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THE INTERPLAY OF SUSTAINABLE PACKAGING MATERIAL AND COSUMERS' ENVIRONMENTAL CONCERN FOR LUXURY PRODUCTS

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Abstract

This thesis explores the effect of packaging material (matte vs glossy) on consumers' purchase intention and willingness to pay for luxury product and how environmental concern influences this relationship. First, the results show that for consumers with higher environmental concern, matte (vs glossy) material of the packaging increases the purchase intention. Next, the sample failed to predict preferences of consumers characterized by low environmental concern. Also, this study shows that environmental concern does not influence the relationship between the packaging material and willingness to pay. At the end, managerial implications, identified limitations and possible future research are discussed.

Keywords: *environmental concern, luxury consumers, sustainable luxury, consumer behaviour, purchase intention, willingness to pay, experiments, packaging material, sustainable packaging.*

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1. Introduction

Packaging, above its fundamental purpose of protecting, containing, and preserving the product, fulfils a lot of functions, such as communication (Saghir 2002). It is a significant component related to three categories i.e., logistics, marketing, and environment. The development of the economy, as well as the increase in the awareness and requirements of consumers, forced entrepreneurs to constantly develop and search for new solutions in the effective packaging of articles, also those of sustainability.

In reference to the sustainability concern, packaging waste is recognized as a worldwide issue. This source of waste constitutes even up to 20% of produced garbage in certain European countries (OECD 2011). Within European Union, average packaging waste per capita varies around 174 kg each year (Eurostat 2018). Additionally, the quantities of packaging waste produced by the EU were growing steadily from 2012 until 2018 (Eurostat 2021). This thesis will focus on two types of packaging waste: paper and cardboard materials. From 2008 to 2018, they were recognized as the most waste-generating material in the European Union (Eurostat 2021). What is more, paper it is the most visible source of methane in landfills is the decomposition of this material, which causes global climate changes induced by these emissions. Therefore, recycling paper minimizes the amount of paper that ends up in landfills, lowering toxic greenhouse gas emissions (Ximenes 2010).

As a countermeasure to this severe problem, together with the purpose of extending the usage of materials with the commencement of recycling whilst aiming to lower resource use, European Union aims to implement sustainable solutions (Tisserant et al. 2017). Thus, the European Union took steps to increase the quantity of recycled packaging waste. Therefore, in the Packaging Waste Directive of 2008 common recycling goals have been

established to be reached by 2030 (European Parliament and Council 2018), with the recycling rate for paper of 85%.

Nowadays, each product packaging, apart from fulfilling its protective function, must meet several different requirements. Those demands originated from consumer expectations with respect to mentioned global tendencies. As for the rising trend of social media, the global luxury market has higher access to a larger audience. Consumers are becoming more aware of the luxury experience, which has resulted in higher expectations. Additionally, the current global situation - the COVID-19 pandemic, induced shoppers to rethink their practices and purchasing habits. Companies have had to respond by focusing on packaging as a way to replicate the physical retail experience at home. As e-commerce has been rising in importance, many influencer posts were dedicated to recording the unpacking of a specific product. As a consequence, social media's "unboxing" trends have helped to put more emphasis and significance on the packaging (IPL 2020).

In the reality of the pandemic consumption of fashion, sustainable and ethical purchases are rapidly growing trends. Recent research shows that consumers are buying less, the tendency of becoming more selective and choosing well-known brands is observed, especially for purpose-driven brands (Fast Company 2021). Furthermore, nowadays many consumers link sustainability with ecological product packaging (Vogue Polska & BCG 2021). Therefore, companies have been trying to find ways to adapt to those demands and changing expectations of customers. An example from premium to luxury cosmetics brand, which is implementing changes with regard to mentioned demands, is L'Oréal Group. According to the company's own research, packaging accounts for 50% of a product's environmental impact. As stated in their "Sharing beauty with all" program, they aim to

contribute to the Sustainable Development Goals (L'Oréal 2018). L'Oréal has fulfilled its plan by engaging in external obligations for the future years while having strong internal sustainable commitments with their plan for 2020. The focus is mostly on reducing virgin plastic consumption and increasing product recyclability at various stages of the product life cycle. With this being stated, the company's challenge today is to integrate an environmental factor into its packaging and minimize the impact on the environment (Aguirre 2020). Another example of a company from the luxury fashion industry, actively taking up the steps towards the change is Gucci. In their first Impact Report, which is a part of the Gucci Equilibrium commitment, the company states that being aware of the amount of waste generated, they aim to make use of the opportunities to minimize and recycle the materials used throughout the Gucci ecosystem (Gucci Equilibrium 2020). Thus, this contribution also took the packaging into account. In November 2020, the company created new, sustainable packaging that honours both - planet and the unboxing ritual (Gucci Equilibrium 2020). Its design has a reduced impact on nature - paper and cardboard are from sustainable sources but respect the design – they feature green ornamental pattern.

It is visible that luxury brands start to use paper and cardboard for sustainability reasons (i.e., Gucci, Burberry). At the same time, some studies suggest that certain materials' features, such as metallic finish, are not perceived as luxury (Spence 2021; Sahachaisaeree 2010; Kirwan 2005). Thus, it is important to investigate how packaging material affects consumers' perception of luxury brands.

Past research has tried to find an effect of applying sustainability to luxury products. For instance, certain studies suggest that sustainability and luxury are not conflicting concepts, but they are positively correlated. It means that certain features of luxury products,

such as the preservation of rare materials and expertise, local fabrication, and their high quality, have common points with sustainability (Aguirre 2020; Achabou 2013). Additionally, high price limits the mass consumption. Moreover, Kapferer and Michaut (2015) found that consumers' opinion about the product much depends on individual perception of luxury (it is perceived differently by a person for whom luxury is quality than for whom luxury is a rarity). Furthermore, Joy (2012) showed that a brand's environmental was not an important point of reference for purchasing decisions of luxury products (consumers are considering mostly quality, price, and brand reputation).

The most recent papers show that today sustainability is more frequently the element of quality expected by consumers (Awan 2016; Kapferer & Michaut 2014; Witek 2018). Moreover, certain reports are showing that sustainability of product tends to play more meaningful role in purchasing decision (Vogue Polska & BCG 2021; CITEO 2019). However, research on the effect of using recyclable packaging on purchasing luxury products is still rare. Thus, this research contributes to subject literature by examining whether applying this type of packaging made of recyclable material may have impact on purchase intention and willingness to pay more luxury products. This is particularly interesting then considering the COVID-19 pandemic, that has changed the environmental concern in consumers' minds, together with rising online sales and their environmental footprint (Vogue Polska & BCG 2021). I predict that individuals having high environmental concern will react differently to sustainable luxury packaging than consumers with lower environmental concern. This prediction is based on the theoretical reasoning that applies to all kinds of products (Bamberg 2003). However, expectations towards luxury products seem to be set higher. They are by default exposed to criticism because of their visibility and popularity. Furthermore, today luxury is associated not only with high price and rarity, but also is linked

to features associated with sustainability, such as handcrafting or high quality. It is especially true for young generation, for whom there is no conflict between luxury and sustainability (Kapferer 2015). Contrarily, Romeo (2013) shows that although sustainability is not the key feature in purchase decisions, luxury consumers already have certain, established expectations towards sustainability of luxury companies. Moreover, the CITEO study finds that 77% of 500 respondents would move away from luxury brands if their packaging had a negative impact on the environment (CITEO 2019). It confirms that sustainability is nowadays a quality expected by luxury customers.

In this thesis, I will test if a high environmental concern increases the consumers' likelihood to purchase and pay more for the "green" luxury product. Recognizing that literature on the subject is still limited, I aim to further explore how eco-packaging, specifically made of recyclable paper, impacts luxury consumer purchase decision. Exploring the relationship between environmental concern and consumers' likelihood to buy "green" luxury products, the literature on the consequences of applying recyclable packaging on luxury product preference is extended.

2. Literature overview

2.1. The importance of visual part of packaging on consumers decisions

Packaging is often perceived as a key marketing tool, because it provides a lot of information about a product and it is a brand representation (Celhay and Trinquecoste 2015). That is why it has been identified as the most important channel of communication (Rettie 2000). Past research has examined how individual components of the packaging (e.g., quality, design, verbal information) influence the purchasing decision (Hammers et al. 2020; Dziadkiewicz 2019; Tiwasing 2012). For example, the design of the packaging itself may prompt a purchase (Hall 1993).

The packaging components can be divided in various ways. One of the categories has been proposed by Rettle (2000). Rettle has categorized the packaging into visual (such as shape, color, images) and verbal elements (such as claims and descriptions). The literature on the subject indicates that perceiving both elements of those groups significantly affect the consumers' decision (Magnier & Schoormans, 2015). Material, further explored in this paper, is included in the visual category. The packaging's eye-catching visual features are the ones that directly influence to the consumer's ability to immediately differentiate the product from other comparable items (Magnier & Schoormans, 2015). Visual elements, automatically and promptly analyzed (Şener, Kinaci and Doğan 2015), attract consumers' attention.

2.2. Human recognition of environmentally friendly material

Regarding the packaging material, certain studies mention human preference for cardboard over plastic as a consequence of childhood environment (especially surrounding area and level of education) (e.g., Petljak, Naletina and Bilogrević 2019). Others argue that from the

beginning of life, human preference is glossy over matte (Meerta, Pandelaerea and Patrick 2013). As for the study of Herbes et al. (2020), similarly to the cue utilisation theory (consumers aim to reduce complexity), consumers are expected to seek out easy ways to evaluate whether packaging is ecologically friendly. Those cues can be structural (size and appearance of the packaging), informative (text), visual (glossiness and shape) or sensory (scent and finish). It concludes that consumer recognizes packaging as environmentally friendly by looking at it and touching it (Joonas and Rokka 2008; Lyndsey and Scott 2014; Herbes et al. 2020) .

2.3. Consumers' perception of luxury packaging features

Luxury packaging has frequently been associated with voluminous, weighty and made of sophisticated materials such as metallized plastic to achieve a shining appearance (Citeo 2019). Prior studies, such as Sahachaisaeree (2010) emphasize that in order to enhance the perception of quality, the crucial elements in the design are glossy finish and a brand logo. What is more, above-mentioned study finds that to enhance perception of product as a higher priced, consumers prefer packaging that is glossy, includes brand logo and slope typography in design.

2.4. Environmental concern of luxury consumers

In general, consumer choices and decisions are dictated by their system of beliefs and values (Allen 2008). Sustainable consumption is crucial in the green economy and socio-economic development. This type of "green" consumption, accordingly to the definition of the 7th Framework Program of the European Union RESPONDER, has a very comprehensive meaning. Overall, it has three main objectives: reducing total resource consumption, equitable distribution of resources and achieving prosperity and human well-being (Jaros 2014).

Throughout the years, the academic community has widely explored the mechanism of green consumption (Pedersen 2000; Peattie 2010; Nair and Little 2016) along with consumers' barriers towards this type of consumption (Gleim and Lawson 2014). Not only has it been found that the relationship between environmental responsibility of individuals and environmentally friendly behaviors is positive (Kaiser and Scheuthle 2003) but also, consumers with higher environmental care have higher purchase intention (Attaran and Celik 2015).

One of the types of the aforementioned individual values that can stimulate specific behaviors is environmental concern. Research on this topic started in the 1960s and since then Dunlap and Van Liere proposed the New Ecological Paradigm scale, which by its definition of environmental concern divides it into two categories: environmental care for specific environmental issues (e.g., attitude towards the sea or air pollution) and universal view (e.g., views on ecological crisis as a whole as well as attitudes toward the relationship between humans and the environment). Customers' environmental concern determines their reaction towards information about sustainability of product, according to McDonald and others (2015). Moreover, Beibei and others (Yue et al. 2020) recently confirmed that environmental concern positively affects green consumption intention. Magnier and Schoormans (2015) in their research refer to an availability heuristic, predicting that the individuals with low environmental concern will react less often to packaging claims since they are not concerned with the issue. Finally, conscious consumers, who declare sustainability to be more important to them claim that they are more likely to accept higher prices for sustainable apparel (Vogue Polska & BCG 2021).

Due to the fact that nowadays the level of environmental awareness among consumers is rising, examining sustainability in luxury is actual and actively researched topic. Regarding

sustainable packaging features and perception, certain studies cover the literature (i.e. Magnier and Schoormans 2015; Beibei et al. 2020; Spence 2021). However, as for the usage of sustainable packaging in luxury products, the literature of the subject has prioritized aesthetics in relation to the suitability of the packaging environment (Romare 2013), has determined what features of environmentally friendly luxury packaging are expected (CITEO 2019) and pointed that excessive product packaging can contribute to a negative experience of packaging (Hammers, Herrlin and Johansson, 2020). Overall, it can be stated that the literature coverage on this specific subject is still limited and little is known how the consumer will react to a specific packaging material, which is matte material in luxury products. Therefore, it is important to investigate how consumers of luxury goods, with specific expectations of luxury packaging, will respond to this kind of material. This is a very important question regarding luxury brands which nowadays tend to adopt sustainable solutions to find out how the potential consumers will perceive them.

2.5. Matte vs glossy packaging material in luxury products

As a consequence of continuous exploration of this topic, recent findings advocate for contrary to earlier mentioned luxury consumers' preference of glossy material. Therefore, research has emerged to the opposite tendencies highlighting a negative effect of glossy packaging feature. The most recent study presented by Han and Pandelaere (2021) proved that the usage of material with a glossy finish has a negative influence on brand credibility. Specifically, they found that glossy packaging may be perceived by customers as an attempt to force their attention. Although research on the subject is limited, Chen (2018) points out that this trend is also observed for other products perceived as premium, for which the consumer expects a feeling of good quality, such as mobile phones investigated in the study. Regarding premium food products, matte packaging is linked to higher quality (Marckhgott

and Kamleitner 2019) and perceived as more natural (Spence 2021), hence more environmentally friendly. Spence (2021) also points out that glossy inside of the packaging may raise customer concerns about the product's sustainability.

As referred earlier, in order to categorize the packaging as ecological, the consumer visually processes different packaging features, including material. In the study, I posit that the perception of packaging material will also be affected by the environmental concern. More specifically, for people with higher environmental concern, the perception of matte packaging will positively affect the perception of packaging's sustainability, which will raise the purchase intention and willingness to pay for the product (H2). I also predict that for people with low environmental concern the effect will be the opposite (H1). In other words, I suggest that environmental concern of an individual can explain the influence of packaging material on consumers' purchase intention and willingness to pay of the luxury product.

3. Hypotheses

More formally, I define the hypotheses as follows:

H1: *For consumers with low environmental concern, matte (vs. glossy) packaging will lead to lower the purchase intention and willingness to pay for the luxury product.*

H2: *For consumers with high environmental concern, matte (vs. glossy) packaging will lead to higher purchase intention and willingness to pay for the luxury product.*

The conceptual framework below presents an overview of the hypotheses as well as their relationships:

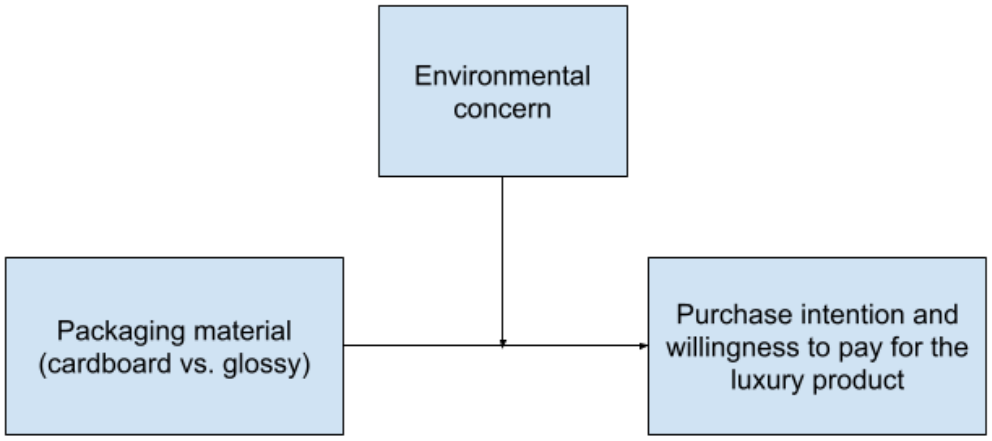

Figure 1: Visual representation of hypotheses and relationship between variables.

4. Study

4.1. Methodology

Sample. The method of selecting the research sample was the snowball sampling (Jabłońska and Sobieraj 2013). The sample consisted of 167 participants who filled an online survey for the purpose of this study. From 167 responses, the majority of participants is Polish, who accounted for 52% of respondents (see appendix 1.1.). More women (74%) than men (26%) participated in the study (appendix 1.2.). Most participants were from the youngest age group, respectively 67% of the sample (appendix 1.3.). Additionally, majority (55%) of cases are students, and 27% are employed (see appendix 1.4.).

Study design and procedure. This research employed a single factor two (matte material or glossy material) between-subjects design. Respondents were allocated to one of two conditions randomly (matte box or glossy box). The questionnaire was available in two language versions (English and Polish) and was divided in two parts (appendix 2). Firstly, after responding to question about gender, a photo of swimsuit (for females) or swimming shorts (for males) was displayed (see appendices 2.3.1. and 2.3.2.). The initial question was applied to create branching and display female swimming suits to female participants and male swimming shorts to male participants. For this study, a swimsuit was chosen as a product packed in a box, because this product is mentioned as a premium designer trend and many premium brands have entered on the market with this product in the recent years (Gaykamangu 2018). In the scenario, all participants were asked to imagine that they were about to buy a swimsuit or swim shorts in one of the local premium brands called *Swimo*. During the virtual visit in the boutique, the participants were asked to rate the presented box.

Packaging material. Subsequently, photo of box with certain kind of material finishes was displayed (see appendices 2.4.1. and 2.4.2. for a picture of the two boxes). Following past research (Magnier & Schoormans, 2015; Meert et al. 2013), participants were presented with a task to evaluate the box presented on the picture. The assignment of the evaluated box (matte vs. glossy) was randomized. Both presented boxes were of the same colour and size, and the material they were made of was manipulated - matte or glossy. Participants answered questions regarding the dependent variables which will described in the detail below, as well as responding the questions checking the packaging material manipulation.

Manipulation check. In order to test whether participants perceived the matte box as more sustainable and environmentally friendly than the glossy box, the following statements were presented to the participants: *To what extend do you agree with the description below (1) sustainable, (2) environmentally friendly* (scale: 1 is "Strongly disagree" to 7 "Strongly agree").

Purchase intention. Subsequently, the research measured consumers' purchase intention using scale proposed by Dodds, Monroe, and Grewal (1991), purchase intention was measured. Participants needed to rate on a Likert scale (ranging from strongly disagree (1) to strongly agree (7)) the following three statements: "I would consider buying swimsuit in this package", "The likelihood of purchasing swimsuit in this package is very high", and "I would purchase swimsuit in this package".

Willingness to pay. Then, participants were asked to assess how much they would be willing to pay for the swimsuit packed in the displayed box. The participants were about to choose a price between 0 and 200 euros to represent their willingness to pay. The price of 200 euros

was used as an endpoint, because the average price of the presented products was 100 euros, and the possible higher willingness to pay was also to be measured for the visible boxes.

Environmental concern. The participants' environmental concern was assessed with a scale developed by Kilbourne & Pickett (2008). This scale is divided into six aspects and consists of 6 items. It is included as follows: (1) I am very concerned about the environment; (2) humans are severely abusing the environment; (3) I would be willing to reduce my consumption to help protect the environment; (4) major political change is necessary to protect the natural environment; (5) major social changes are necessary to protect the natural environment (6) anti-pollution laws should be enforced more strongly. The measurement of the questionnaire items in this study used a 7-point Likert scale.

Control variables. At the end of survey, respondents were asked to answer a few additional questions related to *luxury preference*, *frequency of purchasing luxury products* and *demographics*. The questions adapted in the *luxury preference* section were originally asked in the study of Jirawattananukool and Tovikkai (2010). The questions were: (1) Are you a luxury preference person, (2) How many times do you purchase luxury fashion product in average?, (3) Do you intend to buy luxury fashion products within the next year period? Furthermore, demographics questions (appendix 2.8.) were included: *nationality*, *occupation* and *age* as they might impact the dependent variables.

4.2. Results and analyses

Preparation of data. As a data analysis program, SPSS was used. Forty-one cases with incomplete data, or those in which there was no consent to the participation, were deleted and excluded from the analysis. *Matte box vs. Glossy box* were dummy coded (Glossy = 1, Matte

= 2). Subsequently, an outlier analysis was performed (see appendix 3). Outliers have been found for the variables *willingness to pay* and *environmental concern* items. However, the outliers found for these variables were not removed since these cases did not cause any assumptions to be violated for the further study. Items, which were negatively worded compared to the rest of the scale, were recoded (Pallant 2011). Before proceeding with the main analysis, in order to verify the scales' internal consistency, reliability analysis was performed (see appendix 4). For this, Cronbach's model was used, which measures the average inter-item correlation. For all of the cases Cronbach α equal to 0.70, meaning that reliability was sufficient.

Manipulation check. Participants of the matte box group perceived the box as more sustainable and environmentally friendly compared to those in the glossy box group (sustainability: $M_{Matte} = 4.51$ vs. $M_{Glossy} = 3.62$, $t = 3.57$, $p < .001$; environmentally friendly: $M_{Matte} = 4.21$ vs. M_{Glossy} 2.86, $t = 4.82$, $p<0.001$). Thus, providing evidence that the manipulation was effective (see appendix 5).

Moderation analysis. In order to examine the moderating role of *environmental concern* for the relationship between *packaging material* and *purchase intention* and *willingness to pay for the luxury product*, the Hayes' Macro Process, Model 1 (Hayes 2017) was used. The assumed level of significance was $\alpha = 0.05$.

Environmental concern as a moderator of the relationship between packaging material (glossy vs. matte) and purchase intention. In the first model, I conducted a moderation analysis with *packaging material* (glossy vs. matte) as the independent variable, *environmental concern* as the moderator, and the *purchase intention* as the dependent variable. The overall model was statistically significant ($F(3, 159) = 7.878$, $p < 0.001$, $R^2 =$

0.13), and the interaction effect of packaging material and environmental concern was significant but small ($F(1, 159) = 5.5179$, $p = 0.02$, $\Delta R^2 = 0.03$) (see appendix 6.1.). The analysis of the results showed an insignificant main effect for packaging material ($B = -6.22$; $SE = 3.93$; $p = 0.116$; 95% CI [-13.98; 1.54]) and an insignificant main effect for environmental concern ($B = -0.27$; $SE = 0.17$; $p = 0.098$; 95% CI [-0.63; 0.05]). The interaction effect for the discussed model turned out to be statistically significant ($B = 0.26$; $SE = 0.11$; $p = 0.020$; 95% CI [0.04; 0.48]) (see appendix 6.1.).

This detailed analysis of simple effects for interactions showed significant effects for the average level of environmental concern ($B = 3.34$; $SE = 0.78$; $p < 0.001$; 95% CI [1.81; 4.87]) as well as for high levels of environmental concern ($B = 4.63$; $SE = 1.07$; $p < 0.001$; 95% CI [2.53; 6.74]). For both levels (average and high environmental concern), purchase intention was higher for matte packaging than for glossy packaging. At a low level of environmental concern, this effect was statistically insignificant ($B = 1.02$; $SE = 1.08$; $p = 0.348$; 95% CI [-1.12; 3.15]), which means that purchase intention for packaging glossy and matte was similar at this level. These effects have been illustrated in graph below.

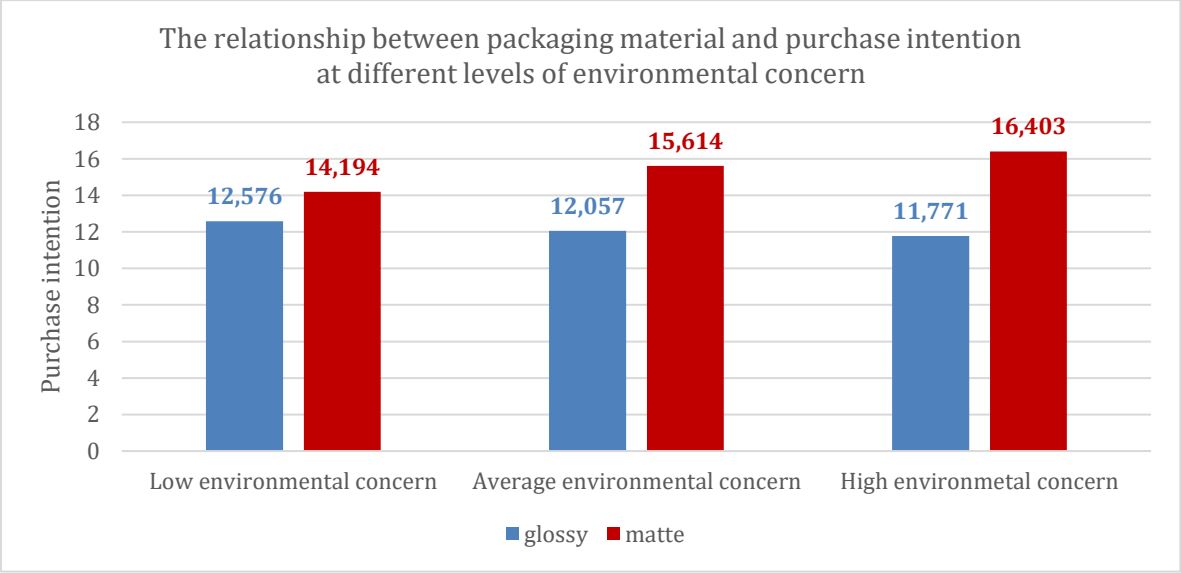

Figure 2. *Graph illustrating the moderating role of environmental concern for the relationship between packaging material (glossy vs. matte) and purchase intention.*

Environmental concern as a moderator of the relationship between packaging material (glossy vs. matte) and willingness to pay for the luxury product. Second analysed model considered a moderation analysis with *packaging material* (glossy vs. matte) as the independent variable, *environmental concern* as the moderator, and the *willingness to pay* as the dependent variable. Although the overall model was statistically significant ($F(3, 159) = 4.6$, $p = 0.041$, $R^2 = 0.079$), the interactive effect turned out to be statistically insignificant ($F(1, 159) = 1.04$, $p = 0.3091$), which means that environmental concern was not a significant moderator of the relationship between packaging material and willingness to pay for the luxury product. The analysis of the results showed an insignificant main effect for packaging material ($B = -14.78$; $SE = 38.14$; $p = 0.699$; 95% *CI* [-90.10; 60.54]) and an insignificant main effect for environmental concern ($B = -0.87$; $SE = 1.67$; $p = 0.605$; 95% *CI* [-4.17; 2.44]). The interaction effect for the discussed model turned out to be statistically insignificant ($B = 1.09$; $SE = 1.08$; $p = 0.309$; 95% *CI* [-1.02; 3.20]), which means that environmental concern was not a significant moderator of the relationship between packaging material and willingness to pay for the luxury product. The relationship between packaging material and willingness to pay as well as between environmental concern and willingness to pay also turned out to be insignificant.

4.3. Additional analyses

Moderation analysis. To examine the moderating role of *environmental concern* for the relationship between *packaging material* and *purchase intention* and *willingness to pay for the luxury product* and to measure the influence of different variables on this model, the Hayes' Macro Process, Model 1 (Hayes 2017) was used. The assumed level of significance was $\alpha = 0.05$.

Environmental concern as a moderator of the relationship between packaging material (glossy vs. matte) and purchase intention. In the first model, I conducted a moderation analysis with packaging material (glossy vs. matte) as the independent variable, environmental concern as the moderator, and the purchase intention as the dependent variable. I also used gender (female or male), age, luxury preference, frequency of purchasing luxury products and occupation (student or trainee vs employed or self-employed) as covariates. The overall model was statistically significant ($F(8, 150) = 6.832$, $p < 0.001$, $R^2 = 0.28$), and the interaction effect of packaging material and environmental concern was significant but small ($F(1, 150) = 4.265$, $p = 0.041$, $\Delta R^2 = 0.02$) (see appendix 7.1.). The analysis of the results showed an insignificant main effect for packaging material (B = -4.41; SE = 3.71; p = 0.236; 95% CI [-11.74; 2.92]) and an insignificant main effect for environmental concern (B = -0.27; SE = 0.17; p = 0.103; 95% CI [-0.6; 0.06]). The interaction effect for the discussed model turned out to be statistically significant (B = 0.22; SE = 0.10; p = 0.041; 95% CI [0.01; 0.42]) (see appendix 7.1.). Effects have been illustrated in figure 3 below. Detailed analysis also shown significant conditional effects of the focal predictor (environmental concern – moderator) for the middle value (B = 3.56, SE = 0.76, $p < 0.001$, 95% CI [2.06; 5.05]) and for the high value (B = 4.63, SE = 1.04, $p < 0.001$, 95% CI [2.58; 6.68]), but not for the low value (B = 1.62, SE = 1.02, p = 0.115, 95% CI [−0.40; 3.64]). However, analysed sample lacked in subjects with low environmental concern (the lowest possible score was 6, while the lowest value of the sample was 28), which may explain this result.

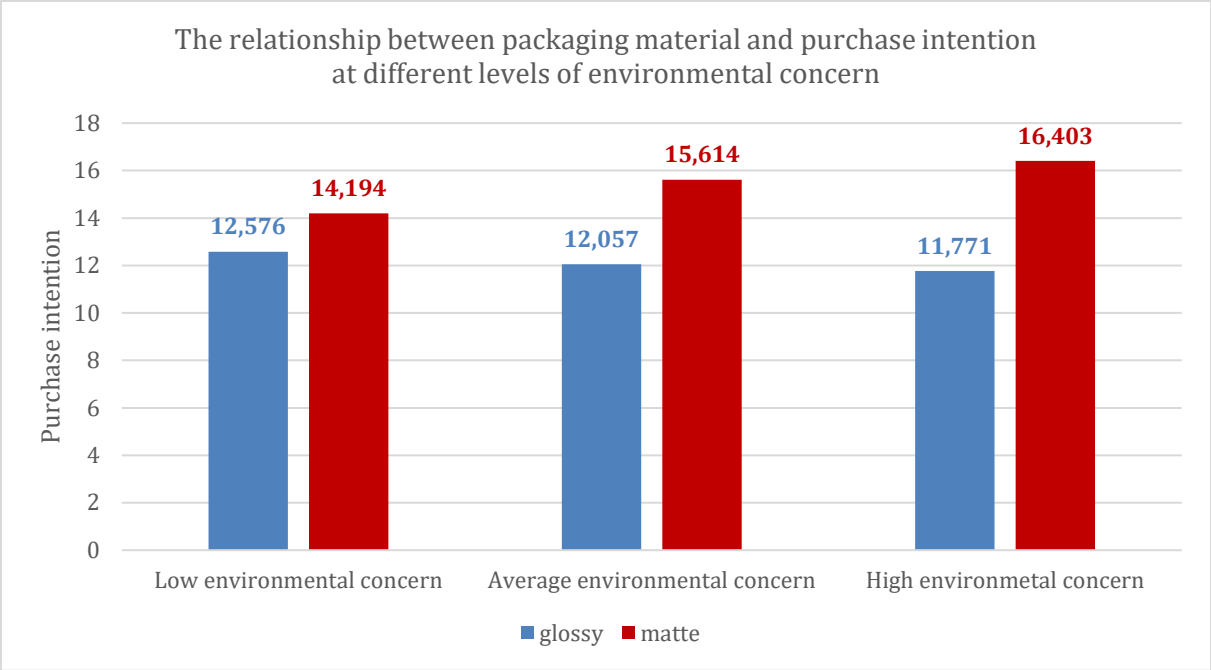

Figure 3. *Graph illustrating the moderating role of environmental concern for the relationship between packaging material (glossy vs. matte) and purchase intention.*

The analysis of covariates showed that gender (*B* = -2.53, *SE* = 0.91, *p*=0.006, 95% *CI* [-4.33; -0.72]) and luxury preference (*B* = 2.24, *SE* = 0.66, *p*=0.001, 95% *CI* [0.93; 3.54]) are significant in the analysed model. More specifically, for higher luxury preference, the higher the purchase intention. For gender, the purchase intention was significantly lower for men.

Environmental concern as a moderator of the relationship between packaging material (glossy vs. matte) and willingness to pay for the luxury product. In second analysed model, I conducted a moderation analysis with packaging material (glossy vs. matte) as the independent variable, environmental concern as the moderator, and the willingness to pay as the dependent variable. The second analysed model for the additional analyses considered environmental concern as a moderator of the relationship between packaging material (glossy vs. matte) and willingness to pay. Gender (female or male), age, luxury preference, frequency of purchasing luxury products and occupation (student or trainee vs employed or self-employed) were used as covariates. Although the overall model was statistically significant

($F(8, 150) = 3.71$, $p = 0.001$, $R^2 = 0.17$), the interactive effect turned out to be statistically insignificant ($F(1, 150) = 0.732$, $p = 0.393$), which means that environmental concern was not a significant moderator of the relationship between packaging material and willingness to pay for the luxury product. The relationship between packaging material and willingness to pay and between environmental concern and willingness to pay also turned out to be insignificant (see appendix 7.2.).

5. Discussion

5.1. Summary of findings

Although packaging material did not have impact on the willingness to pay for the product with environmental concern as a moderator, the interactive effect for the first model turned out to be statistically significant. This result might be confirmation that the relationship between packaging material (matte vs glossy) and purchase intention may be moderated by environmental concern. More precisely, participants with higher and moderate environmental concern, from the matte packaging group, showed significantly higher purchase intention than the ones in the glossy packaging group, which supported the hypothesis. As for the low levels of environmental concern (at level 28 in the sample), no significant differences were found. However, in the analysed sample it is hard to draw the conclusion that a specific material is preferred for the low levels of environmental concern (limitations further explained in the next section). At the lower levels of environmental concern, which there are very few in the sample (environmental concern scored high in general – sample consisted of many responses with the maximum number of points) this might follow the tendency presented in Figure 3, i.e. shiny will prevail over matte (see Figure 3 – as environmental concern is declining, purchase intention for matte packaging has decreasing tendency, while glossy has slightly growing tendency at these levels of environmental concern – glossy might go over matte at

the lowest values, which there is not much in the sample). With that being said, the hypothesis that for consumers with low environmental concern, cardboard packaging will lead to lower the purchase intention and willingness to pay for the luxury product was not supported by the statistical results. The result might suggest a slightly different conclusion - in the case of respondents with low environmental concern, it can be predicted that those consumers do not care about what kind of packaging (with what kind of material) is used. This is also supported in the research of Herbes et al. (2020), where respondents insufficiently educated in the topic of ecology, were not able to recognize any features of the eco-friendly packaging.
Additionally to the findings, participants with higher luxury preference and women showed higher purchase intention for the product. However, this result may be explained by the prior studies that have already showed higher purchase intention of women for sustainable fashion products in general (Tey, Brindal and Dibba 2018; Gabriella, Wijaya and Paramita 2021). Moreover, individually perceived attractiveness of swimsuit and swim shorts presented in the photos could also influence that result.

5.2. Managerial implications

Based on these findings, the study provides certain managerial implications for managers in the luxury fashion industry. First, findings confirmed that customers' higher environmental concern is a significant effect towards purchase intention of the product in eco-friendly packaging. However, certain consumers (low number in the sample) do not have high environmental concern - for this group the packaging material that is used might not be particularly important. Also, it can be a green light for international and local brands to move towards sustainability, as the youngest age group cares about the environment. With this being stated, when it comes to a specific aspect of eco-friendly packaging, which is a recyclable material with matte finish, it should encourage managers in the future to introduce

recyclable version of packaging, as a matte finish will not discourage the consumers' purchase intention for the luxury product. In addition, companies using a glossy packaging material should consider whether the packaging material has a negative effect. Maybe it would be beneficial for them to change the used material of the packaging. A good example of this inference is Gucci, who redesigned the packaging material from glossy to matte and thus, more environmentally friendly. Perhaps this change regarding the packaging material will also encourage further investigation of how other packaging features - for example colour (such as green in the case of Gucci), will affect consumers' perception of product.

6. Limitations and future research

Certain limitations were noted in the study. However, they offer opportunities for future research. First, the sample mostly consisted of the youngest age group of participants. I also identify that the survey was based on a quota sample, with a slight bias towards certain countries (majority of participants were Polish) and the predominance of the number of women in the research. A larger quantitative probability sample could further extend the presented findings in terms of nationality and gender influence. Moreover, the study was an online survey, which to some extent may have limited the perceptive abilities of the respondents, such as packaging material. In the current COVID pandemic, another form of study at that time has not been possible. However, carrying out this study not in the form of an Internet survey, in order to obtain even more realistic results could be even more interesting and successful in terms of testing hypotheses. This perceptual cue of the consumers is especially evidenced by the fact mentioned in the Herbes et al. (2020) study, where for certain consumers recognized the eco-friendliness of the product mostly by its look and touching it. It should also be mentioned that the study targets the sustainability aspect of the packaging while, in reality, purchasing decision is more complex and is the resultant of

many factors. The sustainability of the concrete purchased product itself as well as other criteria (price, design) are also of big importance. Undoubtedly, another limitation of the study was the fact that the sample consisted of participants with higher levels of environmental concern mostly. If the sample had a floor value (e.g. 0 points in the environmental concern test), it would be possible to confirm or reject the H1.

As a final point, in the context of interesting research for the future, I think it is worth to further investigate how other aspects of eco-friendly packaging, such as colour, verbal claims, would influence the purchase intention and willingness to pay of consumers on the fashion luxury market. Moreover, having a sample with a greater variety of nationalities and ages might give additional country and age-specific managerial implications. What is more, since the sample might have consisted of a sample of younger people, who in general have higher environmental concern than the other age groups (Blachnicka-Ciacek 2020). In the future, it would be valuable to find a sample of people who have low environmental concern (lower than in the sample) and see if, according to the model, they prefer glossy over matte. In the sample, there were few of them, although these few people follow the trend - they do not interfere the moderation.

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8. Appendices

Appendix 1: Sample

Appendix 1.1.: Distribution of nationality

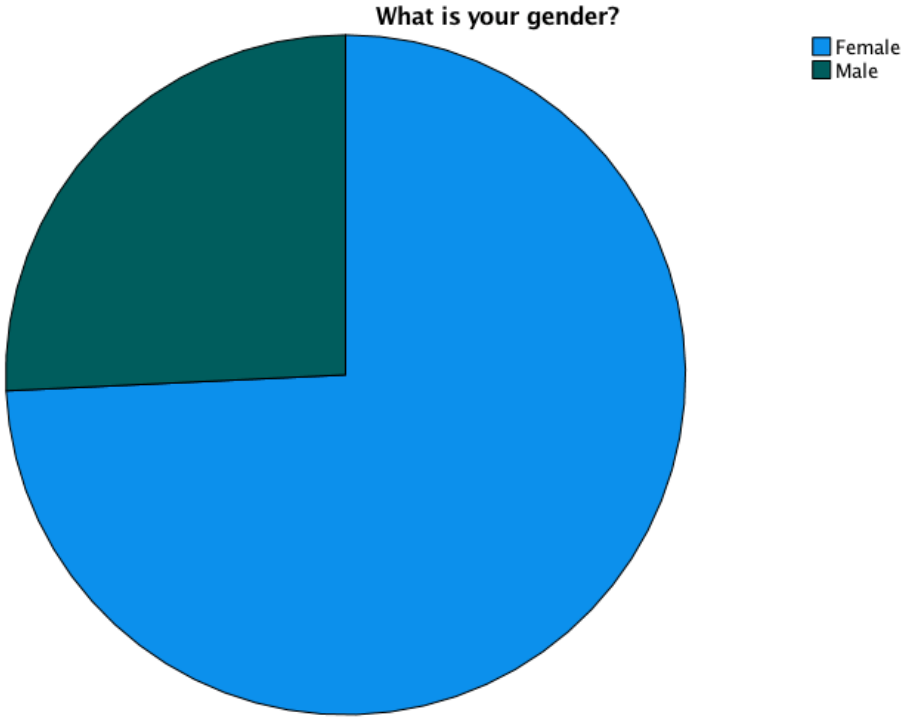
Which country are you from?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Belgium	2	1,2	1,2	1,2
	Cyprus	1	,6	,6	1,8
	Denmark	1	,6	,6	2,4
	France	1	,6	,6	3,0
	Germany	11	6,6	6,6	9,6
	Greece	1	,6	,6	10,2
	Ireland	1	,6	,6	10,8
	Italy	5	3,0	3,0	13,8
	Netherlands	2	1,2	1,2	15,0
	Poland	92	55,1	55,1	70,1
	Portugal	9	5,4	5,4	75,4
	Romania	2	1,2	1,2	76,6
	Spain	1	,6	,6	77,2
	United Kingdom	20	12,0	12,0	89,2
	United States of America	6	3,6	3,6	92,8
	Other	12	7,2	7,2	100,0
	Total	167	100,0	100,0	

Appendix 1.2.: Distribution of gender

What is your gender?

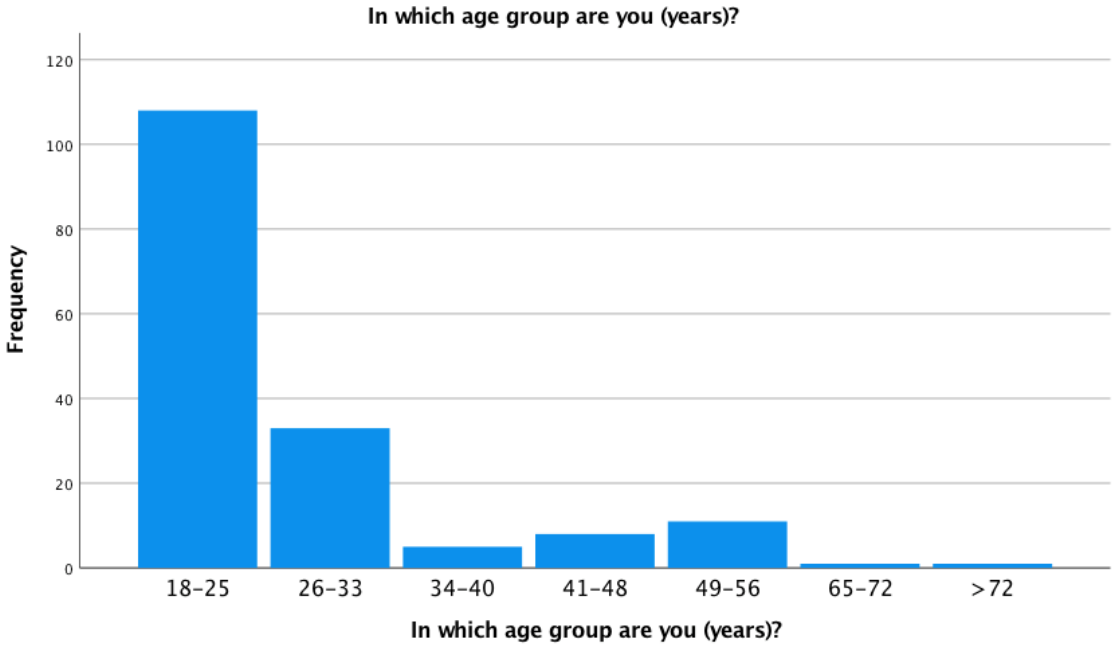
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	124	74,3	74,3	74,3
	Male	43	25,7	25,7	100,0
	Total	167	100,0	100,0	



Appendix 1.3.: Distribution of age

In which age group are you (years)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	108	64,7	64,7	64,7
	26-33	33	19,8	19,8	84,4
	34-40	5	3,0	3,0	87,4
	41-48	8	4,8	4,8	92,2
	49-56	11	6,6	6,6	98,8
	65-72	1	,6	,6	99,4
	>72	1	,6	,6	100,0
	Total	167	100,0	100,0	



Appendix 1.4.: Distribution of occupation

What's your current occupation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	91	54,5	54,5	54,5
	Trainee	9	5,4	5,4	59,9
	Employed	44	26,3	26,3	86,2
	Self-employed	20	12,0	12,0	98,2
	Unemployed	1	,6	,6	98,8
	Retired	2	1,2	1,2	100,0
	Total	167	100,0	100,0	

Appendix 2.: Survey

Apendix 2.1.: Introduction

DISCLAIMER

This is a research project being conducted as a part of the master thesis of Małgorzata Ciunel from Nova SBE. The purpose of this project is to examine consumer behavior and choice.

Your participation in this research study is voluntary. You may choose not to participate. However, if you decide to participate in this research survey, remember that you may withdraw at any time.

The procedure involves filling an online survey that will take approximately 5 minutes. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address.

The survey questions will be split into two separate, unrelated parts: in the **first part** you will follow a short shopping scenario and in the **second part** you will answer few multiple choice questions.

The results of this study will be used for scholarly purposes only and may be shared with Nova SBE representatives.

If you have any questions about the research study, please contact 45203@novasbe.pt

Clicking on the „**agree**" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish to participate in the research study, please decline participation by clicking on the „**disagree**" button

P.S.: This survey contains a completion code for SurveySwap.io

- ○ Agree
- ○ Disagree

Appendix 2.2.: Gender question

What is your gender?

Female

Male

Appendix 2.3.1.: First part - female group

Part 1 - shopping

Your scenario:

Please imagine that you need to buy a swimsuit. You enter a local **premium** brand called *Swimo*. In the boutique, this swimsuit catches your attention:

You decide to buy it and you go to the cash register.

Now please imagine that a store employee packs your purchase into the box displayed in the next page. We would like to know what you think about it.

Appendix 2.3.2.: First part – male group

Part 1 - shopping

Your scenario:

Please imagine that you need to buy a swimsuit. You enter a local **premium** brand called *Swimo*. In the boutique, this swimsuit catches your attention:

You decide to buy it and you go to the cash register.

Now please imagine that a store employee packs your purchase into the box displayed in the next page. We would like to know what you think about it.

Appendix 2.4.1.: Independent variables (matte box group)

You see that the **box** is made of cardboard and looks **matte**.

Please indicate to which extend you agree or disagree with the statements.

	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
The likelihood of purchasing swimsuit in this package is very high	○	○	○	○	○	○	○
I would purchase swimsuit in this package	○	○	○	○	○	○	○
I would consider buying swimsuit in this package	○	○	○	○	○	○	○

How much would you be willing to pay for a swimsuit packed in this box?

0 25 50 75 100 125 150 175 200

Price (€)

Appendix 2.4.2.: Independent variables (glossy box group)

You see that the **box** is made of cardboard with foil lamination and looks **glossy**.

Please indicate to which extend you agree or disagree with the statements.

	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
The likelihood of purchasing swimsuit in this package is very high	○	○	○	○	○	○	○
I would purchase swimsuit in this package	○	○	○	○	○	○	○
I would consider buying swimsuit in this package	○	○	○	○	○	○	○

How much would you be willing to pay for a swimsuit packed in this box?

0 25 50 75 100 125 150 175 200

Price (€)

Appendix 2.5.: Manipulation check

Recall the **box** you saw earlier.

To what extend do you agree with the description below?

	1 - strongly disagree	2	3	4	5	6	7 - strongly agree
Sustainable	○	○	○	○	○	○	○
Enviromentally friendly	○	○	○	○	○	○	○
Cheap	○	○	○	○	○	○	○
Good quality	○	○	○	○	○	○	○
Good looking	○	○	○	○	○	○	○

Appendix 2.6.: Luxury consumer questions

Part 2

For this part, we want to get to know you and your view on the world a bit better.

Are you a luxury preference person?

- No
- Not sure
- Yes

How many times do you purchase luxury fashion product in average?

- Every month
- Every three months
- Every six months
- Every year
- Never

Do you intend to buy luxury fashion products within the next year period?

- No
- Might or might not
- Yes

Appendix 2.7.: Environmental concern (both groups)

Now, please think about the world as it is today and please indicate to which extend you agree or disagree with the statements.

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

Appendix 2.8.: Demographics

Which country are you from?

In which age group are you (years)?

- 18-25
- 26-33
- 34-40
- 41-48
- 49-56
- 65-72
- >72

What's your current occupation?

- Student
- Trainee
- Employed
- Self-employed
- Unemployed
- Retired

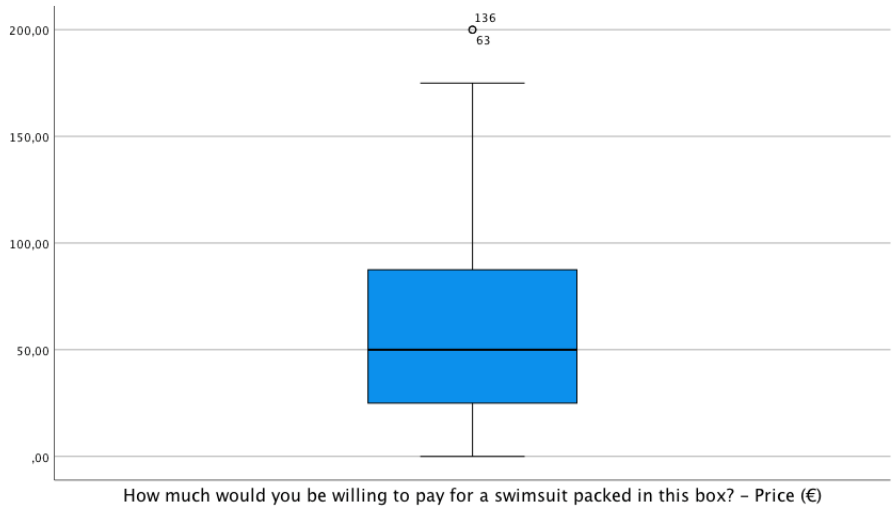
Appendix 2.9.: Survey finish

We thank you for your time spent taking this survey.

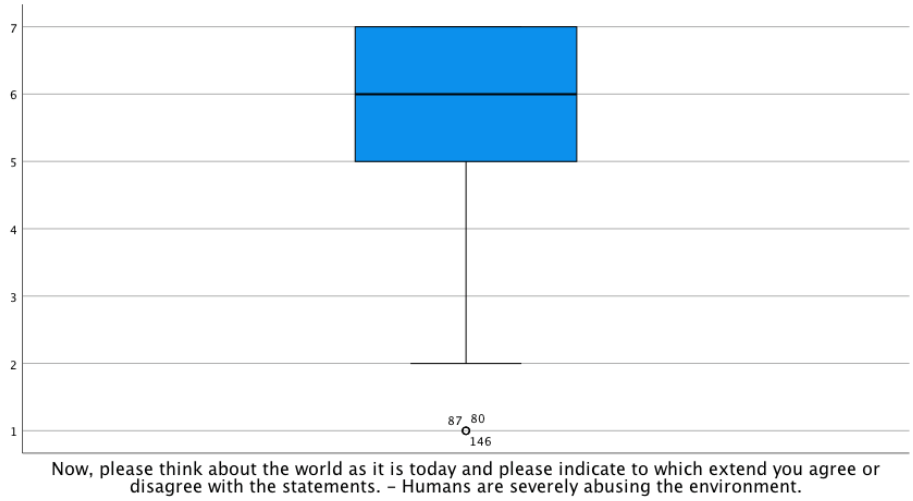
Your response has been recorded.

Appendix 3.: Outliers

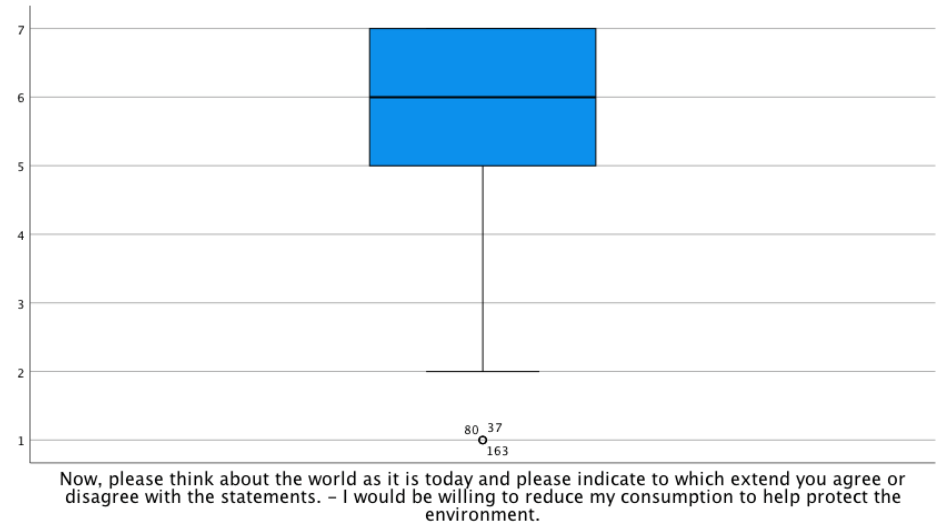
Appendix 3.1.: Willingness to pay (matte box)



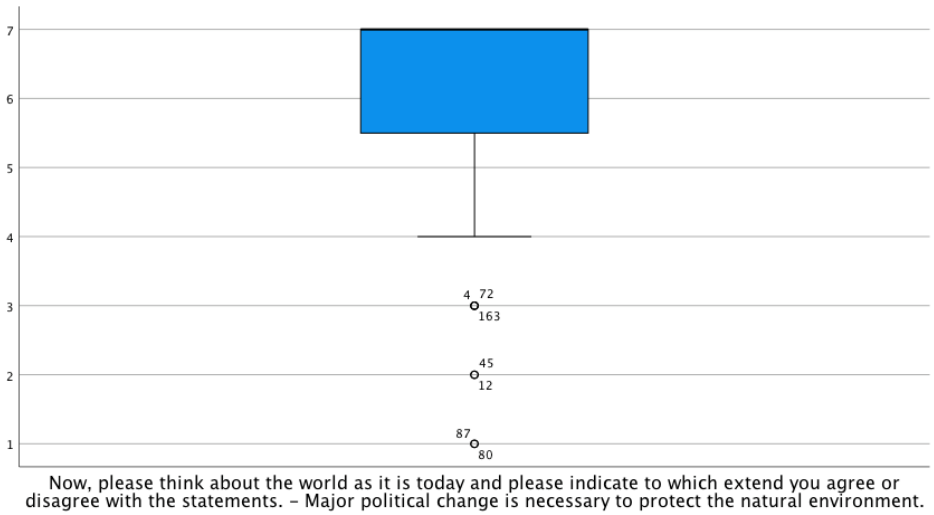
Appendix 3.3.: Environmental abuse



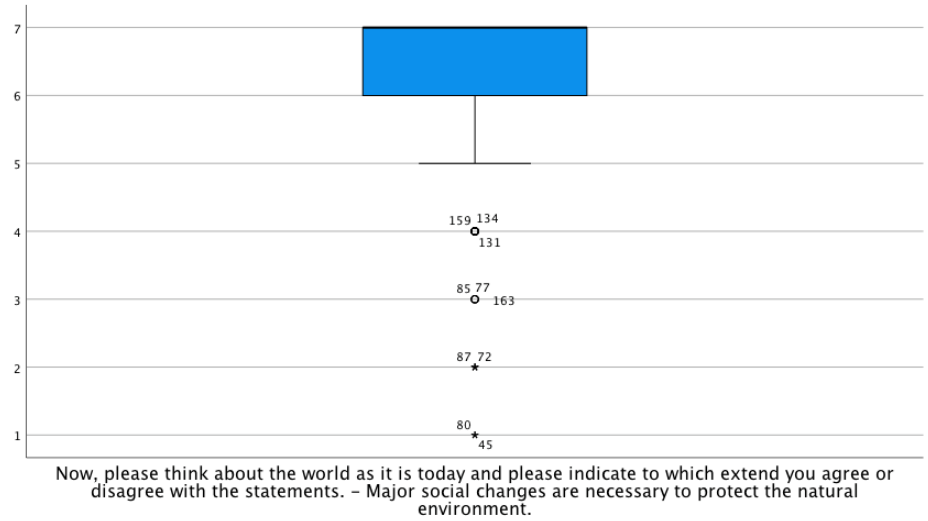
Appendix 3.4.: Consumption reduce



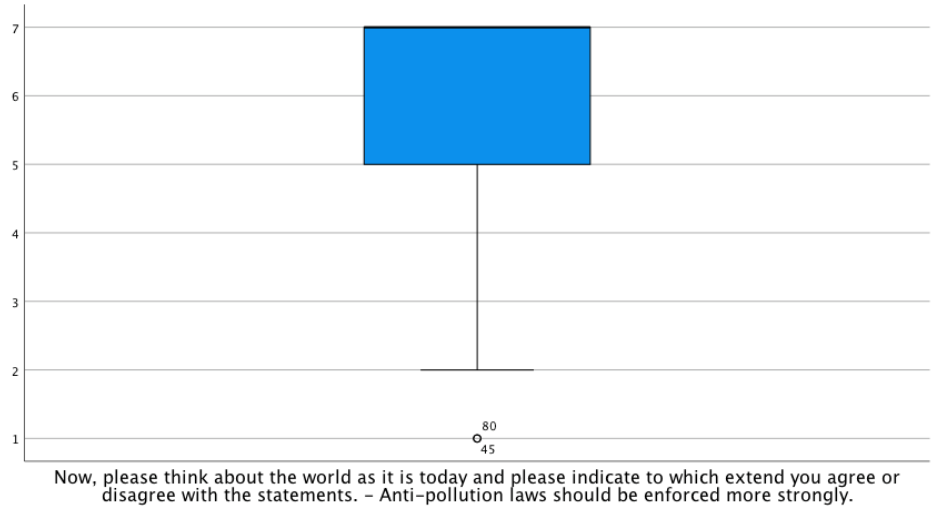
Appendix 3.5.: Political change



Appendix 3.6.: Social changes



Appendix 3.7.: Anti-pollution laws



Appendix 4: Reliability Analysis

Environmental concern

Reliability Statistics

Cronbach's Alpha	N of Items
,904	6

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,619	,399	,872	,473	2,186	,018	6

Luxury preference

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,740	,764	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,519	,469	,600	,131	1,279	,004	3

Sustainable look

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,857	,858	2

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,751	,751	,751	,000	1,000	,000	2

Willingness to choose

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,896	,896	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,742	,680	,820	,140	1,206	,004	3

Appendix 5: Manipulation check

Group Statistics

	mattevsglossy	N	Mean	Std. Deviation	Std. Error Mean
Recall the box you saw earlier. To what extend do you agree with the description below? - Sustainable	matte	82	4,6098	1,91005	,21093
	glossy	84	3,5238	2,00287	,21853
Recall the box you saw earlier. To what extend do you agree with the description below? - Enviromentally friendly	matte	82	4,2073	1,88390	,20804
	glossy	83	2,8554	1,71885	,18867

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Significance			95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Recall the box you saw earlier. To what extend do you agree with the description below? - Sustainable	Equal variances assumed	,417	,519	3,573	164	<,001	<,001	1,08595	,30390	,48589	1,68600
	Equal variances not assumed			3,575	163,912	<,001	<,001	1,08595	,30372	,48623	1,68566
Recall the box you saw earlier. To what extend do you agree with the description below? - Enviromentally friendly	Equal variances assumed	,227	,635	4,816	163	<,001	<,001	1,35190	,28069	,79763	1,90616
	Equal variances not assumed			4,814	161,270	<,001	<,001	1,35190	,28085	,79728	1,90652

Appendix 6.: Moderation analysis

Appendix 6.1.: *The coefficients of the regression model for the moderating role of environmental concern for the relationship between packaging material (glossy vs. matte) and purchase intention*

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**************************************************************************
OUTCOME VARIABLE:
 Pruchase

Model Summary
          R       R-sq        MSE          F        df1        df2
 p
      ,3597      ,1294    22,7441     7,8782     3,0000   159,0000      ,00
01

Model
             coeff         se          t          p       LLCI       ULCI
constant    19,6143     6,1378     3,1957      ,0017     7,4922    31,7364
conditio    -6,2185     3,9307    -1,5820      ,1156   -13,9815     1,5446
Environm     -,2869      ,1724    -1,6639      ,0981     -,6275      ,0536
Int_1         ,2584      ,1100     2,3490      ,0201      ,0411      ,4756

Product terms key:
 Int_1    :        conditio x        Environm

Covariance matrix of regression parameter estimates:
           constant   conditio   Environm      Int_1
constant    37,6722   -22,8575    -1,0386      ,6292
conditio   -22,8575    15,4501      ,6292     -,4245
Environm    -1,0386      ,6292      ,0297     -,0180
Int_1         ,6292     -,4245     -,0180      ,0121

Test(s) of highest order unconditional interaction(s):
       R2-chng           F        df1        df2          p
X*W      ,0302     5,5179     1,0000   159,0000      ,0201
----------
    Focal predict: conditio (X)
          Mod var: Environm (W)

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



   Environm     Effect         se          t          p       LLCI       UL
CI
    28,0000     1,0163     1,0797      ,9412      ,3480    -1,1161     3,14
87
    37,0000     3,3417      ,7768     4,3020      ,0000     1,8076     4,87
59
    42,0000     4,6336     1,0667     4,3437      ,0000     2,5268     6,74
04
```

Appendix 6.2.: ***The coefficients of the regression model for the moderating role of environmental concern for the relationship between packaging material (glossy vs. matte) and willingness to pay for the luxury product.***

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.5 *****************

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

**************************************************************************
Model  : 1
    Y  : Q4_1
    X  : conditio
    W  : Environm

Sample
Size:  163

**************************************************************************
OUTCOME VARIABLE:
 Q4_1

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      ,2826      ,0799  2140,9689     4,6003     3,0000   159,0000
,0041

Model
              coeff         se          t          p       LLCI       ULCI
constant    59,4867    59,5500      ,9989      ,3193   -58,1243   177,0977
conditio   -14,7806    38,1361     -,3876      ,6988   -90,0993    60,5381
Environm    -,8670     1,6730     -,5183      ,6050    -4,1711     2,4370
Int_1       1,0891     1,0672     1,0205      ,3091    -1,0187     3,1968

Product terms key:
 Int_1    :        conditio x        Environm

Covariance matrix of regression parameter estimates:
           constant   conditio   Environm      Int_1
constant  3546,1977 -2151,6410   -97,7671    59,2266
conditio -2151,6410  1454,3626    59,2266   -39,9563
Environm   -97,7671    59,2266     2,7988    -1,6922
Int_1       59,2266   -39,9563    -1,6922     1,1389

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0060     1,0414     1,0000   159,0000      ,3091
----------
    Focal predict: conditio (X)
          Mod var: Environm (W)
```

Appendix 7.: Additional analyses

Appendix 7.1.: Purchase intention

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.5.3 *****************

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

**************************************************************************
Model  : 1
    Y  : purch
    X  : cond
    W  : env

Covariates:
 htlux    lux      ocu2     age      gend

Sample
Size:  159

**************************************************************************
OUTCOME VARIABLE:
 purch

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5168      .2670    19.6866     6.8315     8.0000   150.0000      .0000
Model
             coeff         se          t          p       LLCI       ULCI
constant   17.4474     6.3875     2.7315      .0071     4.8264    30.0685
cond       -4.4091     3.7083    -1.1890      .2363   -11.7363     2.9181
env         -.2728      .1663    -1.6401      .1031     -.6014      .0558
Int_1        .2153      .1042     2.0651      .0406      .0093      .4212
htlux        .0434      .3770      .1150      .9086     -.7016      .7883
lux         2.2358      .6623     3.3757      .0009      .9271     3.5444
ocu2        -.2197      .8555     -.2568      .7977    -1.9101     1.4707
age         -.0505      .3588     -.1409      .8882     -.7594      .6583
gend       -2.5254      .9134    -2.7647      .0064    -4.3303     -.7205

Product terms key:
 Int_1    :        cond     x        env

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0208     4.2647     1.0000   150.0000      .0406
----------
    Focal predict: cond     (X)
          Mod var: env      (W)

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

        env     Effect         se          t          p       LLCI       ULCI
    28.0000     1.6181     1.0208     1.5851      .1151     -.3990     3.6351
    37.0000     3.5554      .7583     4.6888      .0000     2.0571     5.0536
    42.0000     4.6317     1.0373     4.4650      .0000     2.5820     6.6813


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

Level of confidence for all confidence intervals in output:
  95.0000
W values in conditional tables are the 16th, 50th, and 84th percentiles.
```

7.2. Willingness to pay

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.5.3 *****************

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

**************************************************************************
Model  : 1
    Y  : will
    X  : cond
    W  : env

Covariates:
 htlux    lux      ocu2     age      gend

Sample
Size:  159

**************************************************************************
OUTCOME VARIABLE:
 will

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4065      .1652  2048.3457     3.7117     8.0000   150.0000      .0006

Model
             coeff         se          t          p       LLCI       ULCI
constant   66.5444    65.1548     1.0213      .3087   -62.1955   195.2843
cond       -4.3893    37.8258     -.1160      .9078   -79.1297    70.3510
env         -.9624     1.6964     -.5673      .5713    -4.3144     2.3895
Int_1        .9102     1.0632      .8561      .3933    -1.1906     3.0111
htlux       4.4095     3.8458     1.1466      .2534    -3.1896    12.0085
lux         8.8370     6.7557     1.3081      .1929    -4.5118    22.1857
ocu2       -8.1578     8.7263     -.9349      .3514   -25.4001     9.0845
age          .9754     3.6594      .2666      .7902    -6.2552     8.2060
gend       -23.0275     9.3175    -2.4714      .0146   -41.4381    -4.6169

Product terms key:
 Int_1    :        cond     x        env

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0041      .7329     1.0000   150.0000      .3933
----------
    Focal predict: cond     (X)
          Mod var: env      (W)


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

Level of confidence for all confidence intervals in output:
  95.0000

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