1401	2.572		
	Total	3983.271	1403			
Environmental Belief	Between Groups	92.120	2	46.060	22.638	.000
	Within Groups	2850.470	1401	2.035		
	Total	2942.590	1403			