

UNIVERSIDADE EUROPEIA

MASTER'S IN MANAGEMENT

PAOLA REIK

**THE INFLUENCE OF PACKAGING SUSTAINABILITY ON BRAND EXPERIENCE AND
BRAND ATTITUDE**

Lisboa

2020

UNIVERSIDADE EUROPEIA

MASTER'S IN MANAGEMENT

PAOLA REIK

- **THE INFLUENCE OF PACKAGING SUSTAINABILITY ON BRAND EXPERIENCE
AND BRAND ATTITUDE**

Dissertation presented to Universidade Europeia as a partial requirement for obtaining a master's degree in Management.

Supervisor: Prof. Dr. Márcia Herter

Lisboa

2020

Abstract

In the past years, consumers have unarguably become more environmentally conscious. With the packaging industry being the main generator of plastic waste globally, companies must seek ways to respond to the current trends and make packaging more sustainable. Thus, it is crucial for companies to know how the use of sustainable packaging affects their brand, being able to implement sustainable packaging in a way that creates value for brands and consumers. Therefore, the objective of this study is to analyze how packaging sustainability can influence consumer's perceptions and evaluations of a brand. More specifically, this study intends to understand if the use of sustainable packaging leads to the perception of a more experiential brand and to a more favorable brand attitude when compared to conventional packaging. Furthermore, the possible mediating role of sensory perception of the packaging is analyzed, suggesting a strategic use of sensory marketing and sustainable packaging to convey perceptions about the brand. The study is conducted with two different product categories, to determine if results differ for product categories considered more hedonic or more utilitarian. In the present investigation the quantitative methodology is used, namely the experimental method, with the elaboration of online questionnaires as an instrument of data collection. The results show that sustainable packaging leads to higher brand experience and more favorable brand attitude than conventional packaging and that those relationships are mediated by the sensory perception of the packaging. The moderation effect of product category was shown to be not significant. The theoretical and practical implications of this research as well as suggestions for future research are discussed.

Keywords: sustainability; packaging; brand experience; brand attitude; sensory marketing.

Contents

1	Introduction	1
2	Literature Review	5
2.1	Conceptualizing sustainability and sustainability marketing	5
2.2	Packaging	9
2.2.1	<i>Sustainable packaging</i>	10
2.2.2	<i>Packaging as a marketing tool</i>	13
2.3	Sensory marketing	17
2.3.1	<i>The five senses in marketing</i>	17
2.3.2	<i>Packaging as a sensory marketing tool</i>	20
2.4	Brand evaluations and perceptions	22
2.4.1	<i>Brand Experience</i>	23
2.4.2	<i>Brand Attitude</i>	24
2.4.3	<i>Sensory perception of the packaging and brand experience</i>	26
2.4.4	<i>Sensory perception of the packaging and brand attitude</i>	27
2.4.5	<i>The moderating effects of product category</i>	28
3	Methodology	31
3.1	Methodological approach	31
3.2	Methods of data collection and experimental design	32
3.2.1	<i>Pre-test</i>	33
3.2.2	<i>Main study</i>	37
3.3	Methods of data analysis	44
4	Results	46
4.1	Demographics	46
4.2	Manipulation check	46
4.3	Control variables	47
4.4	Dependent variables	48
4.5	Mediation variable	49
4.6	Moderation variable	50
5	Conclusions	52

5.1 Managerial implications	53
5.2 Limitations and future research	54
6 References.....	56
Appendix A – Pre-test.....	65
Appendix B – Main Study	77

1 Introduction

In the past years, consumers have unarguably become more environmentally conscious (Jeong, Jang, Day, & Ha, 2014), putting firms in a position where they must increasingly seek ways to respond to the current trends. A study by Unilever reports that one third of consumers are choosing to buy from brands they believe have a positive social or environmental impact. The same study shows that more than one fifth of respondents would actively choose brands if they made their sustainability credentials clearer on their packaging and in their marketing (Unilever, 2017). Thus, the ethicality and sustainability of brands is something consumers are concerned about when choosing a brand or a product and packaging might play an important role in this process.

The impacts of the packaging industry on the environment are alarming and consumers are becoming more aware it: more than half of consumers consider environmentally friendly packaging to be important (Global Data, 2018). Packaging is the industrial sector with the highest production of primary plastic, and it is the main generator of plastic waste globally. In 2016, packaging was responsible for 141 million tons of plastic waste, followed by 38 million tons generated from textiles (Geyer, Jambeck, & Lavender Law, 2017). A big part of this waste ends up in the rivers and oceans; it is estimated that by 2050 there will be more plastic than fish in the ocean, if current trends continue (Ellen MacArthur Foundation, 2017).

The need for packaging to be more sustainable and to not have such a huge negative impact on the environment is evident. But first, it is important to have a clear notion of what sustainability means. In a broad sense, consumption is sustainable when it doesn't compromise future generations and the ability of the planet to meet current needs and wants (World Commission on Environment and Development, 1987). Regarding packaging sustainability, several organizations have attempted to define it and some of the main principles include: effective and efficient utilization of resources, safety of materials, reduction of product and

packaging waste, recyclability and emissions, considering environmental impacts throughout the entire lifecycle of the package (Lewis, Fitzpatrick, Verghese, Sonneveld, & Jordon, 2007)

Since consumer needs are shifting, packaging is an element that can be strategically explored by companies in order to respond to those new consumer needs and create value. It is considered a crucial part of the product concept (Rundh, 2016) and plays an important role in the purchase decision process, serving as a last opportunity for companies to persuade prospective consumers previous to brand selection (McDaniel & Baker, 1977; Silayoi & Speece, 2007). Furthermore, packaging and its sensory design elements have been shown to influence a brands' strategic positioning and to be able to create differentiation (Ampuero & Vila, 2006). Thus, it is likely that sensory marketing - that is, marketing that engages consumers' senses, affecting their perception, judgement and behavior (Krishna, 2012) – can be used strategically on packaging to affect brand perceptions and evaluations.

Considering sensory marketing research specifically on packaging, the haptic and visual properties of product packaging appear to have significant implications for consumer behavior. Research suggest that texture of packaging can alter consumers' perceptions (Biggs et al., 2016, 2016, 2016; Krishna & Morrin, 2008; Piqueras-Fizman & Spence, 2012, 2012) and visual and graphic design elements of packaging can impact how brands position themselves (Ampuero & Vila, 2006; Orth & Malkewitz, 2008; Steenis, van Herpen, van der Lans, Ligthart, & van Trijp, 2017). Krishna, Cian & Aydınoğlu (2017), argue that the packaging of a product is a key marketing tool and its sensory aspects can affect crucial stages of the customer experience. One central element of the customer experience consists in the experience customers have towards the brand (Lemon & Verhoef, 2016; Schmitt, 1999).

Brand experience is conceptualized by Brakus, Schmitt and Zarantonello as “subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments” (Brakus, Schmitt, & Zarantonello, 2009, p. 53). Consequently, brand experiences directly affect customers' brand attitude (Brakus et al., 2009), which consists of general evaluations about a brand (Olsen, Slotegraaf, & Chandukala, 2014) as

well as cognitive, affective, and behavioral intentions (Eagly & Chaiken, 1993). Moreover, sustainability practices are shown to have an overall positive effect on attitudes towards the brand (Olsen, Slotegraaf & Chandukala, 2014).

Considering that sustainability is an extremely relevant topic for consumers and companies, understanding how brands can introduce sustainable packaging in a way to enhance the customer's experiences, perceptions and evaluations of a brand, offers critical knowledge. The attempt to make packaging more sustainable can directly affect several sensory elements of it, such as its material, texture and color, and may convey certain perceptions of the brand or evoke certain cognitive responses. Thus, as a brand-related stimulus and mean to provide brand experiences (Brakus et al., 2009), packaging could create a more experiential brand if environmentally sustainable. Additionally, sustainability measures like using environmentally friendly packaging might be perceived positively by consumers, promoting favorable brand attitude. It is therefore conceivable that a more holistic and multidimensional approach to sustainable packaging, which also takes in consideration its sensory elements, might have a positive impact on the overall experience and attitude towards the brand. In this sense, the research question that emerges from the considerations above is: can packaging sustainability influence consumer's overall perceptions and evaluations of a brand?

The general objective of this work is to analyze the possible effects of packaging sustainability on consumer's brand perceptions and evaluations. More specifically, this dissertation aims to (1) analyze the impact of sustainable packaging on the concept of brand experience and (2) identify the effect of sustainable packaging on consumer's brand attitude. Further, the mediation effects of the sensory perception of the packaging on brand experience and on brand attitude will be analyzed (3). Lastly, this study seeks to investigate whether the product category has an impact on the relationships between packaging sustainability and brand experience as well as between packaging sustainability and brand attitude (4).

With packaging having such a huge negative impact on our environment, being one of the main sources of trash, polluting oceans and threatening marine life, it has become an issue companies not only can't ignore any longer but should actively take part in reducing and reverting

its damages. Companies must start to think of packaging as one of the key elements to make their businesses more sustainable. However, the initial cost of implementing more sustainable attributes can be expensive, so companies often need economical motivations to advance with sustainability measures. The motivation for this dissertation is the possibility to create value with sustainable packaging by enhancing perceptions and evaluations of a brand, reflected in a higher level of brand experience and more positive brand attitude. Furthermore, using sensory cues to signal sustainability in packaging could draw more attention to the brands' sustainability claims and efforts and improve brand attitude as well. It is possible that the use of those strategies may ultimately encourage more sustainable consumption patterns.

This work is structured in five chapters, starting with the introduction, which is followed by a literature review of the main constructs and concepts the dissertation revolves around. First, sustainability is conceptualized and its relevance in the marketing field is discussed, the main aspects of packaging and sustainable packaging are presented and the concepts of sensory marketing, brand experience and brand attitude are introduced and explored in relation to packaging. The third chapter consist of the proposed methodology, based on qualitative research using questionnaires for data collection. In the fourth chapter the results of the experiment are presented and discussed. Lastly, final conclusions are drawn, with theoretical and practical suggestions as well as suggestions for future research made in chapter five.

2 Literature Review

The literature review presented in this chapter focuses on the main topics related to the theme and research question of the present study. More specifically, it analyzes concepts presented by several authors around sustainability, packaging, sensory marketing, as well as concepts related to consumers' perceptions and evaluations of brands, namely brand experience and brand attitude, in order to give scientific support to this dissertation.

2.1 Conceptualizing sustainability and sustainability marketing

Sustainability is a concept that is particularly difficult to be defined, since there is no clear understanding of the term and a lack of consensus about it among experts (Morelli, 2011). Some authors even believe that attempts to settle on a single view of sustainability were not particularly helpful (Peattie & Collins, 2009). Moreover, the term is often misused, by simply meaning "good" and sometimes even being totally disassociated from ecological and environmental aspects (Károly, 2011). There is also some criticism around defining sustainability too vaguely in order to meet the different needs of all stakeholders. This lack of precision ends up being an opportunity for businesses to continue their activities unhindered, while at the same time expressing concern about future generation's needs without doing anything to truly tackle environmental issues (McKenzie, 2004).

On the other hand, Robinson (2004) argues that there can be advantages in leaving the concept of sustainability somewhat open, since an attempt to define the concept precisely would necessarily lead to an exclusion of those views that are not expressed in the definition (Robinson, 2004). That said, the Brundtland report's definition of 1987, one of the most popular and often mentioned definitions of sustainability and sustainable consumption, gives a good general idea of what the concept means by defining it as "development that meets the needs of current generations without compromising the ability of future generation to meet their own needs" (World Commission on Environment and Development, 1987, p. 24).

After broadly defining this concept, it is important to understand what sustainability means more specifically for different contexts or areas of expertise. Some authors break down sustainability into more narrow concepts, such as “ecological sustainability”, “economic sustainability”, or “social sustainability”. Callicott and Mumford (1997, p. 32) define the term ecological sustainability, with the purpose of facilitating biological conservation, as the maintenance of two interactive things: human economic activities and ecosystem health, by “meeting human needs without compromising the health of ecosystems”. According to Foy (1990), “economic sustainability” comprises the prerequisite that current economic activities do not excessively burden future generations. Foy (1990) adds to the concept of economic sustainability that social costs of meeting standards for protecting environmental assets should be minimized. Social sustainability, as defined by McKenzie (2004, p. 12), is “a life-enhancing condition within communities, and a process within communities that can achieve that condition”. Some indicators of this condition include equal access to key services (health, education and transport, amongst others); equity between generations, so that future generations are not harmed by the current generation’s activities; and widespread political participation of all citizens (McKenzie, 2004).

It can thus be argued that sustainability consists of these three dimensions: the environment, the economy and the society (Callicott & Mumford, 1997; Dangelico & Vocalelli, 2017; Glavič & Lukman, 2007; Morelli, 2011). But, according to Morelli (Morelli, 2011) those dimensions do not seem to play an equal role: it would be difficult or even impossible to have a sustainable socioeconomic system without a sustainably productive environment, providing basic resources such as clean air, water and productive land. The environment, on the other hand, does not depend on society or economy to be sustainable (Morelli, 2011). Based on this argumentation, environmental sustainability is defined by Morelli (2011) as “meeting the resource and service needs of current and future generations without compromising the health of the ecosystem that provides them”. More specifically, environmental sustainability is a state of balance where human activities do not diminish biological diversity and do not harm the ecosystem’s capacity to regenerate its resources and services to meet the needs of human society (Morelli, 2011).

After analyzing different concepts of sustainability, it is possible to recognize some central elements sustainability revolves around and to define it as: meeting human needs and wants without compromising the health of ecosystems, specifically their biodiversity and capacity to regenerate its natural resources, thus not impoverishing future generations by threatening future consumption. The central elements of sustainability are more specific in this definition than in the Brundtland reports' definition, yet both reflect the same ideas.

Sustainability is a topic not only discussed by researchers and environmentalists, but it has become a focal point for many companies. With growing awareness of global environmental problems, companies need to integrate sustainability into their business strategy and activities, and marketing plays an important role in doing so. It is critical for promoting more sustainable production and consumption patterns, since marketing inputs are fundamental for defining product concept and design as well as for creating and shifting demand for more environmentally sustainable products (Dangelico & Vocalelli, 2017). Marketing can be used to increase consumers' awareness about environmental sustainability while informing them about benefits of environmentally friendly products, thus expanding the market for those products (Dangelico & Vocalelli, 2017).

However, increasing environmental awareness and promoting product benefits are not the only strategy through which marketing can create demand for sustainable products. By trying to understand why people purchase pro-environmental products, Griskevicius et al. (2010) analyzed how status motives influenced desire for those products. In a series of experiments the authors showed that activating status motives can be an effective strategy to motivate people to engage in pro-environmental buying behavior (Griskevicius, Tybur, & van den Bergh, 2010). More specifically, status motives can lead consumers to purchase green products even over more luxurious products with superior performance (Griskevicius et al., 2010).

Regardless of how marketing is used to advance sustainable production and consumption, the concept of integration of environmental sustainability into marketing can be found in the literature under several different names, such as environmental marketing (Fraj-Andrés, Martínez-Salinas, & Matute-Vallejo, 2008), sustainability marketing (Kumar, Rahman, & Kazmi,

2013) or green marketing (Dangelico & Vocalelli, 2017). For this dissertation, those terms can be used as synonyms, following Dangelico's and Vocalelli's (2017) approach. Despite the difference in the nomenclature, many authors mention a common idea when defining sustainability marketing: it is a holistic approach that aims at satisfying customer needs and attaining organizational goals in a sustainable way, taking the social and natural environments into account, without having adverse effects on them (Belz & Peattie, 2009; Charter, 1992; Fuller, 1999; Jain & Kaur, 2004; Peattie, 1995).

Several authors have analyzed the effects of implementing sustainability marketing strategies on consumer evaluations of a brand (Olsen et al., 2014; Davari and Strutton, 2014). Olsen et al. (2014) investigate brand-level implications of the introduction and promotion of green new products. The authors provide evidence that green new products can improve consumer attitudes towards the brand, contrasting previous research that suggests, for example, that green products are considered of inferior quality (Bourn & Prescott, 2002). The communication and promotion of these products seem to play an important role in the change of brand attitude as well: fewer green claims positively influence the relationship between new green products and brand attitude (Olsen et al., 2014). Too many green claims might generate more skepticism or even strain consumer's processing capability (Olsen et al., 2014)

Davari and Strutton (2014) evaluated the influence of green marketing mix elements (green price, green product, green promotion, and green place) on the dimensions of brand equity. Their findings indicate that all four elements were related to brand loyalty, and that place (decisions about how and where to market green products) positively influenced perceived brand quality. Thus, choosing specific green channels to distribute green products is likely to be a factor driving the perceived quality of a brand (Davari & Strutton, 2014). Similarly to Olsen et al., (2014) findings, Davari & Strutton, (2014) suggest companies to be mindful of their promotion strategies for green products, since they often fail to generate trust towards the brand or a higher quality perception of the brand by consumers.

Furthermore, green product was the only element of the green marketing mix capable of positively influencing every dimension of brand equity (Davari & Strutton, 2014). This supports

the idea that the product sustainability is a crucial element and should receive considerable attention when implementing sustainability marketing strategies. The packaging of a product is a central component of the product concept, and according to do Paço, Alves, Shiel, and Filho, (2014), sustainability of the packaging is the most requested characteristic for a green product, suggesting the importance of this element for the consumer. This leads to the belief that product packaging might also directly influence brand perceptions and associations, with sustainable packaging possibly generating a positive impact on them.

2.2 Packaging

Packaging is a material that encloses the content, containing it and protecting it from losing the function its intended for (McDaniel and Baker 1977; Rod 1990; Rundh 2016). Apart from protecting and preserving the content, it also identifies the product and facilitates its handling and commercialization (Vidales Giovannetti, 1995).

One of the basic reasons for having packaging is to reduce occurrence of spoilage by keeping the content clean and fresh, and minimizing damage of goods by protecting it from shock, vibration and temperature (Prendergast and Pitt, 1996; Rundh, 2016). However, packaging can serve many purposes and affect several stages of the supply chain. Packaging has become an important tool for more efficient logistics, allowing better handling, storing and transportation along its distribution process (Rundh, 2016). Factors such as package dimensions and stackability might have a direct impact on storage and warehouse productivity (Prendergast and Pitt, 1996). Moreover, packaging is also used to promote and inform its content, to attract consumer's attention and create a positive impression of the brand (Rod, 1990). It can provide an opportunity to persuade potential consumers prior to brand selection (McDaniel and Baker, 1977).

Some authors attribute packaging's functions either to logistics or marketing (Prendergast and Pitt 1996; Silayoi and Speece, 2007). Since new consumer demands have created many other packaging requirements (Rundh, 2005), different authors point to diverse purposes packaging should fulfill that go beyond logistics and marketing (Azzi, Battini & Sgarbossa, 2012). Apart from

the marketing- and logistics-related aspects, Azzi, Battini and Sgarbossa (2012) also mention safety, ergonomics and sustainability as areas where packaging has an impact on, which should thus be considered drivers for packaging design.

Safety primarily relates to two factors: (1) content safety, which is the preservation of the package itself and its content; and (2) ecosystems and human health safety (Azzi et al., 2012). Packaging could be a threat to human and ecosystems health due to dangerous unprotected contents or unsafe packaging components (Ward, Buckle & Clarkson, 2010; Leal Filho, 2005). Regarding the ergonomics of packaging, it might play an important role for industry workers and company employees, in addition to the end consumer. Addressing ergonomics in packaging can help reducing worker injuries as well as improve accessibility of packaging content, for instance for consumers with disabilities (Azzi et al. 2012). The concept of sustainability, as mentioned before (see chapter 2.1.), consists of the environment, society and economy, and those components can also be applied to packaging. Environmental aspects of sustainable packaging are related to resources use, waste and emissions; social sustainability encompasses ethical dimensions; meanwhile economically sustainable packaging should decrease costs and be profitable (Azzi et al. 2012).

For the purpose of this dissertation, it is crucial to try to better understand how exactly the sustainability concept can be applied to packaging. The following chapter puts greater emphasis on the environmental aspects of sustainability, although some social and economic aspects are also taken into consideration within the different definitions of sustainable packaging.

2.2.1 Sustainable packaging

Environmental issues have come to dominate the concerns of society (Nordin and Selke, 2010) and packaging can have strong environmental impacts throughout its lifecycle. Those impacts are tied to the consumption of renewable and non-renewable resources, the generation of emissions and pollutants and the creation of waste (Azzi et al., 2012). Sustainable packaging tries to minimize those impacts. Magnier, Shoormans and Mugge (p. 132, 2016) define packaging

sustainability as “the endeavor to reduce the product’s footprint through altering the product’s packaging, for example, by using more environmentally friendly materials.”. Jiménez-Guerrero, Gázquez-Abad and Ceballos-Santamaría (2015) suggest that sustainable packaging reduces environmental impact by increasing the use of recyclable materials, using less materials and generating less waste, and by improving resource efficiency.

Several associations, including the Sustainable Packaging Alliance and the National Packaging Covenant in Australia and the Sustainable Packaging Coalition in the U.S., have attempted to define sustainable packaging or to establish indicators to measure sustainability of packaging. Table 1 outlines some of the alliances and organizations and their definitions of sustainable packaging, presenting the principles associated with it.

Table 1

Definitions of sustainable packaging

Organization	Principles of sustainable packaging
<p><u>Sustainable Packaging Alliance (SPA)</u> Formed in Australia by Victoria University of Technology. Focus on facilitating improvement in environmental performance and sustainability of packaging.</p>	<ul style="list-style-type: none"> - Effective Functional packaging that adds value to society. Effectively contains and protects products. - Efficient Efficient use of materials and energy throughout product life cycle. - Cyclic Optimizing packaging recovery through technical systems (reprocessing materials) or natural systems (composting) - Clean Packaging components do not pose risks to humans or ecosystems.
<p><u>Sustainable Packaging Coalition (SPC)</u> A membership-based organization in the U.S. Member include large multinationals such as Coca Cola, Unilever, McDonald’s and Johnson and Johnson.</p>	<ul style="list-style-type: none"> • beneficial for the community. Safe and healthy for individuals. • meets market criteria for performance and cost; • optimized use of materials and energy • is manufactured using clean production technologies and best practices; maximizes

	<p>the use of renewable or recycled source materials;</p> <ul style="list-style-type: none"> • materials used are healthy in all end of life scenarios • effective recovery and reutilization
<p><u>National Packaging Covenant (NPC)</u> The NPC is a voluntary agreement in Australia between companies in the packaging supply chain and all levels of government. Their aim is to achieve a consistent approach for better managing the lifecycle of consumer packaging, which includes recovery, utilization and ultimate disposal.</p>	<ul style="list-style-type: none"> • Optimized to integrate considerations about: <ul style="list-style-type: none"> - product protection, safety and hygiene - resource efficiency, - maximum resource reutilization • Efficient resource recovery systems • Enables consumers to make informed decisions about consumption use and disposal of packaging • Improvement in littering behavior and in the amount and type of consumer packaging.

Source: adapted from Lewis et al. (2007)

It is possible to see a lot of congruences between the definitions. Therefore, the main overarching principles and requirements of sustainable packaging can be summarized in: effectiveness in protecting the product; efficiency in the use of resources (including resource recovery and reutilization); safety regarding materials (don't pose threats to humans or ecosystems); use of renewable energy; meeting performance and costs criteria; and reduction of product and packaging waste.

Sustainability is, nonetheless, a fairly vague and relative concept (Morelli, 2011), making it difficult to determine if a specific kind of packaging is sustainable *per se*. Packaging sustainability englobes many aspects, such as the methods of production used, but it is also a matter of how sustainable a certain package is when compared to other alternatives. The sustainability principles presented above are rather guidelines for managers to make better decisions regarding packaging, than an attempt to provide a description of what a perfectly sustainable packaging is (Lewis et al. 2007). It is crucial for managers to know about packaging sustainability guidelines and principles, since consumers are choosing more sustainable brands and packaging is considered an important strategic variable in marketing (Nancarrow, Tiu Wright & Brace, 1998).

2.2.2 Packaging as a marketing tool

Packaging has been considered a crucial part of the product concept, but it is only in more recent years that the strategic role of packaging and packaging design in marketing has been recognized in the academic literature (Rundh, 2016). It is an important strategical variable in marketing, not only to serve information and communication purposes, but also to form consumer perceptions and influence evaluations of specific products, consequently creating and conveying brand impressions (Nancarrow et al., 1998; Orth & Malkewitz, 2008; Rundh, 2016, 2016).

Ampuero and Vila (2006) shed light upon the value of packaging to create differentiation and identity by analyzing the impact of graphic elements of packaging - color, typography, form and illustration - on the strategical positioning of a product and brand. More specifically, they study how consumer perceptions vary according to different product packaging designs. The study is conducted by determining 7 different positionings and different alternatives for the graphic elements. Respondents are presented each one of the strategies and asked to associate the different alternatives of each graphical element to it. The element color, for instance, has four variables: brightness, saturation, temperature and shade of the packaging color, and for each variable there are two to three alternatives (Ampuero & Vila, 2006).

Based on the results of the experiment, the authors conclude that high-end products, with positioning strategies that aim at high prices and elegant and refined aesthetics seem to require more cold and dark colored packaging as well as product illustrations on the packaging (Ampuero & Vila, 2006). On the contrary, more accessible products with a positioning directed at price sensitive consumers are associated with light colored packaging and illustrations of people instead of the product on the packaging (Ampuero & Vila, 2006). Ampuero and Vila (2006) support the idea that packaging can affect consumer perceptions and can therefore be effective in achieving positioning objectives and differentiation.

Several other authors argue that packaging can be a source of competitive advantage (Underwood & Klein, 2002; Solja, Liljander & Söderlund., 2018). Underwood and Klein (2002) conduct research on packaging of consumer nondurables with and without product picture and demonstrate the potential for the package design to influence perceptions and evaluations of the product and brand. In their experiment, the package designs containing pictures positively affected attitudes towards the packaging and significantly improved the beliefs about brand attributes - for example, by improving beliefs about the product's taste (Underwood & Klein, 2002). However, the perception that the food with a picture of it on its packaging tastes better than another one containing no picture, only translates into an enhanced overall evaluation of this brand for consumers who place more importance on sensory benefits (Underwood & Klein, 2002).

Solja, Liljander and Söderlund (2018) analyze a different value-creating aspect of packaging, exploring the importance of packaging as a communication vehicle and investigating possible impacts for brands. They analyze how packages with a short story of the brand affect consumer responses in a FMCG context. The use of short brand stories on packages can enhance positive affective responses, such as upbeat and warm feelings, when compared to packages without a story (Solja et al., 2018). Furthermore, consumers' attitudes towards the brand were more positive and the perceived value of the brand was higher when exposed to the package with a story (Solja et al., 2018). Thus, the study indicates that packaging design which incorporates brand communication can be an effective mean of achieving positive brand impressions.

The studies mentioned analyzed packaging of food items, but the impact of packaging design on consumer judgements can also be verified on product categories where the degree of differentiation and product involvement is higher. Orth and Malkewitz (2008) conducted a study on wine and perfume, and demonstrate how companies can use packaging design to convey brand impressions. They first identified five types of holistic package designs (massive, contrasting, natural, delicate, and nondescript) and their underlying design factors. Secondly, they investigate how the five types of packaging design relate to different generalizable brand impressions. To capture generalizable impression responses, they used Aakers' (1997) five brand

personality dimensions: sincerity, excitement, competence, sophistication and ruggedness. The results indicate, across the two product categories, that, for instance, massive designs convey average sincerity and low sophistication, while natural designs are associated with sincerity and sophistication but only average ruggedness (Orth & Malkewitz, 2008). Although in some circumstances there might be variation across product categories, it is likely that the brand personality dimension communicated by a given holistic design will be constant in most cases (Orth & Malkewitz, 2008).

Just as different packaging design elements can be used to strategically position a brand or convey certain messages and perceptions, the sustainability of packaging can also represent an important variable in the marketing strategy. Magnier, Schoormans and Mugge (2016) investigate the effects of sustainable packaging on perceived quality of the product. The experiment was conducted for raisins and chocolate bars with two types of packages for each product category: one conventional packaging made of white plastic and one sustainable package, which had a recycled cardboard look. The perceived quality of both products was significantly higher when the items were presented in the sustainable version as opposed to the conventional one (Magnier, Schoormans, & Mugge, 2016). Moreover, in a second experiment using packages of coffee, Magnier et al. (2016) found that packaging sustainability does not have a significant added effect on perceived quality when the product is already intrinsically sustainable - for example, if the coffee is certified as organic. In the study, this effect was tested with organic foods; it is still unknown if the same effect would apply when the food product presents a different sustainability claim, for example if it signals to be locally grown (Magnier et al., 2016).

On an earlier study, Magnier and Shoormans (2015) show that sustainable packaging positively influences affective attitudes, the perceived ethicality of the brand and purchase intentions. The study was conducted with detergent and mixed nuts packages, and the visual appearance and verbal sustainability claims of the packaging were manipulated to see how those design elements, when presented in sustainable or conventional way, affect consumers' responses as a function of their environmental concern. The variations of visual appearance

included a conventional package (mainly plastic) and a sustainable package (molded pulp or cardboard), whereas the verbal claim mentioned the sustainability of the packaging and was either present or absent (Magnier & Schoormans, 2015). When the verbal sustainability claim was present and the package was sustainable, that is, verbal claim and visual appearance of the package were congruent, both low environmental concern (LEC) and high environmental concern (HEC) consumers were more likely to believe and prefer this alternative (Magnier & Schoormans, 2015). However, when they were incongruent (a conventional package with a verbal sustainability claim), the responses between HEC and LEC consumers varied. For HEC consumers the response was still favorable, while the response of LEC consumers was significantly less positive, indicating there might be some skepticism regarding the credibility of a brand's environmental claims - for example, the belief that a brand could market their activities as sustainable when in fact they are not (Magnier & Schoormans, 2015). According to Magnier and Shoormans (2015), managers should consider their target customers when defining the best packaging design strategy.

Similarly, Steenis, van Herpen, van der Lans, Ligthart and van Trijp (2017) demonstrate the power of packaging in shaping perceptions of food products by exploring how packaging materials and graphic elements affect sustainability perceptions and product evaluations. Their findings support that sustainability perceptions are closely related to other benefits such as healthiness or naturalness, overall increased quality, as well as to higher prices (Steenis et al., 2017).

It is worth mentioning though, that consumers' judgement of the sustainability of materials can differ a lot from the assessment of more accurate sustainability measuring models (Steenis et al., 2017) When compared to a life-cycle assessment (LCA), consumers' judgements showed several incongruences: bioplastic and glass were considered the most sustainable materials by consumers, but the LCA placed glass last on a sustainability ranking and bioplastic also performed poorly (5th out of 7) (Steenis et al., 2017). The misjudgment of the degree of a material's sustainability could possibly be explained by respondents using different sustainability criteria (eg., degradability vs. recyclability) and/or because consumers do not hold a singular, consistent idea of what sustainability is (Steenis et al., 2017). In line with Magnier and Shoormans (2015), Steenis et al. (2017) argue that graphic elements implicitly communicate sustainability,

which in turn could be helpful in signaling sustainability for more environmentally friendly packaging that is made out of materials not perceived by the consumer as very sustainable.

All in all, research around packaging and packaging design shows that it is a key element in the marketing strategy, which can be used to set expectations, form consumer perceptions, influence evaluations about the product, and may thus represent an opportunity to create value and competitive advantage. Furthermore, since new consumer demands create new requirements and sustainability concerns are gaining prominence, packaging sustainability should also be considered a driver for packaging design (Azzi, Battini, Persona, & Sgarbossa, 2012). Companies must understand their target audience and know how to best incorporate the sustainability concept in their packaging in order to have positive impacts on the perceived ethicality of the brand and overall brand image (Magnier & Schoormans, 2015).

2.3 Sensory marketing

Sensory marketing appeals to the basic senses, creating subconscious triggers that can affect consumers' perceptions of abstract notions, such as the sophistication, the quality or innovativeness of a product (Krishna, 2012). They consequently shape consumer preferences (Gomez & Spielmann, 2019), attitudes (Krishna, Lwin, & Morrin, 2010) and behaviors (Biswas & Szocs, 2019). Sensory marketing is a growing field where much research has already been done, especially in the last years, but there is still a lot to be investigated (Krishna, 2012). This chapter will explore how the five senses, and the possible interactions between them, can be relevant for a companies' marketing strategy. Further, some literature on sensory packaging is presented to better understand what impact sensorial elements of packaging and packaging design can have on positioning strategies and consumer behavior.

2.3.1 *The five senses in marketing*

Each of the five senses can affect consumer experiences differently and has its own relevance in the academic field. Next, the five senses and their applicability in marketing will be presented through previous research, beginning with the olfactory sense.

Biswas and Szocs (2019) research food-related ambient scent in relation to consumer food choices. Their results show that extended exposure (longer than two minutes) to an indulgent food-related ambient scent may lead to higher preference for healthy food options, compared to exposure to a non-indulgent ambient scent or no scent. In other words, using a cookie or pizza scent might lead to higher sales of healthy items, if exposure is long enough (Biswas & Szocs, 2019). Contrary to Biswas and Szocs (2019), Krishna, Lwin and Morrin (2010) have focused their research on product scent instead of ambient scent and on how it affects consumer memories. Recall for product information and brand attributes is significantly enhanced by product scent and this effect seems to be long-lasting; consumers remember information about the product and brand for at least two weeks after the time of exposure (Krishna et al., 2010).

But smell is not the only sense that might influence memory. In fact, a study conducted by Tesoriero & Rickard, (2012) suggests that music may be used to enhance recall of narratives. In their study, participants were exposed to different types of music and narratives and the results indicate that after being exposed to positive music, recall of positive information was significantly better than of negative information. Music may act as a means of facilitating the encoding of messages when the mood induced by the music is congruent with the valence of the provided information (Tesoriero & Rickard, 2012). Yalch & Spangenberg, (2000) took a different approach on their research on the effects of music and investigated the influence of music on the shopping environment and shopping duration. The study suggests that shopping time is affected by store music: individuals shopped longer when exposed to unfamiliar music, but the perceived shopping duration was longer when exposed to familiar music.

The sense of vision has received a lot of attention in past research, especially in advertising (Krishna, 2012). As it is of more relevance for this dissertation, the following studies do not mention particular effects for advertising, but rather focus on the impact of visual cues on consumer perceptions and behaviors. Bagchi and Cheema (2013) investigated the effect of

background color on willingness-to-pay in negotiations and auctions, and found that red backgrounds decrease price offers in negotiations but provoke higher bid jumps in auctions. A possible explanation is that red induces aggression through arousal, so people tend to compete more aggressively either against the seller (negotiation) or against other bidders (auctions) (Bagchi & Cheema, 2013). Another study on color reveals that the degree of saturation can influence the perceived size of a product. Hagtvedt & Brasel (2017) demonstrate through several studies with different objects that products with highly saturated color are perceived as bigger than those with low color saturation. Consequently, when usage is benefited by large product size and color saturation is high, product evaluations are more favorable and willingness-to-pay is higher (Hagtvedt & Brasel, 2017). It seems, however, that color is not the only visual cue influencing size perceptions. Raghurir & Krishna (1999) demonstrate the effects of container shape in volume perception and argue that packaging height is a vital dimension used by consumers as a simplifying visual heuristic to judge volume. Some shapes of packaging are perceived as being bigger in volume than other shapes containing identical volume, indicating that packages that appear larger for the consumer may be more likely to be purchased (Raghurir & Krishna, 1999).

Although there is extensive research on vision, Krishna, (2012) argues that the importance of touch cannot be stressed enough: it is the first sense humans develop and the last sense lost with age. The relevance of haptics and touch in marketing is also backed by literature. Peck & Childers (2003), for example, examine how people with different levels of need for touch (NFT) deal with evaluations of products with either presence or absence of haptic interaction. The authors analyze the possibility of compensation through written descriptions and visual depictions when touch is unavailable. If consumers have a high need for touch, they are likely to be more frustrated and less confident in their evaluations of products (Peck & Childers, 2003). Visual depictions did not compensate high NFT consumers for the lack of touch, and written descriptions with haptic information compensated these consumers only for the inability to touch in terms of a product evaluation but did not represent a compensation for the lacking sensory experience and hedonic appreciation of the product (Peck & Childers, 2003). Brasel & Gips (2014) shed light on a different aspect of haptics, highlighting the power of touch interfaces in shaping

online consumer behavior. The authors found that, when compared to touchpads and mice, touchscreen interfaces increase perceived psychological ownership over chosen products in online shopping scenarios, which in turn generates stronger levels of endowment. This effect is more pronounced on interfaces the consumer owns and for products with higher haptic importance (Brasel & Gips, 2014).

The last sense to be discussed, taste, is considered an amalgam of all five senses (Krishna, 2012). Research tends to focus on the gustatory experience overall and often explores how other senses interact with taste. Elder and Krishna (2010), for instance, show that food ads appealing to multiple sensations, instead of just mentioning taste, can result in more positive sensory thoughts and better taste perception. Research has also been done linking taste perceptions and social constructs. Lin, Hoegg, & Aquino (2018) explore the effect of physical attractiveness of servers on consumers' perceptions of product taste. The authors conclude that attractiveness does impact taste perception, but this effect depends on the food valence: for male consumers, pleasant tasting food is likely to taste better when served by an attractive person, and unpleasant tasting food, worse (Lin et al., 2018). Gomez and Spielman (2019), on the other hand, study taste perceptions in relation to social elitism. Products associated with elite groups are believed to be tastier than products not positioned as elite (Gomez & Spielmann, 2019).

All in all, it is possible to see how each of the five senses can be explored strategically in marketing to achieve certain outcomes, behaviors, attitudes etc. Sensory marketing studies reinforce that marketing interfaces are important in shaping consumer behavior (Brasel & Gips, 2014), and packaging might be considered an important marketing interface to do so.

2.3.2 Packaging as a sensory marketing tool

As suggested in chapter 2.2.2, product packaging and its design elements, especially for fast moving consumer goods, are used by individuals to make evaluations and inferences about the product and brand (Magnier et al., 2016). It is a key marketing tool with implications for the

overall customer experience (Krishna et al., 2017). Therefore, packaging can also be designed strategically to engage consumer senses, and the following literature provides evidence for that.

Prior research has shown how visual elements of packaging can be crucial to attract attention, and thus initiate the customer experience (Krishna et al., 2017). Considerable differences in brightness, color, size and shape between an image and the background make details appear more visually salient (Vazquez, Gevers, Lucassen, van de Weijer, & Baldrich, 2010) and visual salience is likely to influence attention and the decision-making process (Armel, Beaumel, & Rangel, 2008). Consumers are more likely to touch products that attract their attention, which in turn increases their likelihood of purchasing the product (Peck & Childers, 2006).

Besides of attracting attention, visual cues play an important role in setting consumer expectations and influencing product perceptions (Krishna et al., 2017). Becker, van Rompay, Schifferstein, & Galetzka (2011) show the effect of shape curvature and color saturation of yogurt packaging on the taste experience. An angular as opposed to a rounded packaging shape may inspire intense taste sensations: for consumers with a sensitivity to design, the yogurt was perceived as having a sharper and more bitter taste (Becker et al., 2011). Both shape and color of yogurt packaging affected price expectations, with angular and low color saturation packages being perceived as more expensive (Becker et al., 2011).

Marques da Rosa, Spence, & Miletto Tonetto (2019) study the impacts of packaging shape and color on other variables, such as consumer preference and perceived product healthiness. Consumer preference was assessed through willingness to purchase the product, attention drawn from the consumer by the packaging and pleasantness of the packaging design. Results revealed that packaging color affected product preference: overall, both color schemes (red-to-yellow and blue-to-green) were preferred over greyscale packaging (Marques da Rosa et al., 2019). In another study, two cookies categories were used (buttery vs. cereal cookies), and rounded packaging of the buttery category was preferred (Marques da Rosa et al., 2019). Regarding the expectations about healthiness of the product, the scores were higher for the rounded shape and yellow-to-red color scheme packaging, containing the buttery cookie. The results suggest that

color, shape and product category can influence both consumer preference and evaluations of how healthy the product appears to be (Marques da Rosa et al., 2019).

Additionally to vision, the information one attains through touch is argued to be important for the evaluation of products (Peck & Childers, 2003). Differences in texture, hardness, temperature and weight can impact consumer judgements. Krishna & Morrin (2008) argue that haptic characteristics of product containers affect consumer inferences and evaluations and might, consequently, alter perceptions of taste and quality - water is shown to taste as being of higher quality when its bottle is firm, instead of flimsy.

Similarly, Biggs et al. (2016) also study the sensation transference of haptic and visual perceptions of texture of the container, in this case plate ware, to taste and mouthfeel. Participants tasted biscuits and jelly babies served either on plates with a rough or a smooth finish. When sampled from a rough plate, biscuits felt rougher and tasted saltier and gingerier. Biscuits sampled from the smooth plate were perceived as smoother and “melting in the mouth” and tasted sweeter. For the jelly babies, results were similar (Biggs et al., 2016). Those results are also reinforced by Piqueras-Fiszman & Spence (2012) findings, who suggest the same effects of packaging texture of cookies on the mouthfeel: cookies from the rough/granular container are perceived as crunchier and harder than those from the smooth container.

As demonstrated in the literature review, haptic and visual properties of product packaging appear to have significant implications for consumer behavior. It is yet unknown how far those visual and haptic cues can affect the customer experience, and more specifically the experience towards the brand as well as the brand attitude, when they are directly associated with and signal the sustainability of packaging.

2.4 Brand evaluations and perceptions

This chapter presents and explains the concepts related to brand evaluations and perceptions, namely brand experience and brand attitude, which make up the dependent variables for this study. Furthermore, it highlights the importance of sensory marketing and

sensory aspects on both concepts – brand experience and brand attitude – giving support to the belief that the sensory perception of the packaging might mediate the effects of packaging sustainability on the dependent variables. Lastly, arguments for a possible moderation effect of product category on the relationships between packaging sustainability and brand experience as well as on packaging sustainability and brand attitude are presented.

2.4.1 Brand Experience

For many years companies of a variety of industries have been moving away from marketing strategies that view consumers as rational decision-makers who value functional attributes and select products based on which one has the highest overall utility (Schmitt, 1999). Instead, they have been shifting towards experiential marketing, which acknowledges consumers as rational and emotional beings and aims at providing holistic pleasurable experiences that integrate individual experiences (Schmitt, 1999).

Several stimuli can evoke experiences, such as communications or visual and verbal identity (Schmitt, 1999). These stimuli are often part of the brand's identity and influence how consumers experience this brand. Brand experience is conceptualized by Brakus et al. (2009) as "subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments". That is, experiences go beyond the overall "linking" of a brand and may include aspects such as how the brand makes the consumer feel (Brakus et al., 2009). Moreover, brand experience is directly related to actual buying behavior. Brakus et al. (2009) explain that brand experiences directly and indirectly affect consumer satisfaction and loyalty. Brand experience seems to be a strong predictor particularly of customer loyalty, indicating that if a brand stimulates a person's senses, evokes emotions, engaging mind and body, this person may strive to receive such stimulations again (Brakus et al., 2009).

Brakus et al. (2009) divides brand experiences into four experience dimensions: intellectual, behavioral, affective and sensory. Intellectual brand experience relates to the

cognitive stimulation provided by the brand, such as imaginative thoughts or curiosity. Behavioral experience is associated with actions stimulated by the brand (Nike's slogan "Just Do It", for example), while the affective dimension is associated with emotions triggered by brand-related stimuli. Visual, auditory, olfactory, gustatory and tactile stimulation account for the sensory brand experience (Brakus et al., 2009). Sensory experiences, evoked by colors, shapes, designs, or smells, for example, may as well result in affective or intellectual experience (Brakus et al., 2009; MOREIRA, FORTES, & SANTIAGO, 2017). In fact, research has shown how sensory properties relate to emotion and can be a powerful elicitor of it; particularly touch, smell and taste seem to be more closely associated to emotions (Ng, Chaya, & Hort, 2013). Vision and audition, on the other hand, are suggested to be more closely associated to cognitive or rational thinking (Neisser, 1994).

As mentioned before, packaging as a brand-related stimulus can evoke brand experiences. However, specifically if and how the sustainability of packaging affects the brand experience has still to be determined. Considering the existing literature, it is known that the sensory aspects of packaging design can affect key stages of the whole customer experience, which includes the brand experience as well (Krishna et al., 2017). The attempt of making packaging more sustainable, by using biodegradable or recycled materials, for example, can directly affect some of its sensory properties, such as tactile and visual elements. Having also in mind that there is extensive literature on the positive impact of sustainability measures and eco-friendly practices on overall brand performance (Olsen et al., 2014), the present study proposes that sustainable packaging designs have the potential to influence consumers' brand experience. Formally, the following hypothesis is presented:

H1 – Brand experience will be higher when the product is presented in a sustainable packaging compared to when it is presented in conventional packaging.

2.4.2 Brand Attitude

As demonstrated in the previous chapter, brand experiences can be divided in different dimensions which they affect. The experiences may also vary in strength and intensity, meaning that some brands evoke stronger or more intense brand experiences than others (Brakus et al., 2009). Furthermore, brand experiences can vary in valence; some of them can be more positive than others, and some might even be negative (Brakus et al., 2009). A brand that makes a statement that is offensive for a group of consumers might provoke strong emotions within those consumers, but probably not positive ones. Bearing in mind that the assessment of brand experience does not necessarily indicate its valence - specifically, that measuring the influence of sustainable packaging on brand experience does not *per se* indicate whether this influence is positive or not - the concept of brand attitude might function as a complement to the measurement of the brand experience.

In psychology, attitude is argued to be an evaluation of an object, concept or behavior, along a dimension of like or dislike, favor or disfavor, good or bad (Ajzen & Fishbein, 2000), which indicates that brand attitude is conceptualized on a bipolar valence dimension and can range from negative to positive (Park, Macinnis, Priester, Eisingerich, & Iacobucci, 2010). Park et al. (2010) argue that brand attitude reflects evaluations and involves judgment about the goodness or badness of the brand.

Brand attitude is an important construct that can affect brand image and enhance the development of brand equity (Faircloth, Capella, & Alford, 2001). One factor previously shown in literature to influence brand attitude are environmental associations and sustainability efforts (Hartmann, Apaolaza Ibáñez, & Forcada Sainz, 2005; Jeong et al., 2014; Montoro-Rios, Luque-Martínez, & Rodríguez-Molina, 2008; Olsen et al., 2014). Olsen et al. (2014) provide evidence that the introduction of green new products improves consumer attitudes towards the brand. The communication and promotion of these products seem to play an important role in the change of brand attitude as well. Fewer green claims positively influence the relationship between new green products and brand attitude, since too many green claims might generate more skepticism or even strain consumer's processing capability (Olsen et al., 2014). Another study showing the positive effects of environmental associations and brand attitude was conducted by Hartmann et

al. (2005), who found an overall positive influence of green branding positioning strategies on brand attitude. A combination of functional and emotional dimensions of green brand positioning seems to be the more effective strategy to enhance brand attitude and to generate an overall more favorable perception of the brand (Hartmann et al., 2005).

After an examination of the literature, it is possible to speculate that the introduction of sustainable packaging, as an environmental sustainability measure, might positively affect brand attitude. Jeong et al. (2014) provides further evidence for this speculation by analyzing the impact of eco-friendly practices related to packaging on consumer's attitude towards the brand in a café setting. Green practices were found to have a positive impact on perceived green image of the café, which in turn positively affected brand attitude. Out of the four tested green practices, using recyclable take-out containers, and thus sustainable packaging, was identified as the most important green practice to enhance the café's green image and brand attitude (Jeong et al., 2014). It's important to mention that the results of Jeong et al. (2014) study apply to a restaurant brand, thus the influence of packaging sustainability on other types of settings and brands is still unknown. However, based on the various studies that were presented above, it is possible to suggest that sustainable packaging will trigger a more positive brand attitude also for other kinds of brands, such as FMCG brands for example. More formally:

H2 – Brand attitude will be more positive when the product is presented in a sustainable packaging than when it is presented in conventional packaging.

2.4.3 Sensory perception of the packaging and brand experience

Sensory stimuli are often used by brands to induce desired behavior and affect consumer's perception of the brand (MOREIRA et al., 2017). Chapter 2.4.1. already highlighted the importance of sensory appeals on the experience with the brand, since sensory experiences are believed to be able intensify brand experiences (Schmitt, 1999). Hultén (2011) emphasizes that companies should employ multi-sensory strategies and use sensations and sensory expressions to differentiate and position their brand in the consumer's mind. Moreira et al. (2017) further

analyze the influence of sensory stimuli on brand experience and provide evidence that sensory stimulation has a strong statistically significant effect on brand experience, being able to positively impact purchase intention as well.

When consumers search for, buy and consume products, they are constantly being exposed to brand-related stimuli, such as colors, shapes and other design elements (Brakus et al., 2009). Those sensory stimuli appear, for example, as part of the product packaging. Krishna et al. (2017) argue that packaging is a key marketing tool and that its sensory properties affect the overall customer experience.

The sensory properties of sustainable packaging can vary a lot from conventional packaging. Visually, sustainable packaging can differ in color: recycled materials, such as recycled paper for example, can have a browner color than non-recycled ones. The recyclability or biodegradability of a certain packaging material might affect the overall look and design of packaging, as well as its texture. Several studies on packaging sustainability associate ecofriendly packaging with recycled cardboard-like material, whereas the non-sustainable version of packaging is often made of common plastic materials (Magnier et al., 2016; Magnier & Schoormans, 2015; Rokka & Uusitalo, 2008). It seems that the sensory perception of sustainable packaging would not be the same as for conventional packaging, suggesting that brand experience might be impacted differently according to the type of packaging and its sensory elements. Thus, it is proposed that the sensory perception of the packaging may act as a mediating variable for brand experience. More formally:

H3 – The relationship between packaging sustainability and brand experience will be mediated by the sensory perception of the packaging.

2.4.4 Sensory perception of the packaging and brand attitude

Studies on sensory marketing have demonstrated the link between sensory appeals and brand effectiveness (Cian, Krishna, & Elder, 2014; Lindstrøm & Kotler, 2005; Yoon & Park, 2012). Sensory stimulation can increase consumer engagement and positively affect brand attitude as

well (Cian et al., 2014). Cian et al. (2014) demonstrate a means of increasing consumer engagement with marketing communications through visual elements of logos. Logo visuals that generate more dynamic imagery, providing a sense of movement through the images, are found lead to more favorable brand attitudes than logos with less dynamic imagery (Cian et al., 2014).

Yoon & Park (2012), on the other hand, explore brand attitude in relation to sensory appealing advertising, shedding light on the mechanism in which sensory appeal influences brand attitude. The response to sensory appeals from ads can induce self-referencing, where consumers associate themselves with the advertising situation, and a positive affective reaction. Self-referencing and positive affect, in turn, influence brand attitude (Yoon & Park, 2012). In addition, Yoon & Park (2012) explore a multisensory approach, using the five senses to analyze their influence on brand attitude. Each sense was used as an independent variable and results showed that olfactory and auditory appeals in advertising of a coffee brand positively influenced the attitude towards the brand (Yoon & Park, 2012).

The sensory appeal of sustainable packaging and how it may affect consumer's attitude towards a brand is still to be uncovered. However, the literature provides evidence that texture of packaging can alter consumer perceptions (Biggs et al., 2016, 2016, 2016; Krishna & Morrin, 2008; Piqueras-Fiszman & Spence, 2012, 2012) and visual and graphic design elements of packaging can impact how brands position themselves (Ampuero & Vila, 2006; Orth & Malkewitz, 2008; Steenis et al., 2017). As described in chapter 2.4.3., packaging sustainability might directly influence some of the packaging's sensory properties, such as visual and tactile elements. Therefore, sensory perception of the packaging may act as a mediating variable for brand attitude, which leads to the following hypothesis:

H4 – The relationship between packaging sustainability and brand attitude will be mediated by the sensory perception of the packaging.

2.4.5 The moderating effects of product category

Generalizations on how sustainable measures affect consumer behavior or company performance should be made with caution, since the effects of sustainability efforts might not always be consistent, particularly across different types products or product categories. Zhang et al. (2019) argues that a lot of previous research has considered green products as a general class, thus giving little attention to comparing different kinds of green products, such as hedonic and utilitarian products, and their effect on purchase behavior.

There is, however, plenty of literature analyzing sustainability in relation to hedonic motivations or hedonic products. Research has shown that hedonic motivations of consumers can play an important role in sustainable purchase behavior (Choi & Johnson, 2019; Olsen, Thach, & Hemphill, 2012; Shrum, McCarty, & Lowrey, 1995). Olsen et al. (2012) studied the impact of hedonistic values on the purchase of organic wine in the US. Hedonism reflects the pursuit of or devotion to pleasure, whereby hedonic benefits are appreciated on their own, without much regard to practical purposes (Chandon, Wansink, & Laurent, 2000). Contrary to what was hypothesized by the authors, the results of the study demonstrated that hedonistic values are associated with the purchase of organic wine, since they can partially explain the propensity towards organic wine purchases (Olsen et al., 2012).

Corroborating the idea that hedonism and hedonistic values are related to green consumption, Choi & Johnson (2019) suggest that consumer's hedonic motivations can trigger the purchase of green products. The authors analyzed the influence of adventurous spirit (AS) as a hedonic motivation, which represents new and exciting challenges leading to self-fulfillment, and specifically analyzed novelty seeking within AS to predict behavior. The findings empirically supported the role of novelty seeking on purchase intention of green products, meaning that consumers with a higher level of novelty seeking were more likely to purchase green products (Choi & Johnson, 2019).

The effects of hedonic motivations and pro-environmental behavior might be particularly strong for green hedonic products. Hedonic products that incorporate sustainable elements might be perceived as even more novel, more unique and differentiating, since they combine the hedonic values of the product itself with the hedonic motivations of green consumption.

Furthermore, desire for uniqueness and self-expression benefits have been shown to positively correlate with green purchasing behavior (Jahanshahi & Jia, 2018). The aforementioned studies, while not focusing specifically on sustainable packaging, do suggest a positive relationship between sustainability efforts on hedonic products and purchase intention. Purchase intention, in turn, has been shown to be positively influenced by brand experience (Moreira et al., 2017) as well as by attitude (Zhang et al., 2019). Thus, it is hypothesized that:

H5a – Product category will moderate the relationship between packaging sustainability and brand experience. Specifically, when the product category is perceived as more hedonic, sustainable packaging will lead to higher brand experience, versus a product category that is perceived as more utilitarian.

H5b – Product category will moderate the relationship between packaging sustainability and brand attitude. Specifically, when the product category is perceived as more hedonic, sustainable packaging will lead to a more positive brand attitude, versus a product category that is perceived as more utilitarian.

Figure 1 illustrates the conceptual model of this dissertation, summarizing the hypotheses to be addressed in this research.

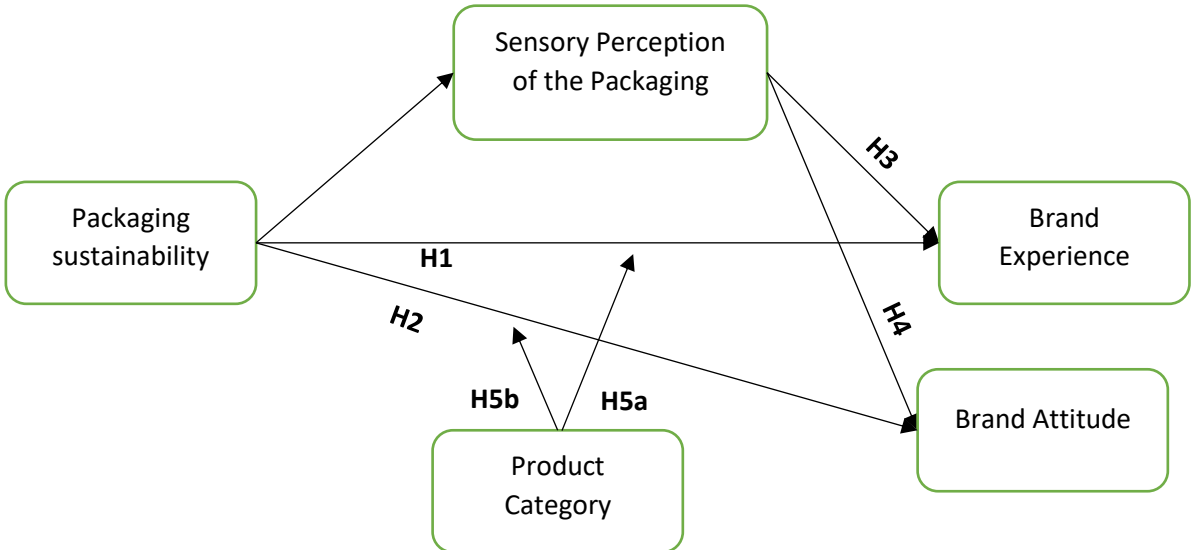


Figure 1. Conceptual Model.
Source: Own elaboration (2020)

3 Methodology

After a theoretical foundation provided in the previous chapter, this chapter aims to present and explain the methodological approach used in this research work. Some of the methodological aspects presented next include: the research methodology; the type and method of data collection as well as the research instrument; the treatment of collected data and the techniques and methods of analysis, including description and analysis of the pre-test.

3.1 Methodological approach

The purpose of the main study was to establish the relationship between packaging sustainability, brand experience and brand attitude, having the sensory perception of the packaging as a possible mediating variable and product category as a possible moderating variable. To achieve those purposes, primary data was collected in a quantitative manner, through the method of experimentation.

There are two distinct types of methodologies to investigate a research problem: the quantitative research method and the qualitative research method. Quantitative research described as a systematic and empirical investigation of observable phenomena via statistical or mathematical techniques (Given, 2008). It is often described as positivist or empiricist (Bryman, 1984). Positivism is typically characterized in the methodological literature as having a preoccupation with operational definitions, objectivity, replicability, and causality (Giddens, 1974). Quantitative methodology is described as an approach to conducting social research that applies natural science to social phenomena (Bryman, 1984).

Qualitative research differs in many ways from quantitative research. It commits to see the social world through the eyes of the actor and is typically used to capture individual's thoughts, interpretations, and feelings (Given, 2008). There is a preference for contextual understanding so that behavior is to be understood in the context of meaning systems employed by a certain group or society (van Maanen, 1979).

The quantitative research approach seems to be the most appropriate approach for this research. The objective is to draw valid inferences about the effects of independent variables on dependent variables and to be able to make generalizable findings for the study population, thus the principles of quantitative research appear to be better aligned with the purposes of this research. Lastly, the methodological approach and research design of this study has commonalities with Magnier et al.'s (2016) work, who analyze sustainable packaging and its perceptions, namely its influence on quality perceptions of food.

3.2 Methods of data collection and experimental design

As previously mentioned, the present study followed a similar approach to Magnier et al.'s, (2016) research procedure, thus, primary data was collected through a survey and the experimental method of data collection was chosen for this study as well. Experimentation is associated with the process of manipulating one or more independent variables and measuring their effect on one or more dependent variables. The researcher manipulates certain independent variables, while controlling for the extraneous variables, to identify and analyze a possible cause-and-effect relationship with the dependent variables (Malhotra, Nunan, & Birks, 2017).

The experimentation method is commonly used to infer causal relationships, which is the objective of this study. To clarify the concept of causality, Malhotra, Nunan and Birks (2017) note that it applies “when the occurrence of X increases the probability of the occurrence of Y”. It is important to mention that the existence of a causal relationship cannot be demonstrated decisively. Causality cannot be proven; it is only possible to infer a cause-and-effect relationship between variables (Malhotra et al., 2017).

Considering the objective of being able to measure the impact of sustainable packaging on consumer’s brand perceptions and evaluations of the brand, packaging sustainability was chosen as the independent variable, whereas brand experience and brand attitude were chosen as the two dependent variables. The independent variable had two experimental conditions:

sustainable packaging vs. conventional packaging. Furthermore, sensory perception of the packaging was defined as a mediating variable, suggesting that the sensory perception of the packaging might mediate the relationship between packaging sustainability and brand experience and between packaging sustainability and brand attitude. The model also presents a moderating variable, namely the product category (see Figure 1).

With regard to the sampling process, the techniques can be classified into two groups: probability and non-probability sampling. In probability sampling individuals are selected randomly and each individual has a fixed probabilistic chance of being part of the selected sample. Some of the sampling techniques classified as probability techniques are systematic, stratified and cluster sampling (Malhotra et al., 2017). Non-probability sampling, on the other hand, does not rely on chance to select sample elements, it relies on the researcher's personal judgement and elements can be selected consciously or arbitrarily by the researcher. Common techniques of non-probability sampling are judgmental sampling, convenience sampling, quota sampling and snowball sampling (Malhotra et al., 2017).

In the present study, preference was given to non-probabilistic sampling, in particular to convenience sampling, because of its advantages and due to the available resources. This sampling technique is the least expensive and time-consuming (Malhotra et al., 2017). It has the advantage of using the more accessible and available individuals to the researcher, like friends and family. Both the pre-test and the questionnaire of the main study were distributed through the author's social networks.

3.2.1 Pre-test

To meet the objectives of the main study and to test the hypothesis correctly, a pre-test was conducted before the main study was carried out. The aim of the pre-test was to determine which products would be used in the main study, having in mind that the products chosen for the main study should differ in their perception of hedonism and utilitarianism – one product should be viewed as more hedonic in relation to a second product, and this second product should be

perceived as more utilitarian than the first. The products used in the pre-test were: coffee, shampoo, dishwasher detergent and laundry detergent, and each product had a sustainable version and a conventional version of its packaging.

The brands of the products were chosen so that they would be unfamiliar to most of the participants, avoiding a possible bias due to previous exposure and experiences with the brands. The options of packaging were either virtually created or adapted from existing packaging, so that the two versions (sustainable and conventional) would visually only differ in their material/color. The sustainable packaging consisted of a cardboard-like recycled material, whereas the conventional packaging was made from plastic. The choice of brands and packaging types, as well as the descriptions that were displayed for participants are specified with more detail in chapter 3.2.2. In total there were eight types of packaging – four product categories, each having two versions – but participants would only visualize four, one of the versions for each product category. The pre-test was elaborated on the Qualtrics platform and was distributed via social media.

The questionnaire was structured in four sections and began with a short introduction explaining the purpose of the study, followed by a consent form. Participants who agreed to participate in the study moved to the first section, which displayed the product and questions related to the first product category. The product sections were displayed in the following order: coffee, laundry detergent, shampoo, and dishwasher detergent. For each product category there were four questions.

At the beginning of each section, before being able to view the questions block, participants were exposed to one of the two packaging versions and a description. The description contained information about the product and the packaging, for example some product characteristics and what the packaging was made of. The first question was to evaluate the perception of sustainability of each packaging, with the goal of finding a significant difference between the sustainable version and the conventional version of the packaging. The second question related to the hedonic/utilitarian perception of the products. The scale used in this question was adapted from (Voss, Spangenberg, & Grohmann, 2003) and consisted of ten items,

measured on a 7-point bipolar matrix. The first five items were hedonic items, such as fun (not fun), thrilling (not thrilling) and enjoyable (not enjoyable), while the five following items were utilitarian, such as effective (ineffective), necessary (unnecessary), practical (impractical).

The next question assessed the attractiveness of the packaging, which was measured on a 7-point bipolar scale ranging from “attractive” to “unattractive”, adapted from (Magnier et al., 2016). Lastly, participants were asked about their familiarity with the brand. Response options varied from “definitely unfamiliar” to “definitely familiar”. After participants responded the previous questions to all four products, there were some demographics questions, namely gender, age, level of education, nationality, country of residence and employment status. For the complete pre-test please see appendix A.

The pre-test received 59 responses, however 3 respondents answered negatively to the consent question and 16 responses were incomplete. Thus, of the 59 initial responses, only 40 responses were considered valid and could be used for the analyses. The mean age of respondents was 27 years old, ranging from 20 to 56, and respondents were exactly 50% male and 50% female. The majority of respondents (62%) indicated having a graduate degree as their highest level of education, followed by 26.8% who had an undergraduate degree. The main nationalities of participants of the pre-test were Brazilian (68%), German (18%) and Portuguese (8%). However, when it comes to the country of residence, Brazil and Portugal had equal percentages of respondents (38%), followed by Germany (15%). Participants indicated their employment status mostly as “student” (39%) or “full time” (39%).

The analysis of the pre-test showed that the manipulation of sustainability was successful. Through One-Way ANOVA tests in SPSS it became evident that the sustainability perception of the sustainable versions of the packaging was higher than the one of the conventional versions and that the difference between the two versions was statistically significant for all product categories.

As mentioned before, participants were not supposed to be familiar with the displayed brands, and the pre-test confirmed that. An analysis of the descriptive statistics of the brand familiarity variable demonstrated means of all brands that lied between the first and second

options, namely “Definitely unfamiliar” to “unfamiliar”. For the coffee brand, 95% of participants said the brand was „probably unfamiliar” or less familiar than that. For the laundry detergent brand, 76% of participants chose one of those options, whereas for the shampoo brand this percentage was 90%, and for dishwasher detergent it was 89%.

Lastly, the data of the pre-test was analyzed to determine the perception of hedonism and utilitarianism of the products. T-tests were conducted between all product pairs in order to compare their hedonic means and their utilitarian means. Table 2 displays the main results and points out the pair where the difference of the means was statistically significant.

Table 2.

Comparison of hedonic and utility means across product categories

Product pair		Hedonic Means		Utility Means	
Product 1	Product 2	HED Mean1	HED Mean 2	UT Mean 1	UT Mean 2
Coffee	Dishwasher D.	3.7100	3.4800	4.9000	5.1550
p-value		0.048		0.001	
Coffee	Laundry D.	3.7100	3.7100	4.9000	5.6750
p-value		0.073		0.051	
Shampoo	Dishwasher D.	4.2150	3.4800	5.1500	5.1500
p-value		0.143		0.262	
Shampoo	Laundry D.	4.2150	3.7100.	5.1500	5.6750
p-value		0.028		0.400	

As depicted in Table 2 the first pair (coffee and dishwasher detergent) was the only pair where the first product was perceived as significantly more hedonic, and the second product was perceived as significantly more utilitarian, when compared with each other. Specifically, coffee was considered by participants as being a more hedonic product than dishwasher detergent, and dishwasher detergent was considered as being more utilitarian than coffee. Thus, those products were chosen for the main study since the difference in the hedonic/utilitarian perception between the product categories was proven significant in the pre-test.

3.2.2 Main study

For the main study, just like in the pre-test, the survey was chosen as the research instrument. The questionnaire was also developed on the Qualtrics platform. The questionnaire consisted of 6 blocks, namely: the introduction, the independent variable manipulation, dependent variables, manipulation checks, control questions and demographics.

Regarding the first block, the participants read a short introduction, in which the purpose of the study was elucidated without giving too much detail about it, to avoid any possibility of biasing participants. The introduction also assured participants that there were no right or wrong answers and that their responses were anonymous and would be used exclusively for academic purposes. Following this short introduction, there was a brief consent form, where participants could only continue with the survey if they said they agreed to participate.

Then, participants were exposed to one of the two product categories (coffee or dishwasher detergent) in one of the two experimental conditions, which means the employed design was a 2 (product category: coffee vs. dishwasher detergent) x2 (packaging sustainability: sustainable packaging vs. conventional packaging) between-subjects design. Each participant observed only one of the four existing experimental conditions, which were displayed in no specific order, so that the randomness of the experiment was guaranteed.

The first option of product category was coffee, where the sustainable or the conventional version of the packaging was displayed for the respondent. This product and image is the same as used in (Magnier et al., 2016) experiment, in study 2. The packaging suited the present study as well because it had two versions: a conventional-looking package made of plastic, and a sustainable package, which had a recycled cardboard look (Magnier et al., 2016). Additionally, the coffee brand used in the study of (Magnier et al., 2016), Tully's Coffee®, was specifically selected for their study because it was not sold in France. Since it is also not sold in Portugal, Brazil, or Germany, where the majority of respondents resided, the brand satisfied the demands for this study as well. A known brand could possibly bias participants in responding more favorably or negatively according to their prior experience with the brand.

The second option of product category was dishwasher detergent, which was also either displayed in a sustainable packaging version or in the conventional version. The packaging for this product category was adapted from the coffee package of (Magnier et al., 2016) experiment and modified to look like a dishwasher detergent from the brand Kroger®. Kroger® is an American retail company, which means this brand is also not available in Portugal, Brazil or Germany, minimizing the possibility of biasing participants due to their familiarity with the brand. The sustainable version of the detergent packaging was very similar to the sustainable version of the coffee packaging; it had a recycled cardboard look and the label was taken from Kroger®'s original packaging. The conventional version of the packaging was depicted by a white plastic-looking pouch, and the label and format of the packaging was equal for both versions.

Both options of packaging, of coffee and of dishwasher detergent, were visibly different. This is in part due to the fact that previous research has shown that the sustainability of the packaging has better effects on consumer responses when it is backed by visible elements (Magnier & Schoormans, 2015). The other reason is that the sensory elements of the packaging should also differ between the two types of packaging and be clear for the participant, in order to test if there is a difference in the sensory perception of each packaging. Specifically, the visual aspect of the color as well as the texture aspects of the packaging material were important sensory factors differentiating the two types of packaging. Ideally, the experiment would have occurred in a face-to-face setting, were the participant would have been able to touch and feel both types of packaging to add more of the haptic elements to the sensory experience. However, since this was a virtual experiment, the packaging material was not felt through touch. Instead, the difference in texture could possibly be perceived by sight, for example through the variation in shine in both materials.

A product description accompanied the image of the packaging in all four options and consisted of two elements. The first part referred to the product characteristics, and the second, to the packaging characteristics. The first part was identical for both packaging versions of the same product category. The packaging description varied according to the package version (sustainable or conventional), but stayed the same within each version, regardless of the product

category. The sustainability of the packaging was not explicitly mentioned in the text, as in using the words “sustainable” or “eco-friendly”, but rather indicated through, for example, a phrase that mentioned that it was “made from 100% recycled cardboard and old newspaper”. The packaging description was, in part, taken from Ecologic’s ECO.BOTTLE®, to make it more realistic and credible, since this is a real example of sustainable packaging available in the market. Ecologic develops sustainable packaging, which is made from recycled and compostable materials (see <https://ecologicbrands.com/eco-bottle/>). Figure 2 shows the four options of packaging, including their descriptions.



Brand: Tully's Coffee

Café moulu Pur Arabica

- Dark roast, caffeinated coffee 100% Arabica coffee
A smoky, decadent tale. Slow roasted.
- Multilayer plastic packaging. Made with 100% thermoplastic polymer interior.



Brand: Tully's Coffee

Café moulu Pur Arabica

- Dark roast, caffeinated coffee 100% Arabica coffee
A smoky, decadent tale. Slow roasted.
- Fiber-based packaging. Made from 100% recycled cardboard and old newspaper.

Coffee conventional

Coffee sustainable



Brand: Kroger

Dish pacs citrus scent

- All-in-1 action dishwasher packs
Fights grease and cleans 24 hour stuck on food
- Multilayer plastic packaging. Made with 100% thermoplastic polymer interior.



Brand: Kroger

Dish pacs citrus scent

- All-in-1 action dishwasher packs
Fights grease and cleans 24 hour stuck on food
- Fiber-based packaging made from 100% recycled cardboard and old newspaper.

Dishwasher detergent conventional

Dishwasher detergent sustainable

Figure 2. Types of product packaging and descriptions

Source: Own elaboration (2020)

Subsequently, after being randomly assigned to one of the four experimental conditions, respondents were directed to a set of questions related to the dependent variables and to the mediating variable. The first set of questions was related to the brand experience. The brand experience scale used in this study was the one developed by (Brakus et al., 2009). Participants were asked to evaluate each item, based on the image and description they had previously seen, on a 7-point Likert scale. There was a total of twelve items, three for each brand experience dimension: sensory, affective, behavioral, and intellectual. Following the brand experience items,

participants were asked to evaluate statements regarding the sensory perception of the packaging, which represented the mediating variable. The statements were adapted from Brakus et al.'s (Brakus et al., 2009) brand experience scale and the only items used were the ones referring directly to the sensory dimension.

Afterwards, participants were presented three items that measured brand attitude. The scale for brand attitude was adapted from (Gardner, 1985), and each item was measured on semantic differential scales. Table 3 summarizes all variables of the dependent variables block and their descriptions.

Table 3.

Description and measurement of variables in the dependent variables block.

Variable name	Item code	Description	Source
Brand Experience	BE1sen1	I find this brand interesting in a sensory way	(Brakus et al., 2009)
	BE2sen2	This brand does <u>not</u> appeal to my senses.	
	BE3sen3	This brand makes a strong impression on my visual sense or other senses.	
	BE4aff1	This brand induces feelings and sentiments.	
	BE5aff2	I do <u>not</u> have strong emotions for this brand.	
	BE6aff3	This brand is an emotional brand	
	BE7beh1	I engage in physical actions and behaviors when I use this brand.	
	BE8beh2	This brand results in bodily experiences.	
	BE9beh3	This brand is <u>not</u> action oriented	
	BE10int1	I engage in a lot of thinking when I encounter this brand.	
	BE11int2	This brand does <u>not</u> make me think.	
	BE12int3	This brand stimulates my curiosity and problem solving.	
Sensory Perception of the Packaging	SPP1	I find this packaging interesting in a sensory way.	Adapted from (Brakus et al., 2009)
	SPP2	This packaging appeals to my senses.	
	SPP3	This packaging makes a strong impression on my visual sense or other senses.	

Brand Attitude	BA1	Bad – Good	Adapted from Gardner (1985)
	BA2	Unpleasant – Pleasant	
	BA3	Dislike very much – Like very much	

After being exposed to the dependent variables, participants started the manipulation check block. Manipulation checks are commonly used in experiments to assess the credibility and effectiveness of the manipulation of the independent variable (Dholakia & Sternthal, 1977). The first variable in the manipulation check block related to the packaging sustainability, to make sure participants could differentiate both versions of the packaging regarding its sustainability. Participants had to evaluate four statements on a 7-point Likert scale, containing information about the packaging adapted from the study of (Magnier et al., 2016). There was also a manipulation check to analyze the perception of hedonism and utilitarianism, which consisted of two 7-point bipolar scales. The single-item measures of hedonism and utilitarianism are appropriate and are shown to deliver the same results as the multi-item measures (Okada, 2018), which were previously used in the pre-test (see chapter 3.2.1.) Table 4 illustrates the variables corresponding to the manipulation checks.

Table 4.

Description and measurement of variables in the manipulation check block

Variable name	Item code	Description	Source
Packaging Sustainability	MCPS1	This package is environmentally friendly.	Adapted from (Magnier et al., 2016)
	MCPS2	This a good example of an environmentally friendly packaging	
	MCPS3	This package is not environmentally friendly.	
	MCPS4	This is a good example of a regular packaging.	
Hedonic/Utilitarian Perception	MCHU1hed	The product is not at all hedonic - The product is extremely hedonic	Okada (2005)
	MCHU2ut	The product is not at all utilitarian -The product is extremely utilitarian	

The manipulation check was followed by the block of control variables, which included the familiarity with the brand, the attractiveness of the packaging, the consumption frequency of coffee (dishwasher detergent) as well as the environmental concern of consumers. These variables aim to understand possible external causes that explain the phenomenon between the independent variable and the dependent variable (Malhotra et al., 2017). Brand familiarity was measured on a 7-point Likert scale ranging from “definitely unfamiliar” to “definitely familiar”. Packaging attractiveness was measured on a 7-point bipolar scale (“unattractive” / “attractive”). Next, participants were asked about how frequently they consumed the displayed product. Respondents rated this question on a 5-point scale ranging from “never” to “several times a day”. At last, the control block ended with six statements about consumer’s environmental concern, where participants should evaluate each of the statements on a 7-point Likert scale. See Table 5 for detailed information.

Table 5.

Description and measurement of control variables

Variable name	Item code	Description	Source
Brand Familiarity	CBF	Are you familiar with the coffee brand Tully's Coffee? (Are you familiar with the dishwasher detergent brand Kroger?)	Own elaboration
Packaging Attractiveness	CPA	Attractive – Unattractive	Adapted from (Magnier et al., 2016)
Consumption Frequency	CCF	How often do you consume coffee? (How often do you use dishwasher detergent packs?)	Own elaboration
Environmental Concern	CEC1	I am very concerned about the environment.	Adapted from (Magnier et al., 2016)
	CEC2	Humans are severely abusing the environment.	
	CEC3	I would be willing to reduce my consumption to help protect the environment	
	CEC4	Major political change is necessary to protect the natural environment	
	CEC5	Major social changes are necessary to protect the natural environment	
	CEC6	Anti-pollution laws should be enforced more strongly	

The sixth and final block related to respondents' sociodemographic information, containing five questions: gender, age, level of education, nationality, country of residence and

employment status. After completing the questionnaire, participants were thanked for their time and collaboration and told their answers were recorded. For the complete questionnaire please see appendix B.

3.3 Methods of data analysis

The analysis of the collected data was done with assistance of the statistical analysis software for social sciences, better known as SPSS (Statistical Package for the Social Sciences). SPSS is one of the most used programs by social science researchers to aid data processing and provide more detailed and advanced statistical analysis (Maroco, 2018).

SPSS was used in order to do univariate and multivariate data analyses. Univariate techniques are used to analyze data when there is only one measurement of each element in the sample, or when there are several measurements. but each variable is analyzed in isolation. The focus here are levels (averages) and distributions (variances) of the phenomena. Meanwhile, multivariate techniques are concerned with the degree of relationships (correlations and covariances) between two or more phenomena (Malhotra et al., 2017).

Before being able to conduct data analysis, there were some necessary steps to be executed first. Three variables were created to represent the problem manipulation. The first one, the independent variable used in most of the tests, related to the packaging sustainability, where each response was allocated to one type of packaging, either sustainable or conventional. The other two variables related to the packaging sustainability within each product categories, meaning that, for respondents that viewed coffee as the product, the options were either (1) sustainable packaging coffee or (2) conventional packaging coffee. The same applied for dishwasher detergent. The moderating variable was created by allocating responses to one of the product categories: (1) coffee or (2) dishwasher detergent.

Furthermore, negatively worded items of questions were recoded, so that they could be analyzed jointly with the other items of the same scale also making it possible to calculate the Cronbach's Alfa of the global variables. The Cronbach's Alfa was calculated for the dependent

variables and for the mediating variable. Another important step before analysis was to combine all the items belonging to the same variable into one global variable. So instead of analyzing, for instance, the twelve items of brand experience separately, brand experience could be analyzed as one single variable.

Starting with the analysis, the demographic variables were mainly analyzed through descriptive statistics and frequencies tables. For the majority of all the other variables in the study, the conducted test was an analysis of variance (ANOVA). The ANOVA, is useful in examining the relationships between phenomena by comparing means and analyzing the differences in the mean values of the dependent variable related with the effect of the controlled independent variables (Gray & Kinnear, 2012; Malhotra et al., 2017). The One-Way ANOVA method involves only a single factor, which is a non-metric independent variable (Malhotra et al., 2017), and was thus used to analyze manipulation variables, the control variables and to test out the hypotheses relating to the dependent variables. It is a suitable method for experiments with just one between subjects factor, meaning that each participant is tested under a single condition, which they were randomly assigned to (Gray & Kinnear, 2012).

To test out the moderating variable, the Two-Way ANOVA was conducted. For the mediating variable, it was necessary to use the PROCESS macro for SPSS created by Andrew F. Hayes, where specifically model 4 was relevant to observe the mediation effects.

4 Results

This chapter aims to analyze the data obtained in the main study. For this, the statistical software IBM SPSS Statistics (Statistical Package for Social Sciences) version 26 was used, which allows analyzing each variable in the most appropriate way. The One-Way ANOVA test was performed to analyze and compare means between the different experimental conditions and Cronbach's Alpha coefficients were calculated to measure the level of reliability of some of the scales used in the questionnaire.

4.1 Demographics

The questionnaire was answered by 173 respondents, however 38 of the responses were not considered valid for the analysis due to being incomplete or having the consent question answered negatively. The final sample consisted of 135 respondents, aged between 18 and 68 ($M = 33,94$; $SD = 12,5$). Regarding participants gender, approximately 54% were female and 45% male. Most of them indicated their highest level of education as a graduate degree (55%), followed by participants who indicating undergraduate degree.

When it came to the nationality of participants, the vast majority was from Brazil (59%), followed by Germany (17%) and Portugal (8%). The percentages referring to the places of residence were more balanced between those three countries: Brazil (32%), Portugal (29%) and Germany (22%). Results on the employment status of respondents showed that 49% work full time and 29% are students.

4.2 Manipulation check

To test the effectiveness of the manipulations, One-Way ANOVA tests were conducted on each of the two questions presented in the manipulation check block. The first question asked participants to evaluate statements based on their perception of the product packaging. Those statements assessed the sustainability perception of the packaging. The first two items indicated

that the packaging was “environmentally friendly” (MCPS1) and “a good example of an environmentally friendly packaging” (MCPS2), while the following two statements mentioned that the package was “not environmentally friendly” (MCPS3) and that it was a “good example of a regular packaging” (MCPS4), so these two statements were recoded to match the proposition of the first two items.

As expected, the One-Way ANOVA demonstrated that the means between the two versions of packaging were very different, and this difference was statistically significant ($F(1, 131) = 271.65, p = 0.000$). The manipulation of packaging sustainability was thus successful since the sustainable version presented a higher mean in sustainability perception ($M_{\text{sustainable pack}} = 5.54; M_{\text{conventional pack}} = 2.54$).

The second and last question of the manipulation check block assessed the perception of hedonism and utilitarianism of the two distinct product categories. The two items were analyzed separately – first the hedonic perception, then the utility perception. For each item, the two product categories were compared with a One-Way ANOVA test. On this test there was no need to distinguish between the different versions of packaging within the product categories. In line with the results of the pre-test, coffee was seen by participants as being significantly more hedonic than dishwasher detergent ($M_{\text{coffee}} = 4.77; M_{\text{dishwasher d.}} = 3.06; F(1, 131) = 74.59, p = 0.000$). The results of the utility perception also matched expectations: dishwasher detergent was perceived as significantly more utilitarian than coffee ($M_{\text{coffee}} = 4.15; M_{\text{dishwasher d.}} = 5.16; F(1, 131) = 19.45, p = 0.000$).

Altogether, results revealed that the manipulations were successful, considering that it was possible to observe significant differences between the experimental conditions.

4.3 Control variables

Moving forward to the control block, the first question was to assess the familiarity with the presented brand. Results indicated that the vast majority of participants was unfamiliar with the brands, as desired. 89% of respondents said they were either “definitely unfamiliar” or

“unfamiliar” with the brand Tully’s Coffee®, whereas for the dishwasher detergent brand Kroger® this percentage was even higher: 94%. To test if there was a significant difference between packaging versions within the product category, chi-square statistics were calculated for dishwasher detergent ($\chi^2(5, N = 67) = 4.03, p = 0.55$) and coffee ($\chi^2(5, N = 64) = 2.78, p = 0.73$), showing no significant differences for either category.

To analyze whether there were differences in the degree of attractiveness of the two versions of packaging, the One-Way ANOVA test was conducted. There were no significant differences in packaging attractiveness between the sustainable packaging and the conventional packaging ($F = 1, 129 = 1.46, p = 0.23$).

The next control variable referred to the product consumption frequency. Depending on the product the participant was evaluating, the question displayed was either asking about the coffee consumption (“How often do you consume coffee?”) or about the dishwasher detergent usage (“How often do you use dishwasher detergent packs?”). The chi-square statistics showed that differences between packaging types were not significant for dishwasher detergent ($\chi^2(4, N = 67) = 1.49, p = 0.83$) and for coffee ($\chi^2(4, N = 64) = 4.77, p = 0.31$).

Lastly, participants evaluated six items regarding their concern for the environment and environmental issues. Those six items were combined into one “environmental concern” variable to run the One-Way ANOVA. Results demonstrate that also for this control variable differences between sustainable packaging and conventional packaging were not significant: $F(1, 129) = 0.4, p = 0.53$.

The analysis of the control variables showed that the possibility that other external factors could bias participants and influence their answers was successfully minimized.

4.4 Dependent variables.

To analyze the relationship between the independent variable and the dependent variables under study, 2 questions were presented with a total of 15 items. The One-Way ANOVA test was conducted for the two dependent variables: brand experience and brand attitude.

The first dependent variable analyzed was brand experience. The twelve items referring to brand experience had a Cronbach's Alfa of 0.89, demonstrating a good level of scale reliability. Results showed that packaging sustainability had a significant effect on brand experience ($F(1, 132) = 23.28, p = 0.000$). More specifically, sustainable packaging led to higher brand experience than conventional packaging ($M_{\text{sustainable pack}} = 3.75; M_{\text{conventional pack}} = 2.94$), supporting H1. It is worth mentioning that this effect was also true for each of the brand experience dimensions, when analyzed separately.

Regarding the second dependent variable, brand attitude, its scale was also considered reliable with a Cronbach's Alfa of 0.88. Moreover, results demonstrated that sustainable packaging led to more positive brand attitude when compared to conventional packaging ($M_{\text{sustainable pack}} = 5.00; M_{\text{conventional pack}} = 4.19$) and that this effect was statistically significant ($F(1, 132) = 26.92, p = 0.000$). Thus, H2 was also supported.

4.5 Mediation variable

Hypotheses 3 and 4 stated that the sensory perception of the packaging would mediate the effect of packaging sustainability on both dependent variables. To analyze a possible mediation effect, tests were run for model 4 of Hayes' PROCESS macro.

First, mediation effects of sensory perception of the packaging were analyzed for packaging sustainability on brand experience. The results of the bootstrap analysis demonstrated that the indirect effect of packaging sustainability on brand experience via sensory perception of the packaging is statistically significant: -0.34 ; 95% CI: -0.58 to -0.12 . Furthermore, the direct effect of packaging sustainability on brand experience was also significant ($[c] = -3.7, p = 0.0003$). Those results confirmed H3, showing evidence that the sensory perception of the packaging mediates the relationship between packaging sustainability and brand experience.

The same procedure was done to test the mediation of sensory perception of the packaging for packaging sustainability on brand attitude. Here the bootstrap analysis also revealed the mediation effect of sensory perception since the indirect effect of packaging

sustainability on brand attitude to be significant: $-.54$; 95% CI: $-.47$ to $-.09$. The direct effect of packaging sustainability on brand attitude was significant as well ($[c] = -3.93$, $p = 0.001$). All in all, sensory perception of the packaging mediated the relationship between packaging sustainability and brand attitude, giving support to H4.

4.6 Moderation variable

Next, H5 was empirically tested to find out if product category moderated the relationship between packaging sustainability and the dependent variables: brand experience (H5a) and brand attitude (H5b). The Two-way ANOVA was used to test the moderation effects.

The moderation effect of product category was first tested on brand experience. From the test of Between Subjects Effect it is possible to see that the interaction between packaging sustainability and product category is not statistically significant for brand experience ($p = 0.229$). There was no significant difference if the product category was perceived as more hedonic or more utilitarian in terms of the relationship between packaging sustainability and brand experience. Hence, H5a was rejected. However, it was possible to observe a significant effect between product category and brand experience, indicating that there is a significant difference in mean brand experience between the two different product categories ($p = 0.005$). The influence of product category on brand experience was further analyzed through a One-Way ANOVA, where it was possible to see that brand experience was significantly higher for coffee as a product category than for dishwasher detergent: $M_{\text{coffee}} = 3.56$; $M_{\text{dishwasher d.}} = 3.14$ ($F(1, 132) = 5.7$, $p = 0.018$).

For brand attitude, the Between Subject Effect test showed similar results as the ones for brand experience. No significant effect was found for the interaction of packaging sustainability and product category on brand attitude ($p = 0.566$). H5b was rejected since product category did not affect the influence of product sustainability on brand attitude. But like brand experience, there was a significant direct effect between product category and brand attitude ($p = 0.012$). Similarly, brand attitude was also significantly more positive for coffee also than for dishwasher detergent: $M_{\text{coffee}} = 4.78$; $M_{\text{dishwasher d.}} = 4.43$ ($F(1, 132) = 4.38$, $p = 0.038$).

Overall, the results show that product category did not moderate the relationship between packaging sustainability and the dependent variables, neither for brand experience nor for brand attitude.

5 Conclusions

Consumers and society have placed an increasing emphasis on sustainability and environmentally conscious behavior (Jeong et al., 2014). In a current scenario where the packaging industry is the main generator of plastic waste globally (Geyer et al., 2017), more than half of consumers consider environmentally friendly packaging to be important (Global Data, 2018), which makes evident the need for companies and brands to implement more sustainable options of packaging. This dissertation aims to contribute to a better understanding of the impact that sustainable packaging has on consumers' overall brand perceptions and evaluations.

The first objective of this study was to analyze the effects of packaging sustainability on consumer's brand experience. The results indicate that sustainable packaging can contribute to a higher level of brand experience. That is, sustainable packaging could lead to the perception of the brand being more experiential for the consumer. This finding supports the notion that packaging can be a mean to evoke brand experiences (Brakus et al., 2009), but more specifically, that sensory aspects of sustainable packaging could have a positive influence on a multitude of experience dimensions. Sustainable packaging can differ from conventional packaging in several sensory aspects, since it often uses recycled material with unique coloring and degradable materials that affect its texture. Thus, sustainable packaging could affect different experience dimensions, since visual elements have associated to intellectual experience (Neisser, 1994) and tactile elements can be an elicitor of affective experiences (Brakus et al., 2009; Ng et al., 2013).

This possible explanation would also support the findings regarding the mediation effect of the sensory perception of the packaging. The results indicate that packaging sustainability is closely associated with how packaging is perceived sensorially, such that its sensory perception can in part explain the relationship between packaging sustainability and brand experience.

Another objective of the study was to identify whether packaging sustainability could influence consumer's attitude towards the brand. The results show once again that sustainable packaging may enhance perceptions and evaluations of a brand, since products presented in sustainable packaging can lead to more positive attitudes of consumers towards the brand. The

findings are in line with previous research that suggests overall positive influence of environmentally friendly practices of companies on brand attitude (Jeong et al., 2014; Olsen et al., 2014).

As previously suggested, packaging sustainability might be closely related to its sensory perception due to sensory aspects that change according to sustainability efforts in packaging. The results of the study demonstrated that the relationship between packaging sustainability and brand attitude is also mediated by the sensory perception of the packaging. The imaginable explanation for this mediation effect is a positive association of sensory appeals and brand attitude, backed by literature that indicates favorable effects of sensory appealing advertising on brand attitude (Cian et al., 2014; Yoon & Park, 2012).

Lastly, the final objective of this dissertation was to investigate whether product category had an impact on the relationship between packaging sustainability and brand experience or brand attitude. More specifically, the purpose was to identify if the perception of hedonism and utilitarianism of product categories influenced the aforementioned relationships. The outcome of the study indicates that sustainable packaging can have favorable influence on brand experience as well as on brand attitude, regardless of the product category. It is worth mentioning though, that if sustainability of the packaging is not taken into account, coffee, as a more hedonic product category, was considered to be a more experiential product and also led to more positive brand attitude, than dishwasher detergent, considered a more utilitarian product. This finding infers that the effect of packaging sustainability on both brand experience and brand attitude could be so strong that it would outweigh any possible effect of product category. Some studies support that suggestion, indicating that sustainability practices showed positive effects with both hedonic and utilitarian motivations (Olsen et al., 2012) as well as across hedonic and utilitarian products (Zhang et al., 2019).

5.1 Managerial implications

Understanding how consumers perceive sustainable or environmentally friendly products is of strategic relevance for managers, marketers and designers (Magnier et al., 2016). Foremost,

pursuing a sustainable image for a brand through the use of eco-friendly packaging can be beneficial because it promotes generates a more experiential brand and positively impacts consumer attitudes towards the brand.

Moreover, this research shows that there should be an emphasis on the use of sensory marketing strategies when developing or marketing sustainable packaging. Specifically, it is recommended to signal sustainability efforts on the packaging and make it sensorially engaging, for example through verbal claims but most importantly through visual and tactile elements such as the material, color, and texture. Making sustainable packaging sensorially engaging is important since sensory appeals are closely linked to the creation of brand experiences (Moreira et al., 2017) and to the improvement of brand attitude (Yoon & Park, 2012).

All in all, this study presents valuable insight on the effect of sustainable packaging on brand perceptions and evaluations and indicates that there are positive effects of the use of sustainable packaging for brands across different product categories.

5.2 Limitations and future research

To conclude, several limitations are noted in the study, offering opportunity for further research. First, the product categories used for the study are both considered fast-moving consumer goods and therefore may not be diverse enough to present significant differences. Although there was a significant difference in the perception of hedonism between the two selected product categories, the overall hedonic perception of coffee was only marginally above the median (see chapter 4.2.). For further research, it would be interesting to extend the study to other product categories, especially those that are more representative of hedonism, perhaps even luxury products.

Second, the present study focused exclusively on the sustainability of the packaging, meaning that there were no differences of sustainability regarding the product itself. Instead, future research could determine whether the same effects of packaging sustainability apply for

brand experience and brand attitude when the product also signals sustainability, for instance if the product is labelled as organic or marketed as locally grown.

Third, only one option of sustainable packaging was tested in this study: recycled packaging made of cardboard-like material. It would be important to see the effects of different types of sustainable packaging. Thus, it is suggested for future studies to be carried out with other kinds of sustainable packaging, such as packaging made from bioplastics or from materials like bamboo or recycled cork, among others.

Finally, it is worth mentioning that the present study was conducted through an online survey, a method that does not capture the influence of all relevant senses. Although some tactile properties may, in part, have been visually perceived, such as the texture of the packaging, the effect of touching the packaging and feeling its sensory properties could not be tested. Instead, other studies should be carried out in a face-to-face environment, with product prototypes where the tactile sense can be engaged along with the visual elements.

6 References

- Aaker, J. L. (1997). Dimensions of Brand Personality. *Journal of Marketing Research*, 34(3), 347–356.
<https://doi.org/10.1177/002224379703400304>
- Ajzen, I., & Fishbein, M. (2000). Attitudes and the Attitude-Behavior Relation: Reasoned and Automatic Processes. *European Review of Social Psychology*, 11(1), 1–33.
<https://doi.org/10.1080/14792779943000116>
- Ampuero, O., & Vila, N. (2006). Consumer perceptions of product packaging. *Journal of Consumer Marketing*, 23(2), 100–112. <https://doi.org/10.1108/07363760610655032>
- Armel, K. C., Beaumel, A., & Rangel, A. (2008). Biasing simple choices by manipulating relative visual attention. *Judgment and Decision Making*, 3(5), 396–403.
- Azzi, A., Battini, D., Persona, A., & Sgarbossa, F. (2012). Packaging Design: General Framework and Research Agenda. *Packaging Technology and Science*, 25(8), 435–456.
<https://doi.org/10.1002/pts.993>
- Bagchi, R., & Cheema, A. (2013). The Effect of Red Background Color on Willingness-to-Pay: The Moderating Role of Selling Mechanism. *Journal of Consumer Research*, 39(5), 947–960.
<https://doi.org/10.1086/666466>
- Becker, L., van Rompay, T. J.L., Schifferstein, H. N.J., & Galetzka, M. (2011). Tough package, strong taste: The influence of packaging design on taste impressions and product evaluations. *Food Quality and Preference*, 22(1), 17–23. <https://doi.org/10.1016/j.foodqual.2010.06.007>
- Belz, F.-M., & Peattie, K. (2009). *Sustainability Marketing:: A Global Perspective*. Chichester, UK: Wiley.
- Biggs, L., Juravle, G., & Spence, C. (2016). Haptic exploration of plateware alters the perceived texture and taste of food. *Food Quality and Preference*, 50, 129–134.
<https://doi.org/10.1016/j.foodqual.2016.02.007>
- Biswas, D., & Szocs, C. (2019). The Smell of Healthy Choices: Cross-Modal Sensory Compensation Effects of Ambient Scent on Food Purchases. *Journal of Marketing Research*, 56(1), 123–141.
<https://doi.org/10.1177/0022243718820585>

- Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science and Nutrition*, 42(1), 1–34. <https://doi.org/10.1080/10408690290825439>
- Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand Experience: What Is It? How Is It Measured? Does It Affect Loyalty? *Journal of Marketing*, 73(3), 52–68. <https://doi.org/10.1509/jmkg.73.3.52>
- Brasel, S. A., & Gips, J. (2014). Tablets, touchscreens, and touchpads: How varying touch interfaces trigger psychological ownership and endowment. *Journal of Consumer Psychology*, 24(2), 226–233. <https://doi.org/10.1016/j.jcps.2013.10.003>
- Bryman, A. (1984). The Debate about Quantitative and Qualitative Research: A Question of Method or Epistemology? *The British Journal of Sociology*, 35(1), 75. <https://doi.org/10.2307/590553>
- Callicott, J. B., & Mumford, K. (1997). Ecological Sustainability as a Conservation Concept. *Conservation Biology*, 11(1), 32–40. <https://doi.org/10.1046/j.1523-1739.1997.95468.x>
- Chandon, P., Wansink, B., & Laurent, G. (2000). A Benefit Congruency Framework of Sales Promotion Effectiveness. *Journal of Marketing*, 64(4), 65–81. <https://doi.org/10.1509/jmkg.64.4.65.18071>
- Charter, M. (1992). *Greener Marketing:: A responsible approach to business*. Sheffield, England: Greenleaf Publishing.
- Choi, D., & Johnson, K. K.P. (2019). Influences of environmental and hedonic motivations on intention to purchase green products: An extension of the theory of planned behavior. *Sustainable Production and Consumption*, 18, 145–155. <https://doi.org/10.1016/j.spc.2019.02.001>
- Cian, L., Krishna, A., & Elder, R. S. (2014). This Logo Moves Me: Dynamic Imagery from Static Images. *Journal of Marketing Research*, 51(2), 184–197. <https://doi.org/10.1509/jmr.13.0023>
- Dangelico, R. M., & Vocalelli, D. (2017). “Green Marketing”: An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner Production*, 165, 1263–1279. <https://doi.org/10.1016/j.jclepro.2017.07.184>
- Davari, A., & Strutton, D. (2014). Marketing mix strategies for closing the gap between green consumers' pro-environmental beliefs and behaviors. *Journal of Strategic Marketing*, 22(7), 563–586. <https://doi.org/10.1080/0965254X.2014.914059>
- Dholakia, R. R., & Sternthal, B. (1977). Highly Credible Sources: Persuasive Facilitators or Persuasive Liabilities? *Journal of Consumer Research*, 3(4), 223. <https://doi.org/10.1086/208671>

- Do Paço, A., Alves, H., Shiel, C., & Filho, W. L. (2014). An analysis of the measurement of the construct “buying behaviour” in green marketing. *Journal of Integrative Environmental Sciences*, 11(1), 55–69. <https://doi.org/10.1080/1943815X.2014.894082>
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes* ([Nachdr.]). Belmont, Calif.: Wadsworth Cengage Learning.
- Elder, R. S., & Krishna, A. (2010). The Effects of Advertising Copy on Sensory Thoughts and Perceived Taste. *Journal of Consumer Research*, 36(5), 748–756. <https://doi.org/10.1086/605327>
- Ellen MacArthur Foundation (2017). *The New Plastics Economy: Catalysing action*. Retrieved from <https://www.ellenmacarthurfoundation.org/news/new-plastics-economy-report-2-launch>
- Faircloth, J. B., Capella, L. M., & Alford, B. L. (2001). The Effect of Brand Attitude and Brand Image on Brand Equity. *Journal of Marketing Theory and Practice*, 9(3), 61–75. <https://doi.org/10.1080/10696679.2001.11501897>
- Foy, G. (1990). Economic sustainability and the preservation of environmental assets. *Environmental Management*, 14(6), 771–778. <https://doi.org/10.1007/BF02394171>
- Fraj-Andrés, E., Martínez-Salinas, E., & Matute-Vallejo, J. (2008). A Multidimensional Approach to the Influence of Environmental Marketing and Orientation on the Firm’s Organizational Performance. *Journal of Business Ethics*, 88(2), 263–286. <https://doi.org/10.1007/s10551-008-9962-2>
- Fuller, D. A. (1999). *Sustainable Marketing: Managerial - Ecological Issues*. London, UK: SAGE Publications, Inc.
- Gardner, M. P. (1985). Does Attitude toward the Ad Affect Brand Attitude under a Brand Evaluation Set? *Journal of Marketing Research*, 22(2), 192. <https://doi.org/10.2307/3151364>
- Geyer, R., Jambeck, J. R., & Lavender Law, K. (2017). Production, use, and fate of all plastics ever made. *Science Advances*. (2375-2548). Retrieved from <http://advances.sciencemag.org/>
- Giddens, A. (1974). *Positivism and Sociology*. London: Heinemann.
- Given, L. M. (Ed.) (2008). *The Sage encyclopedia of qualitative research methods*. London: SAGE. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=525887>
- Glavič, P., & Lukman, R. (2007). Review of sustainability terms and their definitions. *Journal of Cleaner Production*, 15(18), 1875–1885. <https://doi.org/10.1016/j.jclepro.2006.12.006>

- Global Data (2018). *Packaging Insights: Innovation Scenarios in Sustainable Packaging Materials: Winners and losers as packaging markets become more environmentally friendly*. Retrieved from <https://www.globaldata.com/store/report/cs1801pi--packaging-insights-innovation-scenarios-in-sustainable-packaging-materials-winners-and-losers-as-packaging-markets-become-more-environmentally-friendly/>
- Gomez, P., & Spielmann, N. (2019). A taste of the elite: The effect of pairing food products with elite groups on taste perceptions. *Journal of Business Research*, *100*, 175–183. <https://doi.org/10.1016/j.jbusres.2019.03.013>
- Gray, C. D., & Kinnear, P. R. (2012). *IBM SPSS statistics 19 made simple*. Hove: Psychology Press. Retrieved from <http://gbv.ebib.com/patron/FullRecord.aspx?p=1099431>
- Griskevicius, V., Tybur, J. M., & van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology*, *98*(3). <https://doi.org/10.1037/a0017346>
- Hagtvedt, H., & Brasel, S. A. (2017). Color Saturation Increases Perceived Product Size. *Journal of Consumer Research*. Advance online publication. <https://doi.org/10.1093/jcr/ucx039>
- Hartmann, P., Apaolaza Ibáñez, V., & Forcada Sainz, F. J. (2005). Green branding effects on attitude: Functional versus emotional positioning strategies. *Marketing Intelligence & Planning*, *23*(1), 9–29. <https://doi.org/10.1108/02634500510577447>
- Hultén, B. (2011). Sensory marketing: The multi-sensory brand-experience concept. *European Business Review*, *23*(3), 256–273. <https://doi.org/10.1108/09555341111130245>
- Jahanshahi, A. A., & Jia, J. (2018). Purchasing Green Products as a Means of Expressing Consumers' Uniqueness: Empirical Evidence from Peru and Bangladesh. *Sustainability*, *10*(11), 4062. <https://doi.org/10.3390/su10114062>
- Jain, S. K., & Kaur, G. (2004). Green Marketing: An Indian Perspective. *Decision (0304-0941)*, *31*(2).
- Jeong, E., Jang, S., Day, J., & Ha, S. (2014). The impact of eco-friendly practices on green image and customer attitudes: An investigation in a café setting. *International Journal of Hospitality Management*, *41*, 10–20. <https://doi.org/10.1016/j.ijhm.2014.03.002>
- Károly, K. (2011). Rise and Fall of the Concept Sustainability. *Journal of Environmental Sustainability*, *1*(1), 1–13. <https://doi.org/10.14448/jes.01.0001>

- Krishna, A. (2012). An integrative review of sensory marketing: Engaging the senses to affect perception, judgment and behavior. *Journal of Consumer Psychology*, 22(3), 332–351.
<https://doi.org/10.1016/j.jcps.2011.08.003>
- Krishna, A., Cian, L., & Aydinoglu, N. Z. (2017). Sensory Aspects of Package Design. *Journal of Retailing*, 93(1), 43–54. <https://doi.org/10.1016/j.jretai.2016.12.002>
- Krishna, A., Lwin, M. O., & Morrin, M. (2010). Product Scent and Memory. *Journal of Consumer Research*, 37(1), 57–67. <https://doi.org/10.1086/649909>
- Krishna, A., & Morrin, M. (2008). Does Touch Affect Taste? The Perceptual Transfer of Product Container Haptic Cues. *Journal of Consumer Research*, 34(6), 807–818. <https://doi.org/10.1086/523286>
- Kumar, V., Rahman, Z., & Kazmi, A. A. (2013). Sustainability Marketing Strategy: An Analysis of Recent Literature. *Global Business Review*, 14(4), 601–625. <https://doi.org/10.1177/0972150913501598>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lewis, H., Fitzpatrick, L., Verghese, K., Sonneveld, K., & Jordon, R. (2007). *Sustainable Packaging Redefined*. Melbourne: Sustainable Packaging Alliance (SPA).
- Lin, L., Hoegg, J., & Aquino, K. (2018). When Beauty Backfires: The Effects of Server Attractiveness on Consumer Taste Perceptions. *Journal of Retailing*, 94(3), 296–311.
<https://doi.org/10.1016/j.jretai.2018.04.003>
- Lindstrøm, M., & Kotler, P. (2005). *Brand sense: How to build powerful brands through touch, taste, smell, sight and sound* (Repr., twice). London: Kogan Page.
- Magnier, L., & Schoormans, J. (2015). Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern. *Journal of Environmental Psychology*, 44, 53–62. <https://doi.org/10.1016/j.jenvp.2015.09.005>
- Magnier, L., Schoormans, J., & Mugge, R. (2016). Judging a product by its cover: Packaging sustainability and perceptions of quality in food products. *Food Quality and Preference*, 53, 132–142.
<https://doi.org/10.1016/j.foodqual.2016.06.006>
- Malhotra, N. K., Nunan, D., & Birks, D. F. (2017). *Marketing research: An applied approach* (Fifth edition). Harlow, England: Pearson. Retrieved from <http://lib.mylibrary.com?id=1014136>
- Maroco, J. (2018). *Análise Estatística com o SPSS Statistics* (7th ed.). Lisbon: ReportNumber.

- Marques da Rosa, V., Spence, C., & Miletto Tonetto, L. (2019). Influences of visual attributes of food packaging on consumer preference and associations with taste and healthiness. *International Journal of Consumer Studies*, 43(2), 210–217. <https://doi.org/10.1111/ijcs.12500>
- McDaniel, C., & Baker, R. C. (1977). Convenience Food Packaging and the Perception of Product Quality: What Does "Hard-to-Open" Mean to Consumers? *Journal of Marketing*.
- McKenzie, S. (2004). *Social Sustainability:: Towards some definitions* (No. 27). *Hawke Research Institute Working Paper Series*.
- Montoro-Rios, F. J., Luque-Martínez, T., & Rodríguez-Molina, M.-A. (2008). How Green Should You Be: Can Environmental Associations Enhance Brand Performance? *Journal of Advertising Research*, 48(4), 547–563. <https://doi.org/10.2501/S0021849908080525>
- MOREIRA, A. C., FORTES, N., & SANTIAGO, R. (2017). Influence of sensory stimuli on brand experience, brand equity and purchase intention. *Journal of Business Economics and Management*, 18(1), 68–83. <https://doi.org/10.3846/16111699.2016.1252793>
- Morelli, J. (2011). Environmental Sustainability: A Definition for Environmental Professionals. *Journal of Environmental Sustainability*, 1(1), 1–10. <https://doi.org/10.14448/jes.01.0002>
- Nancarrow, C., Tiu Wright, L., & Brace, I. (1998). Gaining competitive advantage from packaging and labelling in marketing communications. *British Food Journal*, 100(2), 110–118. <https://doi.org/10.1108/00070709810204101>
- Neisser, U. (1994). Multiple systems: A new approach to cognitive theory. *European Journal of Cognitive Psychology*, 6(3), 225–241. <https://doi.org/10.1080/09541449408520146>
- Ng, M., Chaya, C., & Hort, J. (2013). The influence of sensory and packaging cues on both liking and emotional, abstract and functional conceptualisations. *Food Quality and Preference*, 29(2), 146–156. <https://doi.org/10.1016/j.foodqual.2013.03.006>
- Okada, E. M. (2018). Justification Effects on Consumer Choice of Hedonic and Utilitarian Goods. *Journal of Marketing Research*, 42(1), 43–53. <https://doi.org/10.1509/jmkr.42.1.43.56889>
- Olsen, J., Thach, L., & Hemphill, L. (2012). The impact of environmental protection and hedonistic values on organic wine purchases in the US. *International Journal of Wine Business Research*, 24(1), 47–67. <https://doi.org/10.1108/17511061211213783>

- Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green Claims and Message Frames: How Green New Products Change Brand Attitude. *Journal of Marketing*, 78(5), 119–137.
<https://doi.org/10.1509/jm.13.0387>
- Orth, U. R., & Malkewitz, K. (2008). Holistic Package Design and Consumer Brand Impressions. *Journal of Marketing*, 72(3), 64–81. <https://doi.org/10.1509/jmkg.72.3.64>
- Park, C. W., Macinnis, D. J., Priester, J., Eisingerich, A. B., & Iacobucci, D. (2010). Brand Attachment and Brand Attitude Strength: Conceptual and Empirical Differentiation of Two Critical Brand Equity Drivers. *Journal of Marketing*, 74(6), 1–17. <https://doi.org/10.1509/jmkg.74.6.1>
- Peattie, K. (1995). *Environmental Marketing Management:: Meeting the Green Challenge*. London, UK: Pitman Publishing.
- Peattie, K., & Collins, A. (2009). Guest editorial: Perspectives on sustainable consumption. *International Journal of Consumer Studies*, 33(2), 107–112. <https://doi.org/10.1111/j.1470-6431.2009.00758.x>
- Peck, J., & Childers, T. L. (2003). To have and to Hold: The Influence of Haptic Information on Product Judgments. *Journal of Marketing*, 67(2), 35–48. <https://doi.org/10.1509/jmkg.67.2.35.18612>
- Peck, J., & Childers, T. L. (2006). If I touch it I have to have it: Individual and environmental influences on impulse purchasing. *Journal of Business Research*, 59(6), 765–769.
<https://doi.org/10.1016/j.jbusres.2006.01.014>
- Piqueras-Fizman, B., & Spence, C. (2012). The influence of the feel of product packaging on the perception of the oral-somatosensory texture of food. *Food Quality and Preference*, 26(1), 67–73.
<https://doi.org/10.1016/j.foodqual.2012.04.002>
- Raghubir, P., & Krishna, A. (1999). Vital Dimensions in Volume Perception: Can the Eye Fool the Stomach? *Journal of Marketing Research*, 36(3), 313. <https://doi.org/10.2307/3152079>
- Robinson, J. (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecological Economics*, 48(4), 369–384. <https://doi.org/10.1016/j.ecolecon.2003.10.017>
- Rokka, J., & Uusitalo, L. (2008). Preference for green packaging in consumer product choices - Do consumers care? *International Journal of Consumer Studies*, 32(5), 516–525.
<https://doi.org/10.1111/j.1470-6431.2008.00710.x>
- Rundh, B. (2016). The role of packaging within marketing and value creation. *British Food Journal*, 118(10), 2491–2511. <https://doi.org/10.1108/BFJ-10-2015-0390>

- Schmitt, B. (1999). Experiential Marketing. *Journal of Marketing Management*, 15(1-3), 53–67.
<https://doi.org/10.1362/026725799784870496>
- Shrum, L. J., McCarty, J. A., & Lowrey, T. M. (1995). Buyer Characteristics of the Green Consumer and Their Implications for Advertising Strategy. *Journal of Advertising*, 24(2), 71–82.
<https://doi.org/10.1080/00913367.1995.10673477>
- Silayoi, P., & Speece, M. (2007). The importance of packaging attributes: A conjoint analysis approach. *European Journal of Marketing*, 41(11/12), 1495–1517. <https://doi.org/10.1108/03090560710821279>
- Solja, E., Liljander, V., & Söderlund, M. (2018). Short brand stories on packaging: An examination of consumer responses. *Psychology & Marketing*, 35(4), 294–306. <https://doi.org/10.1002/mar.21087>
- Steenis, N. D., van Herpen, E., van der Lans, I. A., Ligthart, T. N., & van Trijp, H. C.M. (2017). Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations. *Journal of Cleaner Production*, 162, 286–298.
<https://doi.org/10.1016/j.jclepro.2017.06.036>
- Tesoriero, M., & Rickard, N. S. (2012). Music-enhanced recall: An effect of mood congruence, emotion arousal or emotion function? *Musicae Scientiae*, 16(3), 340–356.
<https://doi.org/10.1177/1029864912459046>
- Underwood, R. L., & Klein, N. M. (2002). Packaging as brand communication: Effects of product pictures on consumer responses to the package and brand. *Journal of Marketing Theory and Practice*, 10(4), 58–68. <https://doi.org/10.1080/10696679.2002.11501926>
- Unilever (2017). *Report shows a third of consumers prefer sustainable brands* [Press release]. Retrieved from <https://www.unilever.com/news/press-releases/2017/report-shows-a-third-of-consumers-prefer-sustainable-brands.html>
- Van Maanen, J. (1979). Reclaiming Qualitative Methods for Organizational Research: A Preface. *Administrative Science Quarterly*, 24(4), 520. <https://doi.org/10.2307/2392358>
- Vazquez, E., Gevers, T., Lucassen, M., van de Weijer, J., & Baldrich, R. (2010). Saliency of color image derivatives: A comparison between computational models and human perception. *Journal of the Optical Society of America. A, Optics, Image Science, and Vision*, 27(3), 613–621.
<https://doi.org/10.1364/JOSAA.27.000613>

- Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude. *Journal of Marketing Research*, 40(3), 310–320.
<https://doi.org/10.1509/jmkr.40.3.310.19238>
- World Commission on Environment and Development (1987). Our common future (the Brundtland report). *Oxford University Press*.
- Yalch, R. F., & Spangenberg, E. R. (2000). The Effects of Music in a Retail Setting on Real and Perceived Shopping Times. *Journal of Business Research*, 49(2), 139–147. [https://doi.org/10.1016/S0148-2963\(99\)00003-X](https://doi.org/10.1016/S0148-2963(99)00003-X)
- Yoon, S.-J., & Park, J. E. (2012). Do sensory ad appeals influence brand attitude? *Journal of Business Research*, 65(11), 1534–1542. <https://doi.org/10.1016/j.jbusres.2011.02.037>
- Zhang, L., Fan, Y., Zhang, W., & Zhang, S. (2019). Extending the Theory of Planned Behavior to Explain the Effects of Cognitive Factors across Different Kinds of Green Products. *Sustainability*, 11(15), 4222.
<https://doi.org/10.3390/su11154222>

Appendix A – Pre-test

5.10.2020

Qualtrics Survey Software

Introduction

Dear participant,

This study is being conducted for academic purposes as part of my Master thesis at Universidade Europeia. The goal of this survey is to understand a person's perception of various products they regularly purchase or have purchased in the past.

There are no right or wrong answers, we are interested in knowing your opinion. It will take approximately 5 to 10 minutes to complete the questionnaire.

There is no risk involved in answering this survey. Your response is very relevant, anonymous, and will be used only for academic purposes.

Thank you for participating!

Informed Consent Form

I declare that I am 18 or over 18 and agree to participate in this research. I declare that I was informed that my participation in this study is voluntary and that I can leave this survey at any time without penalty. All data from this survey is confidential and the study does not offer any risks. I understand that I will respond to questions regarding different products in order to assess consumer's judgments of it.

I agree to participate in this survey

I do not agree to participate in this survey

PM coffee

In the next sections, you will be asked to evaluate four different products and answer questions related to those products. Please take the time to look carefully at the products.

Please look carefully at the product image and description to answer the following questions.

**Brand: Tully's Coffee**

Café moulu Pur Arabica

- Dark roast, caffeinated coffee
100% Arabica coffee
A smoky, decadent tale. Slow roasted.
- Multilayer plastic packaging.
Made with 100% thermoplastic polymer interior.

Please look carefully at the product image and description to answer the following questions.

**Brand: Tully's Coffee**

Café moulu Pur Arabica

- Dark roast, caffeinated coffee
100% Arabica coffee
A smoky, decadent tale. Slow roasted.
- Fiber-based packaging.
Made from 100% recycled cardboard and old newspaper.

Coffee

Please evaluate the following statements based on your perception of the **packaging** of the product you saw using a scale from 1 - strongly disagree to 7 - strongly agree.

	1- Strongly disagree	2- Disagree	3 - Somewhat disagree	4 - Neither agree nor disagree	5 - Somewhat agree	6 - Agree	7 - Strongly agree
This package is environmentally friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This a good example of an environmentally friendly packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This package is <u>not</u> environmentally friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is a good example of a regular packaging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the image you saw, please rate how you would characterize **the product** using the words below.

Not fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fun
Dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Not delightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Delightful
Not thrilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Thrilling
Not enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective
Unhelpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helpful
Not functional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Functional
Unnecessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Necessary
Impractical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Practical

Please rate the attractiveness of the packaging you saw.

Unattractive Attractive

Are you familiar with the coffee brand Tully's Coffee? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar

1 - Definitely unfamiliar 2 - Unfamiliar 3 - Probably unfamiliar 4 - Might or might not be familiar 5 - Probably familiar 6 - Familiar 7 - Definitely familiar

PM laundry detergent

Please look carefully at the product image and description to answer the following questions.



Brand: Seventh Generation

Free & Clear laundry detergent

- Concentrated laundry detergent made for sensitive skin. Fights stains.
- Plastic shell packaging: Water resistant and made from 100% high density plastic. Inner liner made with thermoplastic polymer.

Please look carefully at the product image and description to answer the following questions.



Brand: Seventh Generation

Free & Clear laundry detergent

- Concentrated laundry detergent made for sensitive skin.
Fights stains.
- Molded fiber shell packaging:
Water resistant and made from 100% recycled cardboard and old newspaper.
Inner liner made with 60% less plastic than regular bottles.

laundry detergent

Please evaluate the following statements based on your perception of the **packaging** of the product you saw using a scale from 1 - strongly disagree to 7 - strongly agree.

	1 - Strongly disagree	2 - Disagree	3 - Somewhat disagree	4 - Neither agree nor disagree	5 - Somewhat agree	6 - Agree	7 - Strongly agree
This package is environmentally friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This a good example of an environmentally friendly packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This package is <u>not</u> environmentally friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is a good example of a regular packaging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the image you saw, please rate how you would characterize **the product** using the words below.

Not fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fun
Dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Not delightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Delightful
Not thrilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Thrilling
Not enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective
Unhelpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helpful
Not functional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Functional
Unnecessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Necessary
Impractical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Practical

Please rate the attractiveness of the packaging you saw.

Unattractive Attractive

Are you familiar with the laundry detergent brand Seventh Generation? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar.

1 - Definitely unfamiliar	<input type="radio"/>	2 - Unfamiliar	<input type="radio"/>	3 - Probably unfamiliar	<input type="radio"/>	4 - Might or might not be familiar	<input type="radio"/>	5 - Probably familiar	<input type="radio"/>	6 - Familiar	<input type="radio"/>	7 - Definitely familiar	<input type="radio"/>
---------------------------	-----------------------	----------------	-----------------------	-------------------------	-----------------------	------------------------------------	-----------------------	-----------------------	-----------------------	--------------	-----------------------	-------------------------	-----------------------

PM shampoo

Please look carefully at the product image and description to answer the following questions.

**Brand: REF**

Illuminate Colour Shampoo

- Sulphate free shampoo with botanical extracts. Protects, strengthens and restores shine.
- Plastic shell packaging: Water resistant and made from 100% high density plastic. Inner liner made with thermoplastic polymer.

Please look carefully at the product image and description to answer the following questions.

**Brand: REF**

Illuminate Colour Shampoo

- Sulphate free shampoo with botanical extracts. Protects, strengthens and restores shine.
- Molded fiber shell packaging: Water resistant and made from 100% recycled cardboard and old newspaper. Inner liner made with 60% less plastic than regular bottles.

Shampoo

Please evaluate the following statements based on your perception of the **packaging** of the product you saw using a scale from 1 - strongly disagree to 7 - strongly agree.

	1 - Strongly disagree	2 - Disagree	3 - Somewhat disagree	4 - Neither agree nor disagree	5 - Somewhat agree	6 - Agree	7 - Strongly agree
This package is environmentally friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This a good example of an environmentally friendly packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This package is <u>not</u> environmentally friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is a good example of a regular packaging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the image you saw, please rate how you would characterize **the product** using the words below.

Not fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fun
Dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Not delightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Delightful
Not thrilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Thrilling
Not enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective
Unhelpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helpful
Not functional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Functional
Unnecessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Necessary
Impractical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Practical

Please rate the attractiveness of the packaging you saw.

Unattractive Attractive

Are you familiar with the shampoo brand REF? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar.

1 - Definitely unfamiliar 2 - Unfamiliar 3 - Probably unfamiliar 4 - Might or might not be familiar 5 - Probably familiar 6 - Familiar 7 - Definitely familiar

PM dishwasher detergent

Please look carefully at the product image and description to answer the following questions.



Brand: Kroger

Dish pacs citrus scent

- All-in-1 action dishwasher packs
Fights grease and cleans 24 hour stuck on food
- Multilayer plastic packaging.
Made with 100% thermoplastic polymer interior.

Please look carefully at the product image and description to answer the following questions.



Brand: Kroger

Dish pacs citrus scent

- All-in-1 action dishwasher packs
Fights grease and cleans 24 hour stuck on food
- Fiber-based packaging made from 100% recycled cardboard and old newspaper.

Dishwasher detergent

Please evaluate the following statements based on your perception of the **packaging** of the product you saw using a scale from 1 - strongly disagree to 7 - strongly agree.

	1 - Strongly disagree	2 - Disagree	3 - Somewhat disagree	4 - Neither agree nor disagree	5 - Somewhat agree	6 - Agree	7 - Strongly agree
This package is environmentally friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This a good example of an environmentally friendly packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This package is <u>not</u> environmentally friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is a good example of a regular packaging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the image you saw, please rate how you would characterize **the product** using the words below.

Not fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fun
Dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Not delightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Delightful
Not thrilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Thrilling
Not enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Enjoyable
Ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective
Unhelpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helpful
Not functional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Functional
Unnecessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Necessary
Impractical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Practical

Please rate the attractiveness of the packaging you saw.

Unattractive Attractive

Are you familiar with the dishwasher detergent brand Kroger? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar.

1 - Definitely unfamiliar 2 - Unfamiliar 3 - Probably unfamiliar 4 - Might or might not be familiar 5 - Probably familiar 6 - Familiar 7 - Definitely familiar

Demographics

To help us analyze your answers, we would like to know a little bit more about you.

Gender

Male
 Female
 Other

Age in years (please enter numbers only):

What is your highest level of education?

- Primary Education
- High school degree
- Undergraduate degree
- Graduate degree

Nationality

What is your nationality?

Country of residence

What is your country of residence?

Which option best describes your employment status?

- Student
- Homemaker
- Part time
- Full time
- Retired
- Self-employed

Powered by Qualtrics

Appendix B – Main Study

Start of Block: Introduction

Q1 Dear participant,

I would like to invite you to take part in a research study to analyze perceptions of packaging and brands. This study is being conducted for academic purposes as part of my Master thesis at Universidade Europeia and your contribution to my project is much appreciated. There are no right or wrong answers, we are interested in knowing your opinion. It will take approximately 10 to 15 minutes to complete the questionnaire.

There is no risk involved in answering this survey. Your response is very relevant, anonymous, and will be used only for academic purposes. Thank you in advance for your time and effort!

Q2 **Informed Consent Form** I declare that I am 18 or over 18 and agree to participate in this research. I declare that I was informed that my participation in this study is voluntary and that I can leave this survey at any time without penalty. All data from this survey is confidential and the study does not offer any risks. I understand that I will respond questions regarding packaging of a specific brand in order to assess consumer's perceptions of it.

- I agree to participate in this survey (1)
- I do not agree to participate in this survey (2)

Skip To: End of Block If Q2 = 2

End of Block: Introduction

Start of Block: Problem Manipulation

Q3

After analyzing the packaging, please read attentively the following statements and take your time to consider the answers.

TCconv **LOOK CLOSELY AT TULLY'S COFFEE PACKAGING AND PRODUCT DESCRIPTION BELOW:**
The following questions will be related to the packaging and brand displayed.

TCeco **LOOK CLOSELY AT TULLY'S COFFEE PACKAGING AND PRODUCT DESCRIPTION BELOW:**
The following questions will be related to the packaging and brand displayed.

Kconv **LOOK CLOSELY AT KROGER'S DISHWASHER DETERGENT PACKAGING AND PRODUCT DESCRIPTION BELOW:**
The following questions will be related to the packaging and brand displayed.



Keco **LOOK CLOSELY AT KROGER'S PACKAGING AND PRODUCT DESCRIPTION BELOW:**
The following questions will be related to the packaging and brand displayed.

End of Block: Problem Manipulation

Start of Block: DVs



BrandExp Based on the image and description you saw, please evaluate the following statements **about the brand** using the scale from 1- strongly disagree to 7- strongly agree.

I find this brand interesting in a sensory way. (1)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand does <u>not</u> appeal to my senses. (2)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand makes a strong impression on my visual sense or other senses. (3)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand induces feelings and sentiments. (4)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
I do <u>not</u> have strong emotions for this brand. (5)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand is an emotional brand. (6)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
I engage in physical actions and behaviors when I use this brand. (8)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand results in bodily experiences. (9)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand is <u>not</u> action oriented. (10)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
I engage in a lot of thinking when I encounter this brand. (11)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand does <u>not</u> make me think. (12)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)
This brand stimulates my curiosity and problem solving. (14)	▼ 1 - Strongly disagree (1) ... 7-Strongly Agree (7)



packSense Based on the image you saw, please evaluate the following statements **about the packaging** using the scale from 1- strongly disagree to 7- strongly agree.

I find this packaging interesting in a sensory way. (1)	▼ 1- Strongly disagree (1) ... 7- Strongly agree (7)
This packaging appeals to my senses. (2)	▼ 1- Strongly disagree (1) ... 7- Strongly agree (7)
This packaging makes a strong impression on my visual sense or other senses. (3)	▼ 1- Strongly disagree (1) ... 7- Strongly agree (7)



BrandAtt Based on the image and description you saw, please select the items which best describe your **opinion about the brand.**

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Dislike very much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Like very much

End of Block: DVs

Start of Block: Manipulation Checks

packSust Please evaluate the following statements based on your perception of the **packaging** of the product you saw using a scale from 1 - strongly disagree to 7 - strongly agree.

This package is environmentally friendly (1)	▼ 1 - Strongly disagree (1) ... 7 - Strongly agree (7)
This a good example of an environmentally friendly packaging (2)	▼ 1 - Strongly disagree (1) ... 7 - Strongly agree (7)
This package is <u>not</u> environmentally friendly. (3)	▼ 1 - Strongly disagree (1) ... 7 - Strongly agree (7)
This is a good example of a regular packaging. (4)	▼ 1 - Strongly disagree (1) ... 7 - Strongly agree (7)

Hed/Ut Based on **the product** you saw earlier, please evaluate the following statements.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
The product is not at all hedonic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	The product is extremely hedonic
The product is not at all utilitarian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	The product is extremely utilitarian

End of Block: Manipulation Checks

Start of Block: Control

Display This Question:

If TCconv Is Displayed

Or Or TCeco Is Displayed

FamTC Are you familiar with the coffee brand Tully's Coffee? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar.

- 1- Definitely unfamiliar (1)
- 2- Unfamiliar (2)
- 3- Probably unfamiliar (3)
- 4- Might or might not be familiar (4)
- 5- Probably familiar (5)
- 6- Familiar (6)
- 7- Definitely familiar (7)

Display This Question:

If Kconv Is Displayed

Or Or Keco Is Displayed

FamK Are you familiar with the dishwasher detergent brand Kroger? Please rate on the scale ranging from 1 - Definitely unfamiliar to 7 - Definitely familiar.

- 1- Definitely unfamiliar (1)
- 2- Unfamiliar (2)
- 3- Probably unfamiliar (3)
- 4- Might or might not be familiar (4)
- 5- Probably familiar (5)
- 6- Familiar (6)
- 7- Definitely familiar (7)

Attractiv Please rate the **attractiveness of the packaging** you saw.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Unattractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Attractive

Display This Question:

If TCconv Is Displayed

Or Or TCeco Is Displayed

consumptionTC How often do you consume coffee? Please rate on the scale ranging from 1- Never to 5 - Several times a day

- 1- Never (1)
- 2- 1 to 4 times a month (2)
- 3- Several times a week (3)
- 4- Daily (4)
- 5- Several times a day (5)

Display This Question:

If Kconv Is Displayed

Or Or Keco Is Displayed

ConsumptionK How often do you use dishwasher detergent packs? Please rate on the scale ranging from 1- Never to 5- Several times a day

- 1- Never (1)
- 2- 1 to 4 times a month (2)
- 3- Several times a week (3)
- 4- Daily (4)
- 5- Several times a day (5)



EC Please evaluate the following statements using the scale from 1- strongly disagree to 7- strongly agree

I am very concerned about the environment (2)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)
Humans are severely abusing the environment (3)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)
I would be willing to reduce my consumption to help protect the environment (4)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)
Major political change is necessary to protect the natural environment (5)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)
Major social changes are necessary to protect the natural environment (6)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)
Anti-pollution laws should be enforced more strongly (7)	▼ 1-Strongly disagree (1) ... 7 - Strongly agree (7)

End of Block: Control

Start of Block: Demographic

Q22 To help us analyze your answers, we would like to know a little bit more about you.

Gender Gender

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



Age Age in years (please enter numbers only):



Education What is your highest level of education?

- Primary Education (1)
- High school degree (2)
- Undergraduate degree (3)
- Graduate degree (4)

nationality Nationality

What is your nationality? (1)

▼ Afghanistan (1) ... Zimbabwe ~ Zimbabwe (468)

residence Country of residence

What is your country of residence? (1)

▼ Afghanistan (1) ... Other ~ Other (470)

employment Employment status:

- Student (1)
- Homemaker (2)
- Part time (3)
- Full time (4)
- Retired (5)
- Self-employed (6)

End of Block: Demographic
