



Are commercially upcycled products favourable?

A comparative study on the role of product type on consumer behaviour moderated by the salience of product uniqueness.

Marieke Slettenhaar

S1046796

Supervisor: Dr. Monika Imschloss

2nd examiner: Dr. Herm Joosten

Master Business Administration – Marketing specialisation

Department of Management

Radboud University

Date: June 14th 2021

ABSTRACT

This study aims to provide novel insights into the influence of product type on consumer behaviour (encompassing consumer attitude and purchase intention) and to study whether the degree of salience of product uniqueness influenced this relationship. Based on a literature review, exploratory qualitative pilot study and an online experiment, this thesis applies a comparative study approach to establish consumer' behaviour regarding commercially upcycled products compared to reused - and regular products. In particular, to find out what makes commercially upcycled products favourable. The study's purpose is to answer the following research question: *'what is the difference in consumer attitude and purchase intention of commercially upcycled, reused, and regular products and do these differentiating effects increase when the salience of the product uniqueness is high (vs low)?'*. An experiment in the form of an online questionnaire was conducted amongst 152 Dutch consumers to answer this research question. The participants filled in questions concerning their consumer behaviour based on a stimulus shown as an advertisement. The same product with different descriptions was shown to the participants manipulating product type and salience of product uniqueness. Next, the data were analysed with the following tests: a two-way independent analysis of variance, Kruskal-Wallis and PROCESS model 4 (mediation) and model 7 (moderated mediation). However, no significant results were found. Therefore, no support has been found for the hypotheses in this study. The results show that product type does not influence consumer behaviour encompassing consumer attitude and purchase intention. Furthermore, there was no difference for this effect when the salience of product uniqueness was high vs low. Still, the outcomes are valuable for academics and managers, as this thesis contributes to our understanding of the consumer behaviour towards commercially upcycled and reused products.

TABLE OF CONTENTS

Abstract	
1. Introduction	1
2. Theoretical background & pilot study	4
2.1 Key concepts.....	4
2.1.1 Definition commercial upcycling.....	4
2.1.2 Definition reusing.....	5
2.2 Consumer behaviour towards commercially upcycled and reused products	5
2.2.1 Benefits related to commercially upcycled and reused products.....	5
2.2.2 Concerns related to commercially upcycled & reused products	7
2.2.3 Conclusion.....	10
2.3 Pilot study	10
2.4 Conceptual model	12
3. Methodology	16
3.1 Method.....	16
3.2 Research ethics	24
4. Results	25
4.1 Hypothesis testing.....	25
4.2 Conclusion	27
4.3 Additional analyses.....	28
5. Discussion	29
6. Conclusion.....	32
6.1 Theoretical implications	32
6.2 Managerial implications	33
6.3 Limitations and future research	33
7. References	37
8. Appendix	45
8.1 Interview guide pilot study	45
8.2 Results pilot study.....	47
8.3 Questionnaire	48
8.4 Assumptions	53
8.5 Results Kruskal-Wallis test.....	56
8.6 Results analysis of variance.....	56
8.7 Results PROCESS-analyses	57
8.8 Results of additional analyses.....	63

1. INTRODUCTION

Environmental responsibility has become a central issue for both consumers and firms in the latest decennia. Of particular concern is the amount of waste due to our unsustainable rate of consumption. Waste reduction is one of the most pressing global environmental issues as the amount of garbage threatens humanity (Chai & Chen, 2010; Lee & Yu, 2019). Since consumers are increasingly aware of this matter, there is a growing demand for sustainable products and consumption. Currently, environmentalism can be seen as a critical driver of consumer behaviour (Panizzut et al., 2021; Wilson et al., 2016). Subsequently, many companies recognise the need for sustainable offerings and ways of doing business. Waste reduction can be based on three principles: reduce, reuse, and recycle (Cooper & Gutowski, 2015; Paras & Curteza, 2018; Wilson, 2016). The sustainable product types upcycled and reused are based on these principles and gaining popularity (Hristova, 2019; Xu et al., 2015). Especially in the last decennia, the markets of commercially upcycled and reused products have proliferated and have become a worldwide phenomenon worth billions of dollars (Kamleitner et al., 2019). Commercial upcycling can be defined as a process to reuse discarded objects or materials in such a way as to create a product of higher quality or value than the original (Bridgens et al., 2018). The scope of commercially upcycled products varies broadly from, for example, refashioned clothes to remade furniture (Yu & Lee, 2019). Specific examples of commercially upcycled products are an old mosquito net transformed into a laptop sleeve or a backpack made out of a worn-out airbag. As these examples illustrate, commercial upcycling can occur in all product categories (Kamleitner et al., 2019; Yu & Lee, 2019). Since commercial upcycling is a relatively new concept, there is a lack of evidence-based research on consumer behaviour towards this product type (Sung, 2015). The lack of research on consumer behaviour regarding commercially upcycled products is surprising, given the vital role of environmentalism on consumers' purchasing behaviour today (Panizzut et al., 2021). Since little is still known about consumer behaviour regarding commercially upcycled products, several questions can be raised: do consumers perceive commercially upcycled products better than regular products? Moreover, if they do, are commercially upcycled products perceived better than other sustainable products? The current lack of knowledge of consumer behaviour towards commercially upcycled products is a risk for managers as this knowledge gap jeopardises marketing activities. To market these products, managers must understand the behaviour of consumers towards commercially upcycled products as understanding these perceptions will help businesses adapt to the changing world (Banerjee et al., 2003).

This thesis applies a comparative study approach to establish consumers' behaviour regarding commercially upcycled products compared to reused and regular products. It employs a comparative study since it can demonstrate the fundamental differences and similarities between the three product types to find out what makes commercially upcycled products favourable (Sung, 2015; Yu & Lee, 2019).

First, to determine whether sustainable products (measured as commercially upcycled and reused products) are favourable at all, this thesis examines whether consumers' behaviour towards sustainable products differs from their behaviour towards regular products. Within this thesis, consumer behaviour is measured by consumer attitude and purchase intention based on the theory of proposed action by Fishbein & Ajzen (1975). The consumer attitude encompasses the perceived benefits and concerns. The benefits and concerns should both be examined as although sustainable product types offer several benefits, consumers might also raise concerns because the products are (made) of used materials. Second, to determine whether consumers' behaviour towards commercially upcycled products differs from their behaviour towards reused products, this thesis examines whether different sustainable product types provide different consumption values even if they are both eco-friendly. The comparative study is performed with reused products as the consumer behaviour towards reused products remains relatively unstudied (Guiot & Roux, 2010). This thesis will examine the differences between the product types based on their hedonic and aesthetic benefits. These benefits are chosen as a focal point of this study since both commercially upcycled and reused products offer hedonic/aesthetic benefits because of their nostalgic appeal, differentiating them from regular products. Additionally, it is examined whether the effect of product type on consumer behaviour increases when the uniqueness of the products is made salient. To conclude, this thesis aims *to determine whether consumer attitude and purchase intentions of commercially upcycled, reused and regular products differ and whether these differentiating effects increase when the salience of the product uniqueness is high (vs low).*

Although consumer behaviour towards sustainable products has been researched extensively, consumer behaviour towards commercially upcycled and reused products has been rarely studied so far since both are in the niche market segment (Wagner & Heinzl, 2020; Williams, 2003). By focusing on commercially upcycled products, this paper extends previous research that mainly focused on upcycling as a consumer activity (Wilson, 2016) and examined the concept of upcycling, manufacturing, or design issues of commercial upcycling (Yu & Lee, 2019). The existing literature on reused products mostly paid attention to particular industries or geographic areas (Guiot & Roux, 2010). Existing academic publications on both (commercially) upcycled and reused products have not paid sufficient attention to consumer behaviour in general or other product categories than fashion & textile (Paras & Curteza, 2018; Sung, 2015; Wagner & Heinzl, 2020). This thesis contributes to the existing knowledge by examining the consumers' behaviour in general instead of focusing on one specific product category. Moreover, this thesis explores Dutch consumers' behaviour towards these sustainable products for the first time (Sung, 2015). The theoretical relevance of the study is high as this thesis is one of the first investigations on how commercially upcycled, reused, and regular products differ in terms of consumer behaviour and whether these differences hold when the uniqueness of the products is made salient.

Existing literature has exclusively focused on parts of this research. For example, Park & Lin (2018) investigated the difference between upcycled and reused products, Yu & Lee (2018) investigated the values of upcycled products and Kamleitner et al. (2019) and Keith & Silies (2015) partly examined the effect of the uniqueness of upcycled products. This thesis aims to combine these researches by answering the research question: *what are the difference in consumer attitude and purchase intention of commercially upcycled, reused and regular products, and do these differentiating effects increase when the salience of the product uniqueness is high (vs low)?* By focusing on the hedonic and aesthetic benefits of the product types, this thesis answers the call for more research to consider the role of positive emotions in sustainable consumer behaviour (White et al., 2019).

The practical relevance of this thesis is high as both upcycling and reusing are gaining in popularity (Hristova, 2019; Xu et al., 2015). Several incumbents, e.g., fashion retailers ASOS and Urban Outfitters, have been selling upcycled products as the repurposing practice allows brands to tap into new markets and generate value from what otherwise might be waste (Kamleitner et al., 2019; Yu & Lee, 2019). Besides, companies who waste less can improve profit and be expected to gain a positive corporate image as an ethical company (Wang, 2011). The outcomes of this thesis might provide recommendations for managers to increase consumer demand for these sustainable products. These insights are essential as the demand for sustainable products has increased since the start of the COVID-crisis in the spring of 2020 (Retail Detail, 2021).

The overall structure of the thesis will take the form of six chapters, including the following: introduction, theoretical background & pilot study, methodology, results, discussion and conclusion. Additionally, the thesis contains an abstract, reference list and appendix. Hypotheses are deduced from the insights of chapter 2 (theoretical background & pilot study), which are empirically tested with a quantitative experiment in the form of an online questionnaire. An experiment is suitable as a method for this thesis as it fits the comparative character of the study.

2. THEORETICAL BACKGROUND & PILOT STUDY

To get acquainted with the topic, the key concepts, commercial upcycling and reusing, are explained in [section 2.1](#). Regular products are in this thesis defined as products that are not reused or upcycled. The benefits and concerns of commercially upcycled and reused products are examined in [section 2.2](#). Next, the method and insights of the conducted qualitative exploratory pilot study are explained. With the insights from the pilot study, as given in [section 2.3](#), the results from the theoretical background are substantiated to confirm whether the participants highlight the same benefits and concerns as the literature suggests. In [section 2.4](#), a conceptual model and hypotheses are derived from the insights of this chapter.

2.1 Key concepts

2.1.1 Definition commercial upcycling

The process of upcycling has existed for thousands of years as an individual practice of converting waste or used materials into objects of higher value/quality objects (Sung, 2015). After the Industrial Revolution, upcycling became less common in developed countries as commercial upcycling arose (Szaky, 2014). In recent years, developed countries have paid more attention to upcycling from commercial perspectives. Therefore, there has been a growing number of publications on this topic since the 1990s (Sung, 2015). Even though the practice exists for a long time, the presence of the term is relatively new. The first recorded use of the term has been traced back to an interview with Reiner Pilz: "*Recycling, I call it down-cycling. They smash bricks, they smash everything. What we need is upcycling, where old products are given more value, not less.*" (Kay, 1994). Within this quote, Reiner Pilz makes a distinction between upcycling and other recycling practices. Upcycling can be distinguished from these other recycling practices as with upcycling materials are not broken down into lower-value raw materials (Wilson, 2016). Besides, when something is recycled, the material or object loses its original form, while the benefit of upcycling is that the original object can still be identified after assuming its new function (Lucirmás, 2017). Because the term upcycling is a neologism, the overall volume of literature dealing with upcycling is still low. While various definitions of this term have been suggested in the literature, researchers seem to agree that commercially upcycled products are expected to deliver more product value than other sustainable products. Upcycling is a way of giving a product a whole new life beyond simple recycling (Wei & Jung, 2017). In this thesis, the term commercial upcycling is used to refer to a commercial process to reuse discarded objects or materials in such a way as to create a product of higher quality or value than the original (Bridgens et al., 2018). For this thesis, this definition is chosen because it aligns with the original term given by Pilz but is applicable to all industries and, therefore, suitable for this thesis.

2.1.2 Definition reusing

Reusing includes informal product exchanges between acquaintances, the semiformal structure of car-boot sales and Internet exchanges such as eBay, and industrial reuse of products and components (Cooper & Gutowski, 2015). This thesis investigates informal reusing for consumers. Reused products for consumers can be divided into second-hand products, vintage products, and social recycling. Reusing can be defined as the simple reuse of the same product by a different owner (Kamleitner et al., 2019). This definition is chosen for this thesis as it offers a broad definition covering most activities defined as reuse in literature, making it applicable to all industries and thus suitable for this thesis. Reused and commercially upcycled products have in common that waste is avoided and that the life span of products is extended. Reusing differs from upcycling as the materials are not converted and used in their original state (Lucirmás, 2017). Similar to commercially upcycled products, the demand for reused products has increased in the latest decennia due to the growing consumer demand for sustainable products (Guiot & Roux, 2010; Hristova, 2019).

2.2 Consumer behaviour towards commercially upcycled and reused products

Within this thesis, consumer attitude and purchase intentions are being investigated to determine consumer behaviour. The two sustainable product types are compared with the regular product type to analyse consumer attitude in terms of benefits and concerns. This thesis examines the products' benefits and concerns as drivers of consumer attitude as the existing literature on consumer behaviour towards commercially upcycled & reused products often uses the theory of reasoned action (Wagner & Heinzel, 2020). This theory, as proposed by Fishbein and Ajzen (1975), demonstrates that individuals' behaviour is determined by their attitude based on their evaluation and beliefs, which include positively viewed benefits and/or negatively viewed concerns. This attitude, in turn, affects the purchase intention. Within this thesis, the following benefit dimensions are examined in [section 2.2.1](#): environmental, economic, aesthetic and hedonic. The concern dimensions that are being examined in [section 2.2.2](#) are as well environmental, economic and aesthetic. Additionally, the social and functional concerns are examined. Within [section 2.2.3](#), the conclusion of the examined benefits and concerns are given.

2.2.1 Benefits related to commercially upcycled and reused products

Among the few that researched consumer behaviour towards upcycled products is the study of Yu & Lee (2019), who investigated consumers' value perceptions and their intentions to purchase upcycled products. The study identified the total perceived utility of upcycled products as six values (green, functional, emotional, aesthetic, social, and self-expression). The results showed that mainly green, emotional, and aesthetic values significantly positively affected product attitude and purchase intention. These results align with Wilson' (2016) study, whose conceptual work proposes four types of benefits consumers may seek when purchasing an upcycled product: aesthetic appeal, economic savings, environmental benefits, and intrinsic enjoyment.

When considering the benefits of reused products, Xu et al. (2014) proposed the following benefit dimensions: economic, hedonic treasure hunting, uniqueness & environmental. Although not examined by Xu et al. (2014), reused products seem to have an aesthetic benefit as well. According to Wilson (2016), the aesthetic benefits of reused products are similar to those of commercially upcycled products. They both have a vintage/retro look which can be referred to as nostalgic appeal. Based on these discussed studies, it can be concluded that both commercially upcycled and reused products share several key benefits. Considering the overlap in the benefits for commercially upcycled and reused products, this thesis examines the following four benefit dimensions: environmental, economic, aesthetic and hedonic.

Environmental benefit: When a product provides environmental benefits, the product ensures sustainable production and consumption (Yu & Lee, 2019). Commercially upcycled and reused products share this environmental benefit. The sustainable product types both avoid the entry of new materials into new products (Cooper & Gutowski, 2015; Wilson, 2016). Studies show that environmental benefits are one of the primary motivations for consumers to acquire reused items (Guiot & Roux, 2010; Gullstrand Edbring et al., 2016; Young et al., 2010). Moreover, environmental benefits are often perceived as the prime benefit of upcycling as upcycling provides reductions in environmental impact and/or contributes to a higher environmental value or performance of products (Sung, 2015; Wilson, 2016; Yu & Lee, 2019). It thus can be concluded that both sustainable product types offer environmental benefits.

Economic benefit: Economic benefits refer to the relatively low price of items. The low price of reused products can be seen as one of the most often highlighted motivations in literature for acquiring reused products (Guiot & Roux, 2010; Gullstrand Edbring et al., 2016; Williams, 2003). Although the discussed study of Wilson (2016) considers saving money a benefit of upcycling, this economic savings benefit in that study refers to saving money when upcycling yourself instead of acquiring upcycled products. Since this study focuses on the consumer behaviour towards commercially upcycled products, this benefit will not be considered for commercially upcycled products. It thus can be concluded that the economic benefit exclusively holds for reused products.

Aesthetic benefit: When a product provides aesthetic benefits, the items' visual appearance is superior to an equivalent new item because of the look of the end product (Yu & Lee, 2019). According to Wilson (2016), the aesthetic benefits of reused products are similar to those of commercially upcycled products due to their vintage/retro appeal. Over the past decade, items with a vintage/retro look have grown in popularity (Cassidy & Bennett, 2012; McColl et al., 2013; Park & Lin, 2018). This popularity is due to the products' nostalgic appeal, which is the degree to which consumers like to acquire older items with a special meaning that new items do not have (Guiot & Roux, 2010; Wilson, 2016).

Nostalgia refers to the propensity to think about the past and associations attached to memories that match the aesthetic appeal (Guiot & Roux, 2010). Reused products provide this nostalgic appeal by their geographical, biographical or historical origins (Kopytoff, 1986). Commercially upcycled products provide this appeal by their salient history. Given that the history of commercially upcycled products makes the nostalgic dimension of the used material salient, the aesthetic appeal of commercially upcycled products is based on nostalgic appeal (Keith & Silies, 2015). It can be concluded that both product types own their aesthetic appeal to the nostalgia they offer.

Hedonic benefit: When a product offers hedonic benefits, it offers consumers the capacity to arouse feelings or affective states of products (Yu & Lee, 2019). One way products can offer hedonic benefits is by being unique, as consumers might perceive a special sense of joy and excitement when products are unique and one of a kind (Wilson, 2016). Because of their nostalgic appeal, both commercially upcycled and reused products are perceived as unique. Both product types offer a higher value to consumers than the regular product type since they have their history behind them and are not a subject of modern production (Hristova, 2019). Additionally, commercially upcycled products are perceived as unique because of their transformation (Wilson, 2016). The original object can still be identified with upcycling after assuming its new function, making the product unique and providing nostalgia (Lucirmás, 2017). Besides their nostalgic appeal, reused products can be perceived as unique because of their unusual character or rarity (Herjanto et al., 2016; Kopytoff, 1986). As a result of their nostalgic appeal and thus uniqueness, both product types provide hedonic benefits.

Overall, it can be concluded that the economic benefit exclusively holds for reused products. Consumers perceive reused and commercially upcycled products as equal based on their environmental, hedonic, and aesthetic benefits. The aesthetic benefits are due to the products' nostalgic appeal. Because of their nostalgic appeal, both product types offer a hedonic benefit because they can be perceived as unique. Regular products cannot provide this hedonic/aesthetic benefit based on their nostalgic appeal because they do not have a history. Besides, commercially upcycled products are perceived as unique because of their transformation process. Reused products are also perceived as unique because of their rarity. These discussed benefits are all benefits that might affect consumer behaviour towards commercially upcycled and reused products compared to regular products. The benefits seem to differentiate the two product types from the regular product type as regular products cannot provide these benefits in the same manner.

2.2.2 Concerns related to commercially upcycled & reused products

This section discusses the concerns associated with commercially upcycled and reused products to determine consumer behaviour towards these product types. It is necessary to examine these concerns as consumers might hold several worries against reused and commercially upcycled products as these products are (made) of used materials (Belk, 1988).

These concerns all include the belief that sustainable attributes can have negative implications (White et al., 2019). Xu et al. (2014) pointed out two barriers that consumers could experience regarding the acquisition of reused products: concern using used products & subjective norms. These two barriers can respectively be seen as functional and social concerns. These two concerns should be examined for commercially upcycled products as well since the study of Yu & Lee (2019) examined the functional & social values of upcycled products and did not find significant positive effects. It, therefore, can be assumed that these values might be a concern for consumers when acquiring commercially upcycled products. Besides, these two values should be examined as several other studies affirm that both functional and social values are essential drivers of consumer behaviour (Keller, 1993; Sweeney & Soutar, 2001). Additionally, the environmental, economic and aesthetic concerns should be examined in this thesis as these concerns were raised by the participants in the pilot study, as more extensively explained in [section 2.3](#). In summarization, this thesis examines the following five concern dimensions: functional, social, environmental, economic and aesthetic.

Functional concern: Functional concerns refer to the negative consumer perception of the functional, utilitarian, and physical performance of products (Sweeney & Soutar, 2001; Yu & Lee, 2019). Research acknowledges that functional performance might negatively affect sustainable products (Luchs et al., 2010; Newman et al., 2014; Truelove et al., 2014). Within this thesis, functional concerns encompass concerns regarding the hygiene and the quality of the products (Belk, 1988; Gregson & Crewe, 2003). Especially contamination and hygiene of products are of concern when acquiring reused products (Gullstrand Edbring et al., 2016; Kapitan & Bhargave, 2013). Commercially upcycled products seem not to raise these functional concerns. Winterich et al. (2019) and Kamleitner et al. (2019) argue that commercially upcycled products escape these concerns because they have effectively been transformed into a new product. It thus can be assumed that the functional concern exclusively holds for reused products.

Social concern: When a product raises social concerns, consumers worry about increasing their perceived status or self-esteem with these products. Research (White et al., 2019) acknowledges that social norms, or beliefs about what is socially appropriate and approved of in a given context, can influence sustainable consumer behaviour. Social concerns are often raised for reused products as there is the stigma or embarrassment to shop at second-hand stores. This stigma exists as some consumers believe that reused products are meant for a lower socio-economic range and fear other peoples' negative attitudes (McCull et al., 2013). With regard to commercially upcycled products, it cannot simply be stated that social concerns have an impact. There are some contradictions in literature due to cultural differences. While Yu & Lee (2019) concluded that the role of social value is not supported, Wei and Jung (2017) state that face-saving is an essential motivation for consumers' purchase of sustainable items, implying that upcycled products are worth showing off.

This contradicting result might be caused by cultural differences due to the taken samples, as cultural values significantly impact the social dimension (Hofstede, 1980). Thus, it can be assumed that the social concern might hold for both product types based on the target groups' culture.

Environmental concern: Although commercially upcycled and reused products have primarily environmental benefits, consumers might also have environmental concerns about both product types. As upcycling is a form of repurposing an item rather than adding it into the waste stream, it is crucial to consider that all recycling product types require energy, water, or other resources. As resources are still needed for the process of upcycling, consumers could perceive commercially upcycled products as not environmentally friendly (Szaky, 2014; Wilson, 2016). Additionally, reused products can be perceived as not environmentally friendly since reusing an item does not guarantee environmental benefits. Based on several studies, Cooper & Gutowski (2015) conclude that it appears unlikely that an increase in the reuse of products will translate to an equal decrease in the sale of new products. This implies that acquiring reused products is not necessarily better for the environment. It can be assumed that the environmental concern might hold for both product types.

Economic concern: Economic concerns refer to the relatively high price of sustainable products. Both product types can also be perceived as too expensive. Research acknowledges that the affordability of sustainable products might have negative implications on consumer behaviour (Chang, 2011; Gleim et al., 2013; Hughner et al., 2007). For example, consumers are unwilling to pay a premium for sustainable products (Kim & Rha, 2014; Mohr & Webb, 2005). However, this might exclusively be the case if the product is acceptable on other attributes as well (McGoldrick & Freestone, 2008; Paras & Curteza, 2018). It can be concluded that the economic concern might hold for both product types.

Aesthetic concern: Although several authors highlight aesthetic appeal as a driver for acquiring upcycled products, not all consumers find these products aesthetically appealing because of their niche status (Szaky, 2014). Commercially upcycled products are reincarnated into high-value-added products, applying aesthetic creativity (Wilson, 2016). This creativity is, unfortunately, not everyone's cup of tea. Some consumers might not acquire upcycled products as they perceive the aesthetics of commercially upcycled product as a barrier (Szaky, 2014). As Kumar (2017) & Luchs et al. (2012) argue that consumers might raise aesthetic concerns for sustainable products, it is assumed that the aesthetic concerns hold for both commercially upcycled and reused products.

Overall, it can be concluded that consumers have similar concerns about the following dimensions: social, environmental, economic and aesthetic. The product types exclusively differ on the consumer concern of the functional dimension. The functional concern exclusively holds for reused products. All concerns might affect consumer behaviour towards commercially upcycled and reused products compared to regular products.

It is assumed that the social, economic and aesthetic concerns do not hold for regular products in the same manner as regular products are not used before and are not made of used materials. It is, however, expected that the environmental concern does hold for the regular product type as regular products are not sustainable.

2.2.3 Conclusion

Consumer attitude in terms of benefits and concerns have been analysed to determine the differences and similarities in consumer behaviour between commercially upcycled, reused, and regular products. The previous section concluded that commercially upcycled and reused products differ on several dimensions of potential benefits and concerns associated with both product types. Both product types offer hedonic, aesthetic and environmental benefits and social, environmental, economic and aesthetic concerns. These benefits and concerns are interesting to examine further as they differentiate both sustainable product types from the regular product type. However, this thesis will focus on the benefits of the products types. This answers the call for more research to consider the role of positive emotions in sustainable consumer behaviour (White et al., 2019). The hedonic and aesthetic benefits are the focal point of this thesis to distinguish the different product types. Additionally, it is of interest to examine what happens with the consumer attitude when the uniqueness of the products is made salient. Due to their nostalgic appeal, products of both sustainable product types can be perceived as unique. As commercially upcycled products are also perceived as unique because of their transformation process, reused products are also perceived as unique because of their rarity.

2.3 Pilot study

In February 2021, ten interviews were conducted as a qualitative exploratory pilot study. This pilot study aimed to get the first exploratory insights into what drives different perceptions of the two sustainable product types in consumer minds. With these insights, the previously discussed theoretical background is substantiated within this section to confirm whether the participants raise the same benefits and concerns as the literature suggests. The interview guide of the pilot study can be found in [Appendix 8.1](#). Within the interviews, the participants were asked several questions about how they perceive upcycled and reused products. The interviews lasted approximately ten minutes each and were conducted among ten participants sampled based on a convenience sample (Myers, 2013). There were no restrictions on the sample besides being Dutch, as the research examines Dutch consumers. The sample was representative with respect to age and gender. Half of the participants identified themselves as male, the other half as female. The participants were between 20 and 61 years old, with an average of 31,8 years old. The participants considered themselves as environmentally aware, they had to rate themselves on a scale from 1-7, and the average was 4,6. Since an interview guide was created, there was some consistency across the interviews. The interview guide consisted of a preformulated introduction and preformulated questions.

The introduction explained the key concepts being questioned and gave more information about the research considering the research ethics discussed in [section 3.2](#). There was, however, no strict adherence to the interview guide, and new questions emerged during the conversations. Therefore, the conducted interviews were semi-structured (Myers, 2013). The conducted interviews took place online via Zoom or in peoples' own house. Although this led to the participants feeling comfortable, it might have caused some biases. As the interviews were not all conducted simultaneously, biases might have been caused by different settings and different background noises. Furthermore, the interviews were conducted in English as translations might cause misinterpretations. However, as the interviews were not conducted in the mother language of the participants, this might have led to the participants talking less openly and clearly. After conducting the interviews, all interviews were transcribed and coded. The interviews are literally coded, which means all noises are included, such as um's and ah's (Myers, 2013). This was possible as all interviews were recorded with consent. After transcribing, the interview got open, axial and selective codes. Writing the theoretical background and coding the interviews was an iterative process. The axial and selective codes were based on literature and, therefore, represented the concerns and benefits of the two product types.

During the interviews, the participants were asked how they felt using upcycled and reused products and what they liked and disliked about these product types. An overview of the found benefits and concerns is given in [Appendix 8.2](#). It can be concluded that the pilot study results comply with the discussed literature. As literature suggested, the economic benefit only holds for reused products, although not named as often as expected. Moreover, the pilot study participants confirmed the environmental, hedonic and aesthetic benefits of both product types. As literature suggested, participants perceived both commercially upcycled and reused products as aesthetic because of their nostalgic appeal. Consequently, both product types offered the participants hedonic benefits because they were perceived as unique because of their nostalgic appeal. Half of the participants acknowledged the uniqueness of upcycled products as a benefit, and three participants acknowledged the uniqueness of reused products as a benefit. As the participants highlighted the products' uniqueness, it is of interest to examine what happens with the consumer attitude when the uniqueness of the products is made salient. Thus, the conclusion of [section 2.2.3](#) can be supported. As for the concern dimensions, the economic, aesthetic and environmental concerns were raised for both product types as expected. However, some participants perceived reused products as more environmentally friendly than commercially upcycled products because commercially upcycled products are transformed. Based on the pilot study, it can be argued that the environmental concern especially holds for commercially upcycled products. The functional was exclusively raised for reused products, as the literature suggested. The majority of participants had functional concerns regarding the hygiene of reused products and therefore did not prefer to acquire reused product in each product category.

Most participants preferred not to acquire products in categories such as textiles as they consider these products 'not clean, gross, disgusting.'. Contrary to expectations, the social concern was exclusively raised for reused products. When the participants were asked which product categories they would acquire upcycled or reused products, they did not necessarily prefer specific product categories. Since the participants acknowledged no preference for a specific product category, this thesis does not focus on a specific category but examines the general differences.

2.4 Conceptual model

To determine whether and how the consumer behaviour towards the different product types (commercially upcycled, reused & regular) vary, the following benefit and concern dimensions were examined in [section 2.2](#) to determine the consumer attitude: environmental, economic, hedonic, social, functional and aesthetic. It can be concluded that commercially upcycled and reused products differ from regular products based on these discussed dimensions. The most striking insight is that both sustainable product types offer an aesthetic and hedonic benefit due to their nostalgic appeal that the regular product type does not offer, further examined within this thesis. The consumer attitude is measured by the variables hedonic benefit, aesthetic benefit, and nostalgic appeal to further investigate the differences between the three product types. Additionally, consumer attitude is measured by the variable product evaluation since Fishbein, and Ajzen (1975) demonstrated that individuals' behaviour is based on their attitude, which is based on their evaluation and beliefs, including benefits. Within this thesis, the conceptual model is based on the reasoned action theory by Fishbein & Ajzen (1975). This theory has been used extensively to explain purchase behaviour towards sustainable products in general (Kumar, 2012; Kumar et al., 2017; Paul et al., 2016), but also research on upcycling and reusing in particular (Kuchinka et al., 2018; Lee & Yu, 2019; Park & Lin, 2018; Sung, 2015; Wagner & Heinzl, 2020; Xu et al., 2014).

Based on the theory of reasoned action, it can be argued that the benefits of a product are part of the consumer attitude, which affects the purchase intention (Fishbein & Ajzen, 1975). Sustainable products offer several benefits (including aesthetic and hedonic) compared to regular products, as discussed in [section 2.2.1](#). Due to these benefits, it can be expected that the sustainable product types will lead to higher purchase intentions than the regular product type. Moreover, environmentalism is a crucial driver of consumer behaviour (Panizzut et al., 2021, Retail Detail, 2021). These assumptions are tested with the following proposed hypothesis:

H1: Commercially upcycled and reused (vs regular) products will lead to higher purchase intentions.

Based on the theory of reasoned action by Fishbein & Ajzen (1975), it is expected that product type affects consumers' attitude and thus purchase intentions positively. In general, it is found that a more positive attitude leads to a higher purchase intention. When consumers develop a positive attitude about a product, this attitude positively affects future purchase intention and actual purchasing behaviour (Fazio, 1990). According to Ajzen' (1991) alternative study, attitudes are mainly sufficient to lead to intentions. Thus, it is expected that a positive consumer attitude will lead to higher purchase intentions, which can be described as positive consumer behaviour. This assumption has led to the proposed hypothesis 2 that tests the mediating relationship of consumer attitude between product type and purchase intention.

H2: The positive relationship between product type and purchase intention is mediated by consumer attitude.

As discussed, consumer behaviour encompasses the consumer attitude and the purchase intention. Besides the expected higher purchase intentions, it is expected that sustainable product types will lead to more positive consumer behaviour than the regular product type. To establish whether there is a more substantial differentiating effect of product type on the consumer behaviour when items are perceived as unique, the moderator salience of product uniqueness is tested. The uniqueness of the product Will be made salient to determine whether this affects consumer behaviour and if this will lead to differences between the product types. The moderator salience of product uniqueness is expected to influence all product types positively. Consumers are assumed to perceive a special sense of joy and excitement when products are perceived as unique (Wilson, 2016). As people want to feel special, the promise of uniqueness/specialness fuels demands (Bellezza et al., 2014; Han et al., 2010; Veblen, 1994). To examine these effects, the following hypothesis is proposed:

H3: The positive mediating effect of consumer attitude between product type and purchase intention is moderated by the salience of product uniqueness, such that this relationship is stronger for higher levels of the salience of product uniqueness.

Related to the previous paragraph, it is expected that the two sustainable product types will have a more pronounced effect on the salience of product uniqueness than the regular product type. As a result of the nostalgic appeal, consumers might perceive a special sense of joy and excitement from the sustainable product types as these products are unique (Kamleitner et al., 2019; Keith & Silies, 2015; Yu & Lee, 2019). As both sustainable product types are perceived as unique, it is expected that when this uniqueness is highlighted, the effect is more pronounced than for the regular product type since regular products are not necessarily perceived as unique. Sustainable products offer a higher value to consumers than newly manufactured ones since they have their history behind them and are not a subject of modern production (Hristova, 2019).

The effects of the sustainable product types on consumer behaviour are expected to be more pronounced than for the regular product types due to the previously discussed positive effects of the sustainable product types on purchase intention. Additionally, several studies (Chan, 2001; Tanner & Kast, 2003) pointed out that a favourable attitude towards sustainable products adds to sustainable consumption behaviour. The sustainable product types will gain positive attitudes as they offer aesthetic and hedonic benefits because of their nostalgic appeal that the regular product type cannot offer. Regular products are assumed not to comply with these benefits as they do not have a history (Kamleitner et al., 2019). The nostalgic appeal of both sustainable product types offers an aesthetic benefit since, over the past decade, items with a vintage/retro look have grown in popularity (Cassidy & Bennett, 2012), as consumers increasingly tend to like products with a vintage look (McColl et al., 2013). Because of their nostalgic appeal, both commercially upcycled and reused products offer hedonic benefits since they are perceived as unique, which provides higher value than regular products (Wilson, 2016; Guiot & Roux, 2010; Hristova, 2019). Moreover, it is expected that commercially upcycled products will have a more pronounced effect on the moderator salience of product uniqueness than reused products. Commercially upcycled products are expected to deliver more product value than general environmental products as upcycling is a way of giving a product a whole new life by adding unique ideas and designs to discarded material beyond simple recycling (Yu & Lee, 2019). Besides, the researchers' Park & Lin (2018) claim that upcycled products are more innovative or unique than recycled products, making them favourable. To determine whether the two sustainable product types elicit more positive consumer behaviour than regular products, hypothesis 4 is proposed. To determine whether there is a difference between the two sustainable product types, hypothesis 5 is proposed.

H4: The effect of commercially upcycled and reused (vs regular) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low).

H5: The effect of commercially upcycled (vs reused) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low).

The conceptual framework of this thesis is shown in Fig. 1.

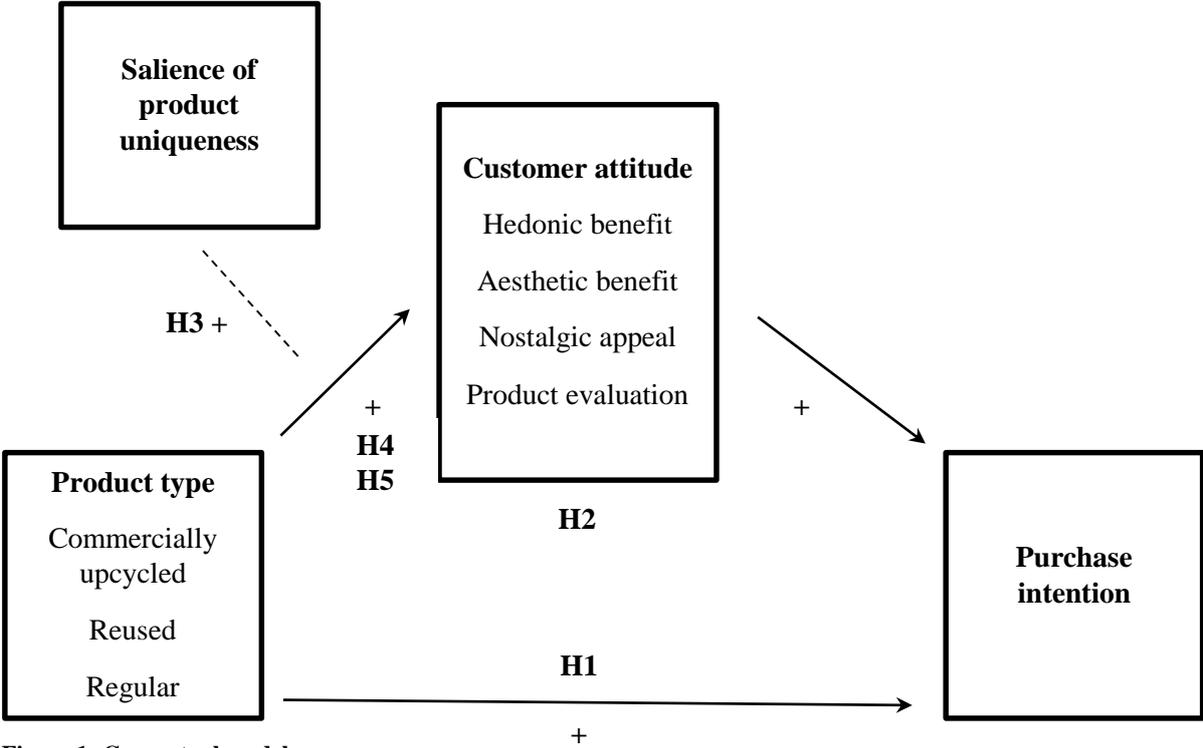


Figure 1: Conceptual model

3. METHODOLOGY

To determine whether consumer perceptions of commercially upcycled, reused and regular products differ and whether the effect increases when the uniqueness of the products is made salient, a quantitative experiment is conducted online to acquire primary data. The method of this study is explained in [section 3.1](#). The research ethics are discussed in [section 3.2](#).

3.1 Method

Within this study, a quantitative research method was used. Quantitative analysis allows for much larger sample sizes than qualitative analysis, which increases generalizability to a large population and increases the results' external validity (Myers, 2013). In April 2021, an experiment was conducted to investigate whether product type (commercially upcycled, regular and reused), influenced by the salience of product uniqueness, affects consumers' behaviour. Due to the current COVID-19 restrictions, the experiment took place online, where participants could fill in a questionnaire.

Procedure: An experiment approach was adopted as it fits the comparative character of the study. An experiment allows to test the differences between commercially upcycled, reused, and regular products simultaneously. A 3x2 between-subjects design was employed with the variables product type (commercially upcycled, reused, regular) and salience of product uniqueness (high, low) as independent variables (Field, 2018). Participants were randomly assigned to the respective treatment groups to realise the between-group design. Randomly assigning subjects to different treatment groups ensures overcoming the differences, providing an equal distribution of error variance, and eliminating selection bias (Field & Hole, 2003; Kohavi et al., 2009). The questionnaire was conducted via the Qualtrics software as it allows to randomise the groups. Table 1 shows the different conditions the six groups are assigned to.

		Product type		
		<i>Commercially upcycled</i>	<i>Reused</i>	<i>Regular</i>
Salience of product uniqueness	<i>High</i>	Group 1	Group 2	Group 3
	<i>Low</i>	Group 4	Group 5	Group 6

Table 1: Between-group design

In order to identify the differences, the experiment manipulated the product types and the degrees of the salience of product uniqueness. Small rectangular advertisements were created showing the same product with different descriptions. The chosen product was a bag made from bicycle tires. Within the advertisements, the product type was manipulated by stating in the advertisement description the product type (commercially upcycled vs reused) of the group that the participant is assigned to. The group assigned to the regular product type did not get this description.

The salience of product uniqueness was manipulated by stating in the advertisement description that the item is 'unique & special'. The group with low salience of product uniqueness got no description. Since the participants did not see all conditions, the between-group design ensured that the participants were not influenced by seeing the descriptions of other items, which makes the questionnaire reliable. The questionnaire started with an introduction. Within this introduction, an explanation of the thesis was given. However, the thesis was disguised as a general study on product perception. The true purpose of the thesis was not stated, as this could have influenced the results. Moreover, information about the research ethics was given in the introduction, as more extensively explained in [section 3.2](#). Before answering questions, the participants were exposed to a scenario description where they had to imagine searching the chosen product (a bag) online. Next, the participants were exposed to the belonging advertisement and asked to respond to seventeen statements using a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The questioned statements were designed to identify the extent to which the participants held a particular attitude. All questions within the questionnaire were closed-ended as this is the most suitable for quantitative research (Babbie, 2013).

To determine the effectiveness of the manipulations, all participants, except those in group six, got one or two questions as a manipulation check. The participants that belonged to the groups who got to see a commercially upcycled or reused item got to rank the following statement based on how strongly they agree or disagree (1 = strongly disagree, 7 = strongly agree): *I perceive the earlier shown product as an ... product*. Instead of the dots, the participants were exposed to the accompanying type of product. Next, the participants that got the condition where the uniqueness of the product is made salient got the statement: *I perceive the earlier shown product as unique and special*. Again, the participants had to rank the statement based on how strongly they agreed or disagreed (1 = strongly disagree, 7 = strongly agree). While ranking these statements, the corresponding advertisement was not shown as this could have influenced the participants. The manipulation checks were incorporated in the questionnaire to ensure that the participants perceived, comprehend, and/or reacted as expected to the portion of the manipulation of interest within the independent variable (Hoewe, 2020). When the participants agreed with the statements and ranked the statements three or higher, the manipulation check was perceived as successful. When the participants disagreed with the statements by ranking (one of) the statements as one or two, they failed the manipulation checks and were excluded from the dataset. The participants were exposed to the manipulation checks once they rated all the statements. When these manipulation checks were exposed to the participants, the image of the item was not provided not to influence the participants. In the final stage of the questionnaire, participants were asked four demographic questions. These questions were the same for all groups to find out which population the group of participants represented. The questionnaire ended with a text stating the study's true purpose, thanking the participants for participating and explaining how they can contact if they want an update of the study results. The whole questionnaire in Dutch is included in [Appendix 8.3](#).

Sample: The initial sample consisted of 207 participants. There were no restrictions to the sample since everyone is a consumer in the end. The questionnaire was meant for everyone willing to fill in the questionnaire, making it a voluntary response sample (Myers, 2013). As all participants are from the Netherlands, the questionnaire was in Dutch. The participants were recruited online via different social media platforms such as WhatsApp, LinkedIn and Facebook. The questionnaire was online for ten days to get as many participants as possible within the schedule.

Prior to the data analysis, the data was prepared by excluding several participants from the dataset to ensure the validity of the results (Hair et al., 2014). The 27 participants with unanswered questions (>10% of missing data), the five participants who did not fill in the questionnaire seriously by giving the same ranking to every statement and the four participants who did not give their consent to analyse their answers were deleted. The dataset covered a completion rate of 82% (Babbie, 2013). Finally, the nineteen participants who failed the manipulation checks by ranking (one of) the statements lower than three were deleted, leaving the dataset with 152 participants. The participants in the final dataset were distributed amongst six groups ranging from 22 to 28 participants. Although 30 participants per group are preferred to run an analysis of variance (Field, 2018), a sample size of 20 participants per group is acceptable (Blazevic, 2020). Field & Hole (2013) argue that most researchers use a sample of 10 to 20 participants per group for experiments, which means the sample size can be considered adequate. Similar studies with experiments on consumer perceptions of upcycling often have a sample size of between 100 and 200 participants (Kamleitner et al., 2019; Winterich et al., 2019). According to the G Power software, the sample provides a power of 0.677 given the requirements of $\alpha = 0.05$, a significance level of 95% and a medium effect size of 0.30 (Field, 2018).

The final dataset contained 112 females and 39 males, implying that the majority of the participants (73%) are female. Only one participant did not identify themselves with a gender. All of the participants were above eighteen years old. The participants' age can be considered relatively young since most participants (60%) are between eighteen and 24. Most participants indicated that they live in the city (71%) or a village (25%). Almost all (75%) participants were higher educated, which means that they got a degree from a University (48%) or University of applied sciences (37%).

Operationalisation: Within this thesis, two independent and two dependent variables were examined. First, the independent variables (product type and salience of product uniqueness) are discussed. Product type refers to a group of products that fulfils a similar need for a market segment or market as a whole (Keller & Swaminathan, 2019). In this thesis, product type is divided into commercially upcycled, reused and regular products. The definition of commercially upcycled and reused products are given in [section 2.1.1](#) and [2.1.2](#), respectively. Regular products are defined as products that are not reused or upcycled.

The salience of product uniqueness refers to the degree to which the uniqueness of the product stands out. Uniqueness can be defined as the quality (of products) of being particularly valuable, rare, and special (Lamming et al., 2000). The higher the salience of product uniqueness, the more the speciality of the products stands out. Second, the dependent variables (consumer attitude and purchase intention) are discussed. As this research is based on the theory of reasoned action by Fishbein & Ajzen (1975), consumer behaviour encompasses consumer attitude and purchase intention. The product attitude refers to the degree of willingness to purchase products (Yu & Lee, 2019). The consumer attitude is the degree of consumer thought and beliefs around products (Yu & Lee, 2019), measured by their evaluations and beliefs (Fishbein & Ajzen, 1975). The consumer attitude was measured by hedonic benefits, aesthetic benefits, nostalgic appeal and product evaluation within this thesis. The exact definitions of these several concepts can be found in Table 2.

Measurements: To establish the differences in the consumer behaviour of the participants, all groups were questioned the same statements, as shown in Table 2. The participants were exposed to the statements in the same sequence as shown in the table. The advertisement was shown to the respondents while answering all questions, except for the statements about the nostalgic appeal and the demographic questions. Therefore, these were questioned last. The statements were all based on a Likert scale, ranging from 1 = strongly disagree to 7 = strongly agree, as this scaling method is the best measure for someone's attitude or behaviour. With the help of this Likert scale, the degree of opinions of the participants can be discovered to determine their attitude (Likert, 1932). As the participants had to report how they felt about something, their subjective experience was captured with self-report measures (Field & Hole, 2013). All statements were designed to get to know their attitude towards the product and their purchase intention. The statements are all part of validated scales from previous studies. The wording, however, has been slightly modified by translating the questionnaire into Dutch. Besides, the wording of items has been altered to match the context of this study. To validate the questionnaire, a pre-test has been conducted. Within this pre-test, all questions have been discussed with several fellow students to test the wording of phrases and the questionnaire flow. The plus/minus- method was used to ensure questions were understandable for all participants. This method implies that all items marked with a minus were checked and reformulated if they did not fit the construct well.

Concepts	Definition and measurements
Hedonic benefits	<p>Definition: the capacity to arouse feelings or affective states of products (Yu & Lee, 2019).</p> <p>Measures: How strongly do you agree or disagree with each of the following statements: (1 = strongly disagree, 7 = strongly agree)</p> <ul style="list-style-type: none"> - I like this product. - I have a positive emotion regarding this product. - This product is one that I would enjoy. - This product would make me want to use it. - This product would make me feel good.
Aesthetic benefits	<p>Definition: the attractiveness and beauty of products (Yu & Lee, 2019).</p> <p>Measures: How strongly do you agree or disagree with each of the following statements: (1 = strongly disagree, 7 = strongly agree)</p> <ul style="list-style-type: none"> - I like the aesthetics of this product. - The design of this product is attractive.
Product evaluation	<p>Definition: the consumer's overall assessment of a product based on perceptions of what is received and what is given (Zeithaml, 1988).</p> <p>Measures: How strongly do you agree or disagree with each of the following statements: (1 = strongly disagree, 7 = strongly agree) (Hofenk et al., 2017)</p> <ul style="list-style-type: none"> - This product makes a good impression. - The impression I have of this product is favourable. - I have a positive image of this product.
Purchase intention	<p>Definition: the degree of willingness to purchase products (Yu & Lee, 2019).</p> <p>Measures: How strongly do you agree or disagree with each of the following statements: (1 = strongly disagree, 7 = strongly agree)</p> <ul style="list-style-type: none"> - I might purchase this product. - I will purchase this product. - I am willing to recommend this product to others.

Nostalgic appeal	<p>Definition: the degree to which consumers like to acquire older items with a special meaning that new items do not have (Guiot & Roux, 2010).</p> <p>Measures: How strongly do you agree or disagree with each of the following statements: (1 = strongly disagree, 7 = strongly agree)</p> <ul style="list-style-type: none"> - I am attracted more to old things than new ones. - I like buying items that are old and have a history. - I like buying objects that evoke the past. - I like buying objects because I find them authentic.
------------------	---

Table 2: Measurements

To create insights into the internal reliability of the scales, Cronbach's Alpha was calculated for each factor. Within this thesis, the minimum threshold for Cronbach's Alpha of .70 is used for an adequate internal consistency (Hair et al., 2014). All of the constructs had a separate Alpha above the required .70, as shown in Table 3. These several constructs (nostalgic appeal, hedonic benefits, aesthetic benefits, and product evaluation) computed into the construct of consumer attitude gave an Alpha of .856. No adjustments needed to be made to create higher internal reliability as the requirement of .70 was well over met for each factor.

Factor	Cronbach's Alpha
Aesthetic benefits	.965
Hedonic benefits	.934
Nostalgic appeal	.882
Product evaluation	.951
Consumer attitude	.856
Purchase intention	.918

Table 3: Summary of Cronbach's Alpha for internal reliability

Analysis: All analyses were carried out using the SPSS software. Different statistical tests (analysis of variance, Kruskal-Wallis and PROCESS) were used to test the conceptual model. For all these tests, a significance level of $\alpha = 0.05$ holds (Hair et al., 2014). In the following paragraphs, these tests and their assumptions are discussed.

Analysis of variance: The analysis of variance was performed to examine the effect of two independent variables of various groups. Within this thesis, a two-way analysis of variance was used to measure the effect of product type and salience of product uniqueness on consumer attitude. The thesis aimed to perform the analysis twice to test the effect of the independent variables on purchase intention as well. However, the effect of the independent variables on purchase intention could not be determined with the analysis of variance as assumptions were violated.

Therefore, the Kruskal-Wallis test was performed to test the effect of the independent variables on purchase intention, as more extensively explained in the following paragraph. The variance of analysis and the Kruskal-Wallis test together whether hypotheses 1, 4 & 5 should be rejected or accepted.

The assumptions of the analysis of variance could not be violated as they are required to give a valid result (Field, 2018; Hair et al., 2014). Failure to meet one or more assumptions affects the significance levels and the sensitivity of the F test (Gomez & Gomez, 1984; Kempthorne, 1952; Little & Hills, 1978). Thus, the assumptions must be checked and corrected before the statistical analysis and interpretation of the results (Blazevic, 2020; Fernandez, 1992). This paragraph discusses which assumptions should be met and which assumptions were violated for the effect on purchase intention. First, the requirement that the dependent variable (purchase intention or product attitude) should be measured at the continuous level was met as the results of the statements are all computed into scales that offer metric data. The two independent variables, product type (commercially upcycled, reused & regular) & salience of product uniqueness (high & low), complied with the requirement to be categorical. Second, the assumption of an adequate number of independent observations was met by randomly assigning the groups and having an adequate sample size above the recommended 20 per group (Blazevic, 2020). Third, the sampling distribution of means of the tested dependent variables should be approximately normally distributed since the required sample of 30 (per group) of the central limit theorem is not met (Field, 2018). By looking at the histograms, it can be concluded that the data from both dependent variables are positively skewed. Besides, when looking at the Q-Q plots, as shown in Fig. 7, Fig. 8 and Fig 9. in [Appendix 8.4](#), it can be concluded that the points in the plot do not form a straight line. Therefore, transformations (inverse, square root, natural logarithm, and squared) were applied to these variables. Data was transformed to make them conform to the assumption of normality and produce a more nearly normal error distribution (Fernandez, 1992; Finney, 1989; Jacobs, 2020). Data transformation implies replacing each observation with some simple function of its magnitude, followed by a standard analysis of variance. By transforming the data, the original data were transformed to a new scale, resulting in data expected to meet the required assumption. Because a standard transformation scale was used for all observations in the data, treatments ranks were not altered, and the mean comparisons remain valid (Fernandez, 1992). Transforming the variable consumer attitude into a natural log variable created the best normal distribution as the Skewness/Standard Error for Skewness or Kurtosis/Standard Error for Kurtosis $< |2|$ (Field, 2018; Jacobs, 2020). The other transformations did not cause the variable to be normally distributed. Neither did transforming the dependent variable purchase intention cause the variable to be normally distributed, as can be derived from Table 8 in [Appendix 8.4](#). Thus the assumption of normality was violated for the dependent variable purchase intention, and the analysis of variance could not be performed. Consequently, instead of an analysis of variance, the non-parametric Kruskal-Wallis test was conducted to test the effect of the independent variables on purchase intention, as explained in the following paragraph.

The last assumption for homogeneity of variances was met for the two-way analysis of variance regarding the effect of the independent variables on the consumer attitude. Levene's test was not significant with a P-value of .612. With the performed two-way analysis of variance, each factor's averages were compared and the interaction effects between the factors. When these effects were significant ($P < .05$) or marginally significant ($P < 0.1$) and effects are found, a Tukey post-hoc test should be performed to determine where the differences lie (Field & Hole, 2003; Hair et al., 2014).

Kruskal-Wallis test: As explained, the effect of the two independent variables on purchase intention could not be analysed with an analysis of variance as the assumption of normality was violated. The Kruskal-Wallis test was used to measure the differences between several independent groups (Field, 2018). For this test, several assumptions were met. First, the assumption that the dependent variable should be measured at ordinal, interval or ratio level was met as a Likert scale measures purchase intention. Second, the independent variable should contain more than two independent groups. Therefore, the independent variable salience of product uniqueness could not be tested with the Kruskal-Wallis test as it does not contain more than two groups. To measure the differences between the groups based on product type and salience of product uniqueness, the variable that contains the different groups/conditions was tested. Additionally, the independent variable product type was tested. Both these variables contain more than two groups. Third, there should be independence of observations. As explained in the previous paragraph, this assumption was met. By performing the analysis of variance and the Kruskal-Wallis test, hypotheses 1, 4 and 5 could be rejected or accepted. When the performed Kruskal-Wallis test was significant ($P < .05$) or marginally significant ($P < 0.1$) and differences were found, the Mann-Whitney test was performed to where the differences lie (Field, 2018).

PROCESS-analysis: The overall conceptual model was tested by analysing the PROCESS macro tool twice (Hayes, 2012). By performing these analyses, multiple variables could be examined simultaneously. Using the PROCESS tool has several advantages, including centring the predictors, computing the interaction term automatically and procuring simple slope analysis (Field, 2018). First, hypothesis 2 was tested by performing the analysis with model 4. With this model, the mediating relationship of consumer attitude between product type and purchase intention could be determined. Second, hypothesis 3 was tested by performing the analysis with model 7. With this model, a moderated mediation analysis was performed. By performing this analysis, it could be established whether the effect of product type on purchase intention via consumer attitudes changed when the moderation effect of the salience of product uniqueness was taken into account. Several assumptions were required by Hayes (2012) for performing a regression analysis, such as PROCESS macro. First, all outcome variables should be continuous. This was the case as the outcome variables are data from a Likert scale. Second, the independent variables and variable conceived as moderator should be either dichotomous or measured at the interval level. This assumption was initially not met as the variable product type was a nominal variable that contains three factors.

Therefore, indicator coding was used so that commercially upcycled products are compared with reused products and that commercially upcycled products are compared with regular products within these performed tests. The differences between reused and regular products were not examined as this thesis aims to determine whether commercially upcycled products are preferable. As required by Hayes (2012), the third and last assumption required that the errors in estimation should meet the standard assumptions of OLS regression in terms of independence and homoscedasticity. The independence assumption was met by randomly assigning the groups and having a sufficient sample above 77 for a large effect (Field, 2018). The assumption of homoscedasticity was met within the test itself as the option in PROCESS for heteroscedasticity inference was used. Last, there was no missing or out of range data. The relationships between the variables were analysed by testing the significance. The relationships could be considered significant when $P < .05$ and/or the 95% confidence BC bootstrap confidence interval did not contain a zero.

3.2 Research ethics

The Radboud University School of Management (2021) states that the research should be conducted according to an ethically desired code of behaviour. To meet this code, the university's research integrity form was read and signed. This code is similar to the principles of McNabb (2009), who argues that truthfulness, thoroughness, objectivity and relevance should be the standard when conducting research. While researching this thesis, these principles were taken into consideration. To meet the principle of objectivity, the interviews and questionnaires were made anonymous. To meet the principle of relevance, all participants of the questionnaire were informed appropriately about the aim of the study. The participants of the online experiment were informed that they were participating in an experiment where products need to be evaluated. At the end of the questionnaire, clarity about the research topic was provided. All participants were asked permission for allowing the researcher to use the submitted data for research purposes. All collected data was handled with the highest possible care and was not shared with third parties. The participants were informed that the research could be stopped anytime if they did not want to participate anymore. This way, informed consent was met (Field & Hole, 2013; Myers, 2013). Additionally, participants of the interview were asked for permission to record. To meet the principle of truthfulness, the researcher did not provide false information. To meet the principle of thoroughness, the questionnaire participants got the researchers' contact information to get more information about the research.

4. RESULTS

In the preceding chapter, the methodology of this study was discussed. In this chapter, the gathered data were analysed to test the hypotheses. The hypotheses are tested in [section 4.1](#). The conclusion is given in [section 4.2](#). Last, the additional analyses are discussed in [section 4.3](#).

4.1 Hypothesis testing

First, the hypotheses (1, 4 and 5) regarding the differences between the product types are discussed. Second, the hypotheses (2 and 3) regarding the (moderated) mediation effect are discussed.

Hypothesis 1: The first hypothesis tests whether *commercially upcycled and reused (vs regular) products will lead to higher purchase intentions*. The effect of the independent variable product type on purchase intention is measured by performing the non-parametric Kruskal-Wallis test. As included in [Appendix 8.5](#), the results showed that the three product types did not significantly differ based on purchase intention ($H(2) = 3.281, p = .192$). Additionally, by performing the Mann-Whitney test, there were no differences between commercially upcycled and regular products ($U = 1055, z = -1.500, p = .134$). Similar, there was no difference between reused and regular products ($U = 1223, z = -.186, p = .853$). As there are no significant differences between the product types, it can be concluded that hypothesis 1 should be rejected since it cannot be stated that sustainable (vs regular) products lead to higher purchase intentions.

Hypothesis 4 & 5: These two hypotheses are discussed in the same paragraph as they have been examined in the same manner. The fourth hypothesis tests whether *the effect of commercially upcycled and reused (vs regular) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low)*. The fifth hypothesis tests whether *the effect of commercially upcycled (vs reused) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low)*. Both hypotheses examine the effect of the independent variables on consumer behaviour. They could be accepted or rejected by analysing the analysis of variance (for the effect on consumer attitude) and the non-parametric Kruskal-Wallis test (for the effect on purchase intention). First, the effects of the independent variables on consumer attitude were analysed by performing a two-way analysis of variance. The results, as included in [Appendix 8.6](#), show that both the interaction effect ($F(2, 146) = 1.919, P = .150$) and the main effects of product type ($F(2, 146) = 1.338, P = .266$) and salience of product uniqueness ($F(1, 146) = .019, P = .892$) are not significant as $P > .05$ (Field & Hole, 2003; Hair et al., 2014). Therefore, it cannot be stated that product type or the high salience of product uniqueness affects the consumer attitude. The R^2 value of the model is .042. Hence, the independent variables explain 4% of the variance of the dependent variable consumer attitude, implying that there may be more variables that influence the consumer attitude.

Second, the independent variables' effect on purchase intention were analysed by performing the non-parametric Kruskal-Wallis test. The previous paragraph regarding hypotheses 1 concluded that there were no differences between the product types in their purchase intention. The Kruskal-Wallis test was performed with the independent variable group, representing the condition the participant was assigned to. As included in [Appendix 8.5](#), the results showed that the groups did not significantly differ based on purchase intention ($H(5) = 6.083, p = .298$). The additional Mann-Whitney test compared the groups of the same product type to test whether there were differences between the groups based on their level of the salience of product uniqueness. There was no difference between high and low salience of product uniqueness for commercially upcycled ($U = 287, z = -.712, p = .477$), reused ($U = 282, z = -.772, p = .440$) and regular ($U = 233, z = -1.306, p = .192$) products. Thus, there are no differences between the groups based on their degree of product uniqueness or product type in their effect on purchase intention.

To summarize, there are no significant effects of the independent variables (product type and salience of product uniqueness) on consumer attitude or purchase intention. Thus both hypothesis 4 and 5 need to be rejected as there is no significant effect of the independent variables on both dependent variables, implying that there is no effect on consumer behaviour.

Hypothesis 2: The second hypothesis tests *whether the relationship between product type and purchase intention is mediated by consumer attitude*. This mediating relationship was examined with model 4 by Hayes (2012). First, the effect of consumer attitude on purchase intention was interpreted. The results, as included in [Appendix 8.7](#) suggest that there is a significant effect of consumer attitude on purchase intention, $b = .919, t = 16,930, P < .000$, with a 95% confidence interval from .812 to 1.027. Second, to interpret the mediating effect of consumer attitude, the indirect effect in the PROCESS matrix was interpreted. The results for both effects of product type (commercially upcycled vs reused and commercially upcycled vs regular) show a statistically non-significant effect on consumer attitude, as revealed by a 95% confidence BC bootstrap confidence interval that contains a zero (-.832, .086 and -.689, .247, respectively). Additionally, there was no significant direct effect of product type (both commercially upcycled vs reused and commercially upcycled vs regular) to purchase intention, as can be derived from Table 4. There was no mediating effect since the CIs of the indirect path include zero (Hair et al., 2014). It can be concluded that hypothesis 2 should be rejected.

Effects on purchase intention	coeff	se(HC3)	t	p	LLCI	ULCI
Upcycled vs reused	-,078	,156	-,501	,617	-,387	,230
Upcycled vs regular	-,174	,151	-1,152	,251	-,472	,124
Consumer attitude	,920	,054	16,931	,000	,812	1,027

Table 4: Results mediation analysis

Hypothesis 3: This hypothesis tests whether *the mediating effect of consumer attitude between product type and purchase intention is moderated by the salience of product uniqueness, such that this relationship is stronger for higher levels of the salience of product uniqueness*. This moderated mediating relationship was examined with model 7 by Hayes (2012). The results, as included in [Appendix 8.7](#), show that the index of the moderated mediation = .742, SE = .289, CI: -.190 to 1.740, which means that no moderated mediation effect occurs. This is logical as in the previous paragraph it was concluded that there is no mediating effect of consumer attitude in the relationship between product type and purchase intention, as can be derived from Table 4. Moreover, no significant effects could be found, as can be derived from Table 5. It should be concluded that hypothesis 3 should be rejected as there is no moderated mediation effect.

Effects on consumer attitude	coeff	se(HC3)	t	p	LLCI	ULCI
Upcycled vs reused	-,395	,256	-1,545	,125	-,901	,110
Upcycled vs regular	-,243	,263	-,922	,358	-,764	,278
Salience of product uniqueness	-,128	,366	-,351	,726	-,851	,595
Interaction (upcycled vs reused)	-,385	,506	-,761	,448	-1,385	,615
Interaction (upcycled vs regular)	,807	,538	1,500	,136	-,257	1,871

Table 5: Results moderated-mediation analysis

4.2 Conclusion

To summarize, all the stated hypotheses were not supported within this research. Table 6 shows an overview, which presents the hypotheses and the conclusion of this analysis.

	Hypothesis	Conclusion
H1	Commercially upcycled and reused (vs regular) products will lead to higher purchase intentions.	Not supported
H2	The relationship between product type and purchase intention is mediated by consumer attitude.	Not supported
H3	The mediating effect of consumer attitude between product type and purchase intention is moderated by the salience of product uniqueness, such that this relationship is stronger for higher levels of the salience of product uniqueness.	Not supported
H4	The effect of commercially upcycled and reused (vs regular) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low).	Not supported
H5	The effect of commercially upcycled (vs reused) products on consumer attitude and purchase intention are more pronounced when salience of product uniqueness is high (vs low).	Not supported

Table 6: Conclusion hypotheses

4.3 Additional analyses

Besides the hypotheses testing, multiple exploratory additional data analyses were performed. First, the mean values of the tested variables were assessed. The descriptive values of all participants showed that the variables purchase intention ($\mu=2.30$) and consumer attitude ($\mu=3.16$) were ranked negatively based on the 1-7 Likert scale. For the factors consumer attitude contained (nostalgic appeal, product evaluation, aesthetic benefits and hedonic benefits), the average was the lowest for aesthetic benefits ($\mu=2.61$). The exact measures can be found in [Appendix 8.8](#) in table 11.

Second, a test was performed to check whether there might be differences between product type and/or salience of product uniqueness on the several factors (nostalgic appeal, hedonic benefit, aesthetic benefit) that consumer attitude contains. A multivariate analysis of variance could not be performed as transforming the data (inverse, square root, natural logarithm, and squared) did not create a normal distribution for each separate variable with a Skewness/Standard Error for Skewness or Kurtosis/Standard Error for Kurtosis $< |2|$ (Fernandez, 1992; Finney, 1989; Jacobs, 2020). Therefore, several two-way analyses of variance were performed to test the effect of the independent variables (product type and salience of product uniqueness) on the different discussed dependent variables. For the variable nostalgic appeal, all assumptions for the analysis of variance, as discussed in [section 3.1](#), were met. The variable hedonic benefit did meet all assumptions besides the assumption for normality. The variable needed to be transformed into a log variable to create a normal distribution with a Skewness/Standard Error for Skewness or Kurtosis/Standard Error for Kurtosis $< |2|$ (Field, 2018; Jacobs, 2020). For the variable aesthetic benefit, transformations did not lead to a normal distribution, and therefore this variable will not be examined further. From the analysis of variance can be concluded that neither product type, ($F(2, 146) = .856, P = .427$) nor salience of product uniqueness ($F(1, 146) = 0.164, P = .686$), nor the interaction effect ($F(2, 146) = 1.439, P = .241$) had a significant effect on the variable nostalgic appeal. The effects of hedonic benefits on the several factors that consumer attitude contains are similar to nostalgic appeal. Neither product type, ($F(2, 146) = 1.511, P = .224$) nor salience of product uniqueness ($F(1, 146) = .249, P = .619$), nor the interaction effect ($F(2, 146) = 1.810, P = .167$) had a significant effect. This implies no differentiating effects for the independent variables based on the several factors (nostalgic appeal, hedonic benefit, aesthetic benefit) that consumer attitude contains.

Third, the effects of the demographic variables were examined to test whether there were differentiating effects found in the two-way analysis of variance when splitting the file for each demographic variable. For each variable, no significant differentiating effects for the several groups that the variable contained were found. This implies no differentiating effects for the independent variable on consumer attitude based on the demographic variables.

5. DISCUSSION

Within this thesis, the differences between commercially upcycled, reused, and regular products were examined. Additionally, the study established whether the salience of product uniqueness affected the relationship between product type and consumer behaviour. Within this chapter, conclusions are drawn from the results and substantiated with the literature.

Based on the vital role of environmentalism on consumers' purchasing behaviour today (Panizzut et al., 2021; Retail Detail, 2021), it was hypothesised that the two sustainable product types would lead to higher purchase intentions than the regular product type. However, the study showed with a Kruskal-Wallis test no difference between the product types in their effect on purchase intention. Thus, the results of this study did not show that sustainable product types lead to higher purchase intentions than the regular product type. This discrepancy can be attributed to the attitude-behaviour gap. Although consumers report that they are very environmentally aware, they do not translate this into actual purchase intentions (Kim & Rha, 2014; Pelozo et al., 2012; Young et al., 2010). Hence, the results show that although research acknowledges that environmentalism plays a vital role in consumers' behaviour, this does not necessarily lead to purchase intentions.

Contrary to expectations, this study did not find significant differences between the different product types in their effect on consumer attitude. As both the purchase intention and consumer attitude were not influenced by product type, it can be concluded that product type does not significantly affect the consumer behaviour of Dutch consumers. This result was unanticipated as it was expected that sustainable products would be perceived better than regular products. Prior studies (Guiot & Roux, 2010; Hristova, 2019) have shown that both sustainable product types offer aesthetic and hedonic benefits because of their nostalgic appeal, which the regular product type cannot offer as these products do not have a history. Moreover, the positive effect of the aesthetic and hedonic benefits on consumer behaviour regarding upcycled products was acknowledged by Yu & Lee (2019). However, this study has been unable to demonstrate the differences between the product types. This result may be explained by the study of Rokka & Uusitalo (2008). These authors argue that the choice for a product is often the outcome of a multi-attribute evaluation process, where consumers engage in trade-offs among various product attributes perceived either positively or negatively. Therefore, even the most environmentally conscious consumers do not choose products merely based on their environmental aspects. Consumers have to make decisions that involve a trade-off between product sustainability and other valued product attributes (Kumar, 2015; Luchs et al., 2010; Luchs et al., 2012). The somewhat contradictory result of this study might be due to the lack of acceptable attributes of the stimulus. The mean score for consumer attitude was ranked low ($\mu=3.16$) on the 1-7 Likert scale, implying that the participants did not agree with the statements and perceived the stimulus negatively. This might explain why the sustainable product types within this thesis were not perceived as favourable.

For the factors consumer attitude contained (nostalgic appeal, product evaluation, aesthetic benefits and hedonic benefits), the average was the lowest for aesthetic benefits ($\mu=2.61$). It seems imaginable that the low score on consumer attitude was due to the low ranking of aesthetic benefits since the overall product evaluation was ranked at $\mu=3.47$. As mentioned in the literature review, both sustainable products types are in the niche segment, which causes these product types not to be aesthetically appealing to everyone (Szaky, 2014; Williams, 2003; Wilson, 2016). Rausch & Kopplin (2021) proved that when consumers perceive products as not aesthetically appealing, this negatively impacts their consumer behaviour.

Next, the effect of the salience of product uniqueness was established. It was hypothesised that the uniqueness of the product would positively influence all product types because of their hedonic benefits (Wilson, 2016). Consequently, the high salience of product uniqueness was expected to fuel demand as people want to feel special (Bellezza et al., 2014; Han et al., 2010; Veblen, 1994). The positive effect of the salience of product uniqueness was expected to be especially pronounced for commercially upcycled and reused products more than for regular products, as sustainable products offer benefits because of their nostalgic appeal. Because of their nostalgic appeal, both commercially upcycled and reused products offer hedonic benefits since they are perceived as unique, which provides higher value than regular products (Guiot & Roux, 2010; Hristova, 2019; Wilson, 2016). Surprisingly, the study showed with a (two-way) analysis of variance and the Kruskal-Wallis test that there are no significant effects of the salience of product uniqueness on consumer behaviour. There was neither an effect of the salience of product uniqueness on purchase intention nor consumer attitude. In contrast to expectations, it cannot be stated that the salience of product uniqueness affects Dutch consumers' behaviour. The discrepancy could be attributed to the uniqueness of the stimulus not being salient enough. The uniqueness was made salient within the study by simply stating that the product was unique and special. However, Goldsmith & Clark (2009) suggest that when managers try to promote unique and sustainable products, they should emphasize positive information about the consumer and promote uniqueness in a socially accepted way. By providing the consumer with more information within the advertisement description, the effect of the salience of product uniqueness of the two sustainable product types might have caused a positive differentiating effect on the consumer behaviour. Moreover, the effect of product uniqueness is dependent on the need for uniqueness of the consumers. Consumers differ in the extent to which they hold the need to acquire rare, special and thus unique items (Lynn & Harris, 1996). According to Snyder & Fromkin' (1980) uniqueness theory, this motivation varies across individuals and situations. When consumers do not have a need for uniqueness, the benefits of the product uniqueness do not hold. The participants need for uniqueness in this study might have been low, causing a non-significant effect on the consumer attitude.

Last, the (moderated) mediation effects were tested. Based on the theory of planned action (Fishbein and Ajzen (1975), it was assumed that there would be a mediating relationship of consumer attitude between product types and purchase intention. The study showed with a model 4 PROCESS analysis no relationship between product types and purchase intention. Neither did the study show a mediating effect of consumer attitude. Moreover, it was hypothesised that the salience of product uniqueness would affect the relationship between product type and consumer attitude, as explained in the previous paragraph. Contrary to expectations, there was no moderated mediating relationship found by assessing the PROCESS analysis model 7. This implies that product uniqueness does not affect the relationship between product type and consumer attitude. Nevertheless, this study confirmed with the PROCESS analyses that consumer attitude affects purchase intention. These findings are consistent with Chai & Chen (2010), Chan (2001), Joshi & Rahman (2015) and Tanner & Kast (2003), who argue that this positive relationship exists for sustainable products. The results further support the idea that attitude positively affects future purchase intentions and actual purchasing behaviour (Ajzen, 1991; Fazio, 1990).

6. CONCLUSION

This study aimed to provide novel insights into the influence of product type on consumer behaviour (encompassing the consumer attitude and purchase intention) and to study whether the degree of salience of product uniqueness influenced this relationship. In particular, to find out what makes commercially upcycled products favourable. The study's purpose was to answer the following research question: *‘what is the difference in consumer attitude and purchase intention of commercially upcycled, reused, and regular products and do these differentiating effects increase when the salience of the product uniqueness is high (vs low)?’* To answer this very concisely: there are no significant differences between the several product types in the consumer behaviour encompassing consumer attitude and purchase intention. Hence, the study has not identified that commercially upcycled products are favourable compared to reused and regular products. Moreover, the effect of product type on consumer behaviour is not pronounced under the condition of high (vs low) salience of the product uniqueness. In conclusion, all hypotheses were rejected. Within this chapter, the theoretical implications are discussed in [section 6.1](#). Next, the managerial implications are discussed in [section 6.2](#). Finally, the limitations and recommendations for future research are discussed in [section 6.3](#).

6.1 Theoretical implications

Although all hypotheses were rejected, the results of this study might provide novel insights into consumer behaviour towards commercially upcycled, reused and regular products and the influence of salience of product uniqueness on this relationship. The findings from this study make several contributions to the current literature. First, this study is one of the first investigations on consumer behaviour towards commercially upcycled and reused products since the consumer behaviour towards these product types has been rarely studied so far (Guiot & Roux, 2010; Paras & Curteza, 2018; Sung, 2015; Wagner & Heinzl, 2020; Wilson, 2016). Second, the study extends the existing knowledge by investigating the effect of the salience of product uniqueness. This effect had not been researched before, and therefore, these insights have extended our knowledge. Third, while previous studies on upcycling focused on upcycling as a consumer activity (Wilson, 2016) or manufacturing or design issues (Yu & Lee, 2019), this thesis contributed to our understanding by focussing on commercial upcycling. Fourth, this thesis extends our knowledge by applying a general approach, while previous studies mainly focused on the product category of textile and fashion (Paras & Curteza, 2018; Sung, 2015; Wagner & Heinzl, 2020). Fifth and last, this thesis focused on the consumer behaviour of Dutch consumers. Their consumer behaviour towards reused and commercially upcycled products was not researched before (Sung, 2015). None of the results of this study showed any significance, implying that it is very interesting for academics to learn more about consumer behaviour towards commercially upcycled and reused products and how they potentially can be influenced by the salience of product uniqueness. Thus, the insights gained from this study might be an assistance to understand the consumer behaviour towards commercially upcycled and reused products.

6.2 Managerial implications

From a managerial point of view, the insights of this study are valuable since environmentalism is crucial for consumer's purchasing behaviour today (Panizzut et al., 2021). Organizations associated with upcycling or reusing can use the results of this thesis to gain more knowledge about consumer behaviour towards these product types. It is crucial for firms to understand consumers' responses towards sustainable products, as understanding these perceptions will help businesses adapt to the changing world (Banerjee et al., 2003). The study proves that the customer attitude influences the purchase intention, which is essential to realize for managers. Hence, when trying to market these sustainable product types, managers should try to gain a positive consumer attitude, as White et al. (2019) suggested. However, managers should bear in mind that there could be a discrepancy in consumers' attitude and behaviour. Consumers might report that they are very environmentally aware but do not necessarily translate this into actual behaviour as the results of this study have shown (Kim & Rha, 2014; Pelozo et al., 2012; Young et al., 2010). As all hypotheses within this thesis are rejected, the results of this study might offer managers of commercially upcycled and/or reused products guidelines on how they should not market these products. The results show that product type and salience of product uniqueness are no predictors for the consumer behaviour of Dutch consumers when focussing on the aesthetic and hedonic benefits of the products. Thus, it could be argued that based on the results of this study, managers should not primarily focus on these benefits when marketing commercially upcycled and/or reused products as it does not differentiate them from regular products. Managers should ensure that their products are adequate on all attributes as consumers engage in trade-offs among various product attributes (Kumar, 2015; Luchs et al., 2010; Luchs et al., 2012; Rokka & Uusitalo, 2008). Neither should managers market commercially upcycled nor reused products by simply stating that products are unique and special. The results of this study indicate that this might not be sufficient. When marketing these products, it is advisable to make the uniqueness of the products more salient, as suggested by Goldsmith & Clark (2009).

6.3 Limitations and future research

While this study enhances our understanding of the consumer behaviour towards commercially upcycled and reused products, the study offers its limitations. The first point of critique regards the sample of the study. Although the sample size can affect finding significant effects, the sample size in this study does not directly cause this situation. The sample size used in this study should be sufficiently large ($N = 152$) as the minimum ratio of 20 participants per group has been taken into account (Blazevic, 2020; Hair et al., 2014). However, a larger sample size with at least 30 participants per group is preferred and would have improved the reliability of the results (Field, 2018). Additionally, since the participants were recruited via a convenience sample, not everyone got an equal chance to participate in the research because they simply did not get the link to the experiment.

Therefore, there is no guarantee that the results will represent the whole population using a convenience sample (Boeije & Bleijenbergh, 2005; Farrokhi & Mahmoudi-Hamidabad, 2012). After all, the participants were approached via the researcher's family, friends, fellow students and colleagues via Facebook, WhatsApp and LinkedIn. For future research, it is recommendable to use a probability sampling technique, such as a simple random sampling, to avoid the low external validity limitation. Moreover, as the link was distributed via the own network, the participants were just like the researcher, mostly higher educated female millennials who lived in the city. These limitations in the variance of the demographics harm the generalizability and external validity of this research (Onwuegbuzie, 2000). Although the performed additional analyses showed no differentiating effects between the age groups, younger generations are expected not to be generalizable to the Dutch consumers. Literature (Jayson, 2006; Mahoney, 2007; Wilson, 2016) showed that social and environmental responsibility define younger generations' characteristics, reflecting their consumer behaviour. Future research would be highly recommendable to use other audiences to obtain a complete sample to increase the external validity. Within this future research, it is recommendable to have an equal number of participants for every age in the different groups to generalize results. Besides, the distribution between the genders should be more equal as the current sample contained around 75% females. Although the additional analyses showed no differentiating effects for gender, this unequal gender distribution might have been biased the results. Studies (Brown & Harris, 1992; Tikka et al., 2000) have shown significant differences between men and women in environmental attitudes. Women show stronger environmental consumer behaviour than men (Finisterra do Paco & Raposo, 2008). Moreover, there is no guarantee that the sample is generalizable as not the whole target group could be reached online. For example, some people disorientate themselves from all social media. Therefore, the sample of this study does not represent consumers throughout the Netherlands.

The second point of critique is that this study used a between-subjects design where participants were assigned to only one of the six groups. The between-group design ensured that the participants were not influenced by seeing the descriptions of other items, which makes the questionnaire reliable. However, this might have influenced the results as participants could not directly compare the different options since they were presented solely with one option. No reference was available for making the decisions concerning product type or salience of product uniqueness. By making use of a mixed design, the comparisons could have been more evident to the participants. This could have forced the participants to trade-off the product types or salience of product uniqueness, impacting the results (Charness et al., 2012).

The third point of critique on this study concerns the manipulation checks within the online experiment. It is unfortunate that the study did not include a manipulation check regarding the uniqueness of the product for the groups with a low salience level. Therefore, it could not be examined whether the groups with a low level of salience did perceive the product as unique. It was not possible to assess whether the manipulation for uniqueness was based on the item itself or the description of the advertisement. This limitation violates the internal validity of the study. Future research should include a control group with manipulation checks to see where the effect comes from. Notwithstanding this limitation, the manipulation checks did offer valuable insights. The chosen stimuli were considered successful for measuring the differences in product type and salience of product uniqueness based on the manipulation checks. Only 19/177 participants considered the chosen stimuli unsuitable. The mean values of the separate manipulation checks ranged between $\mu=4.09$ and $\mu=5.46$ with an average of $\mu=5.03$ on a 1-7 Likert scale, which implies that the participants on average agreed that the stimuli were unique and/or belonged to the according product type. Nevertheless, it would have been preferable if the mean values of the separate manipulation checks were all above five, implying that the respondents agreed with the statement of each separate manipulation check. Future research might explore whether other stimuli might have caused different results. Further work should include other stimuli to obtain more profound knowledge and determine whether the same effects apply. The exact measures of the manipulation checks can be found in [Appendix 8.8](#) in table 12.

The fourth and last point of critique on this study is that the generalisability of literature study' insights are subject to certain limitations. First, the literature study is not necessarily generalizable to the target group of Dutch consumers. The consumer behaviour towards commercially upcycled and reused products of Dutch consumers had not been researched before (Sung, 2015), which might have caused the proposed hypotheses to be rejected as the assumptions were not based on the examined target group. Since every country has its values (Hofstede, 1980), consumers in different regions and countries value the discussed benefits and concerns differently. Thus, the lack of attention to cultural values has potentially distorted the results. Second, the literature study is partially based on sources that could be considered as outdated. Some sources are published over a decade ago, causing the findings not to be fully generalizable anymore as society and consumer behaviour changes over time. However, as there is a lack of research on the topic, outdated research was considered still helpful for this thesis. Due to the shortage of research, there is not much research undertaken after the 'outdated' studies that proved the conclusions of these studies wrong. It can be concluded that although the limited amount of current research on the topic has caused this study to be valuable as it offers novel insights, it also offers its limitations.

Besides the in this section discussed recommendations for future research, the knowledge could be extended by examining other benefit and concern dimensions. This study has solely focused on the hedonic and aesthetic benefits of the product types. As the R² value of the model of the independent variable (product type and salience of product uniqueness) on consumer attitude was .042, the independent variables explained solely 4% of the variance of the dependent variable consumer attitude. Thus, there may be more variables that influence consumer attitude. Future research could examine whether other benefits and concern dimensions (economic, social, functional and/or environmental) established by Yu & Lee (2019) provide significant effects that distinguish the product types from one and another.

7. REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211. doi:10.1016/0749-5978(91)90020-T
- Babbie, E. (2013). *The Practice of Social Research*. Wadsworth, United Kingdom: Cengage Learning.
- Banerjee, S.B., Easwar, S.I., & Rajiv, K.K. (2003). Corporate Environmentalism: Antecedents and Influence of Industry Type. *Journal of Marketing*, 67(2), 106–122. doi:10.1509/jmkg.67.2.106.18604
- Belk, R.W. (1988). Possessions and the extended self. *Journal of Consumer Research*, 15(2), 139-168. doi:10.1086/20915
- Bellezza, S., Francesca, G., & Anat, K. (2014). The Red Sneakers Effect: Inferring Status and Competence from Signals of Nonconformity. *Journal of Consumer Research*, 41(1), 35–54. doi:10.1086/674870
- Blazevic, V. (2020). AN(C)OVA – 2.5. [Video lecture]. Retrieved from <https://brightspace.ru.nl/d2l/le/content/161124/viewcontent/844194/View>
- Boeije, H. & Bleijenbergh, I. (2005). *Analyseren in kwalitatief onderzoek*. Amsterdam, Netherlands: Boom Uitgevers.
- Bridgens, B., Powell, M., Farmer, G., Walsh, C., Reed, E., Royapoor, M., Gosling, P., Hall, J. & Heidrich, O. (2018). Creative upcycling: Reconnecting people, materials, and place through making. *Journal of Cleaner Production*, 189, 145–154. doi: 10.1016/j.jclepro.2018.03.317
- Brown, G. & Harris, C. (1992). The US forest service: Toward the new resource management paradigm? *Society and Natural Resources*, 5, 231-245. doi:10.1080/08941929209380789
- Chai, C.A. & Chen, T.B. (2010). Attitude towards the environment and green products: Consumers' perspective. *Management science and engineering*, 4(2), 27-39. doi:10.3968/j.mse.1913035X20100402.002
- Chan, R.Y.K. (2001). Determinants of Chinese consumers' green purchase behaviour. *Psychological and Marketing*, 18(4), 389-413. doi:10.1002/mar.1013
- Chang, C. (2011). Feeling Ambivalent About Going Green. *Journal of Advertising*, 40(4), 19–32. doi:10.2753/JOA0091-3367400402
- Charness, G., Gneezy, U. & Kuhn, M.A. (2012). Experimental methods: Between-subject and within-subject design. *Journal of Economic Behaviour & Organization*, 81(1), 1-8. doi:10.1016/j.jebo.2011.08.009

- Cooper, D.R. & Gutowski, T.G. (2015). The Environmental Impact of Reuse, a Review. *Journal of Industrial Ecology*, 21(1), 38-56. doi:10.1111/jiec/12388
- Farrokhi, F., & Mahmoudi-Hamidabad, A. (2012). Rethinking convenience sampling: Defining quality criteria. *Theory and Practice in Language Studies*, 2(4), 784-792. doi:10.4304/tpls.2.4.784-792
- Fazio, R.H. (1990). Multiple processes by which attitudes guide behavior: The mode model as an integrative framework. *Advances in Experimental Social Psychology*, 23, 75-109. doi:10.1016/S0065-2601(08)60318-4
- Fernandez, G.C.J. (1992). Residual Analysis and Data Transformations: Important tools in Statistical Analysis. *HortScience*, 27(4), 297 – 300.
- Field, A. & Hole, G. (2003). *How to design and report experiments*. London, United Kingdom: Sage Publications
- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics, 5th edition*. London, United Kingdom: Sage Publications.
- Finisterra do Paco, A.M. & Raposo, M.L.B. (2008). Determining the characteristics to profile the ‘green’ consumer: an exploratory approach. *International Review on Public and Nonprofit Marketing*, 5, 129-140. doi:10.1007/s12208-008-0010-9
- Finney, D. (1989). Was This in Your Statistics Textbook? V. Transformation of Data. *Experimental agriculture*, 25(2), 165-175. doi:10.1017/S0014479700016665
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Boston, MA: Addison-Wesley.
- Gleim, M.R., Smith, J.S, Andrews, D. & Cronin, J. (2013). Against the Green: A Multi-Method Examination of the Barriers to Green Consumption. *Journal of Retailing*, 89(1), 44–61. doi:10.1016/j.jretai.2012.10.001
- Goldsmith, R.E., & Clark, R.A. (2009). Uniqueness motivation in consumer behavior. *American Marketing Association*, 20, 311- 316.
- Gomez, K.A. & Gomez, A.A. (1984). *Statistical procedures for agricultural research*. New York, NY Wiley.
- Gregson, N. & Crewe, L. (2003). *Secondhand cultures*. New York, NY: Berg.
- Guiot, D. & Roux, D. (2010): A Second-hand Shoppers’ Motivation Scale: Antecedents, Consequences, and Implications for Retailers. *Journal of Retailing*, 86(4), 355-371. doi:10.1016/j.jretai.2010.08.002

- Gullstrand Edbring, E., Lehner, M. & Mont, O. (2016). Exploring consumer attitude to alternative models of consumption: motivations and barriers. *Journal of Cleaner Production*, 123, 5-15. doi:10.1016/j.jclepro.2015.10.107
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate Data Analysis*. Essex, United Kingdom: Pearson Education Limited.
- Han, J.C., Nunes, & Xavier, D. (2010). Signalling Status with Luxury Goods: The Role of Brand Prominence. *Journal of Marketing*, 74(4), 15–30. doi:10.1509/jmkg.74.4.015
- Hayes, A.F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modelling* [White paper]. <http://www.afhayes.com/public/process2012.pdf>
- Herjanto, H., Scheller-Sampson, J. & Erickson, E. (2016). The increasing phenomenon of second-hand clothes purchase: insights from the literature. *Jurnal manajemen dan kewirausahaan*, 18(1), 1-15. doi:10.9744/jmk.18.1.1-15
- Hoewe, J. (2020). Toward a theory of media priming. *Annals of the International Communication Association*, 44(4), 1-10. doi:10.1080/23808985.2020.1815232
- Hofenk, D., Birgelen, van, M., Bloemer, J. & Semeijn, J. (2017). How and When Retailers' Sustainability Efforts Translate into Positive Consumer Responses: The Interplay Between Personal and Social Factors. *Journal of Business ethics*, 156, 473-492. doi:10.1007/s10551-017-3616-1
- Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-related Values*. Beverly Hills, CA: Sage.
- Hristova, Y. (2019). The Second-Hand Goods Market: Trends and Challenges. *Economic sciences series*, 8(3), 62-71. doi:10.36997/IJUSV-ESS/2019.8.3.62
- Hughner, R.S., McDonagh, P., Prothero, A., Shultz, C.J., & Stanton, J. (2007). Who Are Organic Food Consumers? A Compilation and Review of Why People Purchase Organic Food. *Journal of Consumer Behavior*, 6(2), 94–110. doi:10.1002/cb.210
- Jacobs, E. (2020). *Weblecture hoorcollege 5*. [Video lecture]. Retrieved from <https://brightspace.ru.nl/d2l/le/content/94132/viewContent/662302/View>
- Jayson, S. (2006, 24 October). Generation Y gets involved. *USA Today*, 26.

- Joshi, Y., & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategic management review*, 3(1-2), 128-143. doi:10.1016/j.ism.2015.04.001
- Kamleitner, B., Thürridl, C. & Martin, B.A.S. (2019). A Cinderella story: how past identity salience boosts demand for repurposed products. *Journal of Marketing*, 83(6), 76-92. doi:10.1177/0022242919872156
- Kapitan, S. & Bhargave, R. (2013). Navigating residue sensitivity in the used goods marketplace. *Psychology and Marketing*, 30(4), 305-317. doi:10.1002/mar.20607
- Kay, T. (1994, 11 October). Salvo in Germany: Reiner Pilz. *Salvonews*, <https://www.salvoweb.com/files/sn99sm24y94tk181119.pdf>
- Keith, S. & Silies, M. (2015). New life luxury: upcycled Scottish heritage textiles. *International Journal of Retail & Distribution Management*, 43(10), 1051-1064. doi:10.1108/IJRDM-07-2014-0095
- Keller, K.L. (1993). Conceptualizing, measuring, and managing consumer-based brand equity. *Journal of Marketing*, 57(1), 1–22. doi:10.1177/002224299305700101
- Keller, K.L., & Swaminathan, V. (2019). *Strategic Brand Management. Building, Measuring, and Managing Brand Equity* (5th edition). London, United Kingdom: Pearson Education Limited.
- Kempthorne, O. (1952). *Design and analysis of experiments*. New York, NY: Wiley.
- Kim, S.Y. & Rha, J.Y. (2014). How consumers differently perceive about green market environments: Across different consumer groups in green attitude-behaviour dimension. *International Journal of Human Ecology*, 15(2), 43-57. doi:10.6115/ijhe.2014.15.2.43
- Kohavi, R., Longbotham, R., Sommerfield, D., & Henne, R. M. (2009). Controlled experiments on the web: questionnaire and practical guide. *Data mining and knowledge discovery*, 18, 140-181. doi:10.1007/s10618-008-0114-1
- Kopytoff, I. (1986). *The Cultural Biography of Things: Commoditization as Process,*” *The Social Life of Things*. Cambridge, United Kingdom: Cambridge University Press.
- Kuchinka, D.G.J., Balazs, S., Gavrilletea, M.D. & Djokic, B. (2018). Consumer attitude toward sustainable development and risk to brand loyalty. *Sustainability*, 10(4), 1-25. doi:10.3390/su10040997
- Kumar, B. (2012). *Theory of Planned Behaviour Approach to Understand the Purchasing Behaviour for Environmentally Sustainable Products* (Working paper 2012-12-08). India: Indian Institute of Management.

- Kumar, B., Manrai, A. K. & Manrai, L. A. (2017). Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. *Journal of retailing and Consumer services*, 34, 1-9. doi:10.1016/j.jretconser.2016.09.004
- Lamming, R., Harland, C., Zheng, J. & Johnsen, T. (2000). An initial classification of supply networks. *International Journal of Operations and Production Management*, 20(6), 675-694. doi:10.1108/01443570010321667
- Likert, R. (1932). A Technique for the Measurement of Attitudes. *Archives of Psychology*, 22(140) 1-55.
- Little, T.M. & Hills, F.J. (1978). *Agricultural experimentations– Design and analysis*. New York, NY: Wiley.
- Luchs, M. G., Brower, J., & Chitturi, R. (2012). Product choice and the importance of aesthetic design given the emotion-laden trade-off between sustainability and functional performance. *Journal of Product Innovation Management*, 29(6), 903–916. doi:10.1111/j.1540-5885.2012.00970.x
- Luchs, M.G., Walker-Naylor, R., Irwin, J.R. & Raghunathan, R. (2010). The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *Journal of Marketing*, 74(5), 18–31. doi:10.1509/jmkg.74.5.018
- Lucirmás. (2017). *What is the difference between upcycling and recycling?* Retrieved on January 26th, 2021, from <https://lucirmas.com/en/difference-between-upcycling-and-recycling/>
- Lynn, M. & Harris, J. (1996). The desire for unique consumer products: a new individual differences scale. *Psychology and Marketing*, 14(6), 601-616. doi:10.1002/2520-6793
- Mahoney, S. (2007). *Study: Gen Y shoppers drawn to greener marketers*. Retrieved on 31st of May, 2021, from <https://www.mediapost.com/publications/article/67815/study-gen-y-shoppers-drawn-to-greener-marketers.html>
- Mataja, A. (2017). *Was ist upcycling?* Retrieved on February 17th, 2021, from <https://www.handwerk-magazin.de/was-ist-upcycling/150/3/347850>
- McColl, J., Canning, C., McBride, L., Nobbs, K. & Shearer, L. (2013), It's Vintage Darling! An exploration of vintage fashion retailing. *Journal of The Textile Institute*, 104(4), 140-150. doi:10.1080/00405000.2012.702882.
- McGoldrick, P.J. & Freestone, O.M. (2008). Ethical product premiums: antecedents and extent of consumers' willingness to pay. *The International Review of Retail, Distribution and Consumer Research*, 18(2), 185 – 201. doi:10.1080/09593960701868431

- McNabb, D.E. (2009). *Research Methods for Political Science: Qualitative and Quantitative Methods*. New Delhi, India: PHI Learning Private Limited.
- Mohr, L. A., & Webb, D. J. (2005). The effects of corporate social responsibility and price on consumer responses. *Journal of Consumer Affairs*, 39(1), 121–147. doi:10.1111/j.1745-6606.2005.00006.x
- Myers, M. (2013). *Qualitative Research in Business and Management*. Thousand Oaks, CA: Sage Publications Ltd.
- Newman, G.E., Gorlin, M. & Dhar, R. (2014). When Going Green Backfires: How Firm Intentions Shape the Evaluation of Socially Beneficial Product Enhancements. *Journal of Consumer Research*, 41(3), 823–839. doi:10.1086/677841
- Onwuegbuzie, A. J. (2000). *Expanding the framework of internal and external validity in quantitative research* [Unpublished manuscript]. Valdosta State University.
- Panizzut, N., Radi-Ul-Shan, P.M., Amar, H., Sher, F. Mazhar, M.U. & Klemes, J.J. (2021). Exploring relationship between environmentalism and consumerism market economy society: a structured systematic literature review. *Cleaner Engineering and Technology*, 2, 1-13. doi:10.1016/j.clet.2021.100047.
- Paras, M.K., & Curteza, A. (2018). Revisiting upcycling phenomena: a concept in the clothing industry. *Research Journal of Textile and Apparel*, 22(1), 46-58. doi:10.1108/RJTA003-2017-0011
- Park, H.J. & Lin, L.M. (2018). Exploring attitude-behaviour gap in sustainable consumption: comparison of recycled and upcycled fashion products. *Journal of Business Research*, 117, 623-628. doi:10.1016/j.jbusres.2018.08.025
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of retailing and consumer services*, 29, 123-134. doi:10.1016/j.jretconser.2015.11.006
- Peloza, J., White, K., & Shang, J. (2012). Good and guilt free: The role of self-accountability in influencing preferences for products with ethical attributes. *Journal of Marketing*, 77(1), 104–119. doi:10.1509/jm.11.0454
- Rausch, T.M. & Kopplin, C.S. (2021). Bridge the gap: Consumers' purchase intention and behaviour regarding sustainable clothing. *Journal of Cleaner Production*, 278, 1-15. doi:10.1016/j.jclepro.2020.123882
- Retail Detail. (2021). *Exclusief onderzoek: 'Covidcrisis is gamechanger voor winkelgedrag'*. Retrieved on January 22nd, 2021, from <https://www.retaildetail.be/nl/news/food/exclusief-onderzoek-%E2%80%9C%E2%80%9C-covidcrisis-gamechanger-voor-winkelgedrag%E2%80%9D>

- Rokka, J., & Uusitalo, L. (2008). Preference for green packaging in consumer product choices—do consumers care? *International Journal of Consumer Studies*, 32, 516–525. doi:10.1111/j.1470-6431.2008.00710.x
- Snyder, C. R., & Fromkin, H. L. (1980). *Uniqueness: The human pursuit of difference*. New York, NY: Plenum.
- Sung, K. (2015). A review on upcycling: current body of literature, knowledge gaps and a way forward. *Proceedings of the 17th International Conference on Environment, Cultural, Economic and Social Sustainability, Venice, 17(4)*, 28-40.
- Sweeney, J.C. & Soutar, G.N. (2001). Consumer perceived value: The development of a multiple-item scale. *Journal of Retail*, 77(2), 203–220. doi:10.1016/S0022-4359(01)00041-0
- Szaky, T. (2014). *Outsmart waste: The modern idea of garbage and how to think our way out of it*. San Francisco, CA: Berrett-Koehler Publisher, Inc.,
- Tanner, C., & Kast, S.W. (2003). Promoting sustainable consumption: Determinants of green purchases by Swiss Consumers. *Psychology and Marketing*, 20(10), 883-902. doi:10.1002/mar.10101
- The Radboud University School of Management. (2021). Master Thesis Handbook for Business Administration [Handbook]. Retrieved from <https://brightspace.ru.nl/d21/le/content/161127/viewContent/954704/View>
- Tikka, P., Kuitunen, M. & Tynys, S. (2000). Effects of educational background on students' attitudes, activity levels, and knowledge concerning the environment. *Journal of Environmental Education*, 31(1), 12-19. doi:10.1080/00958960009598640
- Truelove, H.B., Carrico, A.R., Weber, E.U., Raimi, K.T. & Vandenberg, M.P. (2014). Positive and Negative Spillover of Pro-environmental Behavior: An Integrative Review and Theoretical Framework. *Global Environmental Change*, 29, 127–38. doi:10.1016/j.gloenvcha.2014.09.004
- Veblen, T. (1994). *The Theory of the Leisure Class*. New York, NY: Penguin Books
- Wagner, M.M., & Heinzl, T. (2020). Human perceptions of recycled textiles and circular fashion: a systematic literature review. *Sustainability*, 12(4), 128. doi:10.3390/su122410599
- Wang, J. (2011). *Upcycling Becomes a Treasure Trove for Green Business Ideas*. Retrieved on February 13th, 2021, from <https://www.entrepreneur.com/article/219310>
- Wei, X. & Jung, S. (2017). Understanding Chinese Consumers' Intention to Purchase Sustainable Fashion Products: The Moderating Role of Face-saving Orientation. *Sustainability*, 9(9), 1570. doi:10.3390/su9091570

- White, K., Habib, R., & Hardisty, D.J. (2019). How to SHIFT consumer behaviour to be more sustainable: a literature review and guiding framework. *Journal of Marketing*, 83(3), 22-49. doi:10.1177/0022242919825649
- Williams, C.C. (2003). Explaining Informal and second-hand goods. *The International Journal of Sociology and Social Policy*, 23(12), 95-110. doi:10.1108/01443330310790426
- Wilson, M. (2016). When creative consumers go green: Understanding consumer upcycling. *Journal of product and Brand Management*, 25(4), 394–399. doi:10.1108/JPBM-09-2015-0972
- Winterich, K. P., Nenkov, G. Y. & Gonzales, G. (2019). Knowing What It Makes: How Product Transformation Salience Increases Recycling. *Journal of Marketing*, 83(4), 21-37. doi:10.1177/0022242919842167
- Xu, Y., Chen, Y., Burman, R. & Hongshan, Z. (2014). Second-hand clothing consumption: a cross-cultural comparison between American and Chinese young consumers. *International Journal of Consumer Studies*, 38(6), 670-677. doi:10.1111/ijcs.12139
- Yin, R.K. (1994). *Case study research; design and methods*. Thousand Oaks, CA: Sage Publications Ltd.
- Yu, S. & Lee, J. (2019). The effects of consumers' perceived values on intention to purchase upcycled products. *Sustainability*, 11(4), 1034. doi:10.3390/su11041034
- Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52, 2–22. doi:10.1177/002224298805200302

8. APPENDIX

8.1 Interview guide pilot study

Ask permission to record

First of all, thank you for allowing me to interview you. I am very happy that you are willing to participate to help me with my thesis. For my thesis, I will examine the difference between upcycled and reused products to find out what makes upcycled products unique. To make sure that we are on the same page and hold the same definitions, I will first explain what upcycled - and reused products are. Upcycled products are items that have already been used and then made into something of greater quality or value than the original item. The beauty of upcycling is that the original object can still be clearly identified after assuming its new function.

shows examples

Reused products are products that get a second life by being used by a different owner. These products do not go through a transformation, but the same products are simply being used by somebody else. Other names for reused products are second-hand products, vintage products, and social recycling. An example of a reused product could be clothing, a sweater that first is being used by someone else but then you buy it, and it gets a second life.

ask if participant understands these two practices and their differences

In order to gain insights into the difference between these two sustainable practises, I would like to know how you feel about these two different sustainable practices. Therefore, I will ask you several questions where I would like you to make a comparison between the two practices and tell me in what way these kinds of products differ for you personally. All information provided are handled with great care and this interview are made anonymous. If you have any questions, please feel free to ask them. If you agree, I would like to start with the interview now.

Questions

1. What is your age?
2. What is your gender?
3. How aware of the environment are you on a scale of 1-7? 1 is not aware at all and 7 is very aware.
4. How do you feel when you use upcycled- and/or reused products?
 - Are there differences in the practices in how you feel using it?
 - And if there is a difference, what would it be?
5. What do you like about upcycled- and/or reused products?
 - Are there differences in the practices in how much you like it?
 - And if there is a difference, what would it be?
6. What do you dislike about upcycled- and/or reused products?
 - Are there differences in the practices in how much you dislike it?
 - And if there is a difference, what would it be?
7. What are, for you personally, the differences between upcycled- and/or reused products?
 - Why?
8. Do your preferences regarding upcycled- and/or reused products differ for different products/industries?
 - What are the differences?
 - Also difference for the different practices.
9. Which practice do you prefer, upcycled- or reused products?
 - Why?

8.2 Results pilot study

	Gender	Age	Aware of environment 1-7	Benefits upcycled	Barriers upcycled	Benefits reused	Barriers reused
R1	Male	44	5	- Environmental	- Lack of awareness - Economical - Functional (quality)	- Environmental	- Functional (hygiene) - Economical
R2	Female	29	2	- Environmental - Aesthetic (creative) - Functional (quality) - Hedonic (unique)	- Environmental concerns		- Hedonic (experience) - Functional (hygiene)
R3	Female	20	5	- Environmental	- Lack of awareness - No aesthetic appeal	- Hedonic (unique, memory) - Aesthetic appeal	- Functional (hygiene)
R4	Male	25	2/3	- Environmental - Functional (quality)	- No aesthetic appeal	- Environmental	- Functional (quality) (hygiene) - Social - Environmental concerns
R5	Female	25	5	- Environmental - Aesthetic - Hedonic (unique) - Functional (new product)	- Functional (quality)	- Economic savings	- Functional (quality)(hygiene)
R6	Male	22	5	- Environmental - Aesthetic appeal	- Environmental concerns - No aesthetic appeal (clothes)	- Environmental - Economic savings	- Functional (quality)
R7	Female	61	6/7	- Hedonic (unique) - Aesthetic appeal		- Hedonic (unique, memory) - Functional - Aesthetic appeal	- Functional (hygiene)
R8	Female	31	5	- Environmental - Functional - Aesthetic appeal	- Environmental concerns	- Environmental	- Functional (hygiene))
R9	Male	35	4	- Aesthetic appeal - Environmental - Hedonic (unique)	- Functional (quality)	- Functional (quality)	
R10	Male	26	6	- Hedonic (unique) - Aesthetic appeal	- Economical - Lack of awareness	- Hedonic - Economic	- Functional (quality) (hygiene)

Table 7: Overview benefits and concerns raised in pilot study

8.3 Questionnaire

Bedankt dat u de tijd wilt nemen om deze enquête in te vullen om mij te helpen met de laatste fase van mijn master Marketing aan de Radboud Universiteit. De enquête is onderdeel van een experiment voor mijn scriptie. Middels deze enquête wil ik de product perceptie van Nederlandse consumenten in kaart brengen. Aangezien om uw mening wordt gevraagd, zijn er geen goede of foute antwoorden. Voordat u begint met de enquête wil ik u erop wijzen dat de enquête volledig is geanonimiseerd, dat betekent dat de resultaten niet naar u herleidbaar zijn. Ook zullen de resultaten uitsluitend gebruikt worden voor dit onderzoek en niet worden gedeeld met derden. De enquête dient geheel vrijwillig ingevuld te worden en kan daarom op elk moment beëindigd worden. Het invullen van de enquête zal maximaal 5 minuten duren.

Vriendelijke groet, Marieke Slettenhaar

Ik geef toestemming om mijn (geanonimiseerde) antwoorden te gebruiken voor onderzoekdoeleinden

- Ja
- Nee (beëindig enquête)

Beeld u in dat u online een rugtas wilt gaan kopen. Op de volgende pagina's zal ik u een advertentie van een rugzak tonen waarbij ik u vraag om verschillende stellingen te beoordelen.

Geef aan in welke mate u het eens bent met de volgende stellingen:

(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Ik vind dit een leuk product	<input type="radio"/>						
Ik heb een positief gevoel bij dit product	<input type="radio"/>						
Dit is een product waarvan ik zou genieten bij gebruik	<input type="radio"/>						
Ik zou dit product willen gebruiken	<input type="radio"/>						
Dit product zou mij bij gebruik een goed gevoel geven	<input type="radio"/>						

Geef aan in welke mate u het eens bent met de volgende stellingen:

(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Ik vind dit een mooi product	<input type="radio"/>						
Het design van het product is aantrekkelijk	<input type="radio"/>						

Geef aan in welke mate u het eens bent met de volgende stelling:(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Dit product maakt een goede indruk op mij	<input type="radio"/>						
Ik heb een positief beeld van dit product	<input type="radio"/>						
De indruk die ik van dit product heb is gunstig	<input type="radio"/>						

Geef aan in welke mate u het eens bent met de volgende stelling:(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Ik zou dit product aanschaffen	<input type="radio"/>						
Ik zou dit product aan anderen aanbevelen	<input type="radio"/>						
Ik zie mezelf dit product aanschaffen	<input type="radio"/>						

Geef aan in welke mate u het eens bent met de volgende stellingen:(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Ik voel me meer aangetrokken tot oude dan tot nieuwe producten	<input type="radio"/>						
Ik koop graag producten die oud zijn en een geschiedenis hebben	<input type="radio"/>						
Ik koop graag producten die het verleden oproepen.	<input type="radio"/>						
Ik koop graag producten omdat ik ze authentiek vind	<input type="radio"/>						

Geef aan in welke mate u het eens bent met de volgende stelling:(1 = helemaal niet mee eens, 7 = helemaal mee eens)

	1	2	3	4	5	6	7
Ik beschouw het eerder getoonde product als upcycled	<input type="radio"/>						
Ik beschouw het eerder getoonde product als uniek en speciaal	<input type="radio"/>						

Wat is uw leeftijd?

- Jonger dan 18 jaar
- 18-24 jaar
- 25-34 jaar
- 35-44 jaar
- 45-54 jaar
- 55-64 jaar
- Ouder dan 65 jaar

Wat is uw geslacht?

- Man
- Vrouw
- Ik identificeer mezelf niet als man of vrouw

Wat is uw hoogst behaalde opleiding?

- Basisonderwijs
- Middelbaar onderwijs
- Middelbaar beroepsonderwijs (mbo)
- Hoger beroepsonderwijs (hbo)
- Wetenschappelijk onderwijs (wo)

Waar woont u?

- In een stad
- In een dorp
- Op het platteland

Bedankt voor de tijd die u hebt genomen om aan deze enquête deel te nemen. Uw antwoord is geregistreerd. Met behulp van uw respons wordt het verschil in productperceptie tussen reguliere, hergebruikte en upcyclede producten gemeten.

Mocht u nog vragen hebben of geïnteresseerd zijn in de resultaten van het onderzoek dan kunt u mij altijd contacteren via mijn emailadres: marieke.slettenhaar@student.ru.nl

8.4 Assumptions

	Consumer attitude	Log consumer attitude	Purchase intention	Log purchase intention	Log 10 purchase intention	SQRT purchase intention	Inverse purchase intention	Squared purchase intention	Squared 3 purchase intention
Skewness	.469	-.282	1.186	.355	.355	.736	.201	2.215	3.261
Std. Error of Skewness	.197	.197	.197	.197	.197	.197	.197	.197	.197
Kurtosis	-.487	-.696	.832	-1.071	-1.071	-.396	-1.443	5.333	12.253
Std. Error of Kurtosis	.391	.391	.391	.391	.391	.391	.391	.391	.391

Table 8: Transformations dependent variables

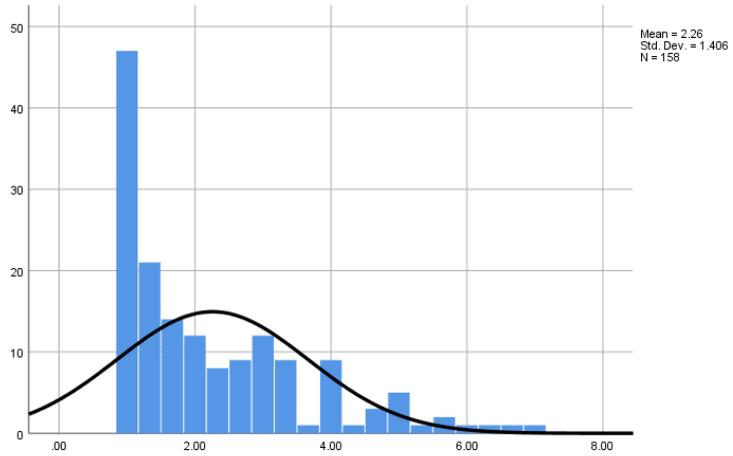


Figure 2: Distribution of normality purchase intention

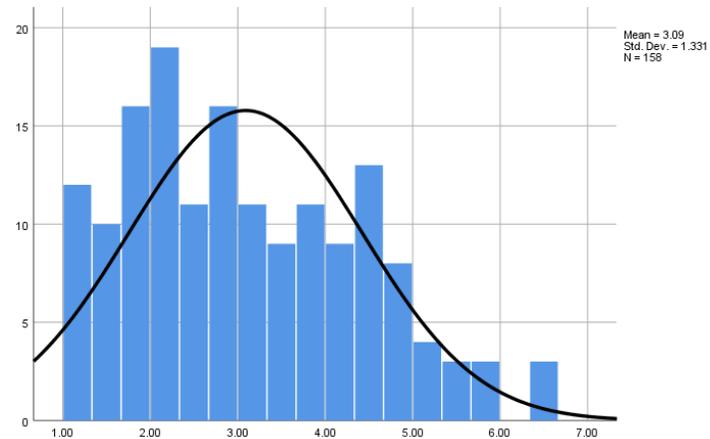


Figure 3: Distribution of normality consumer attitude

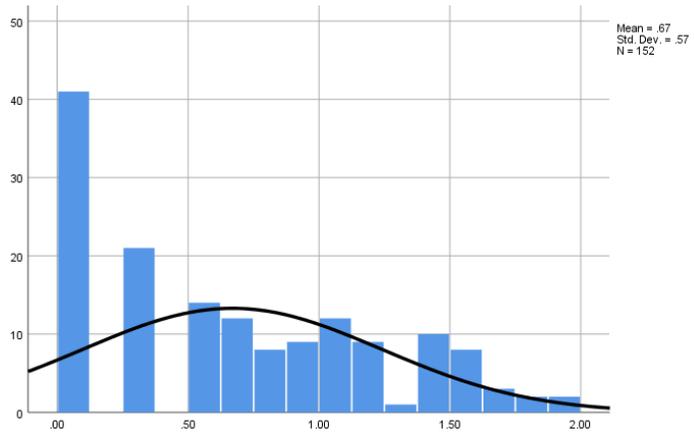


Figure 4: Distribution of normality purchase intention (transformed log)

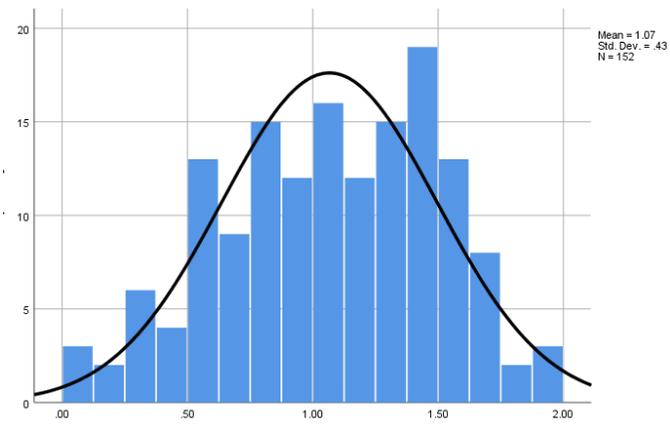


Figure 5: Distribution of normality consumer attitude (transformed log)

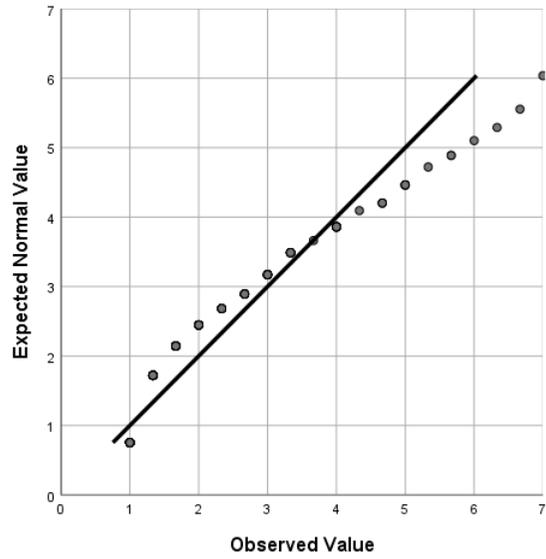


Figure 7: Q-Q plot Consumer attitude

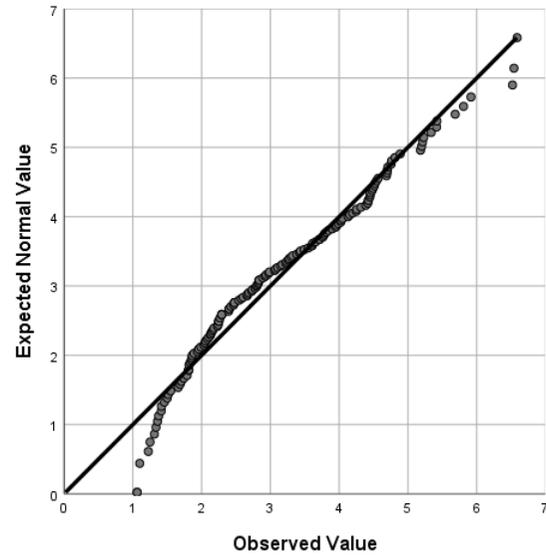


Figure 8: Q-Q plot purchase intention

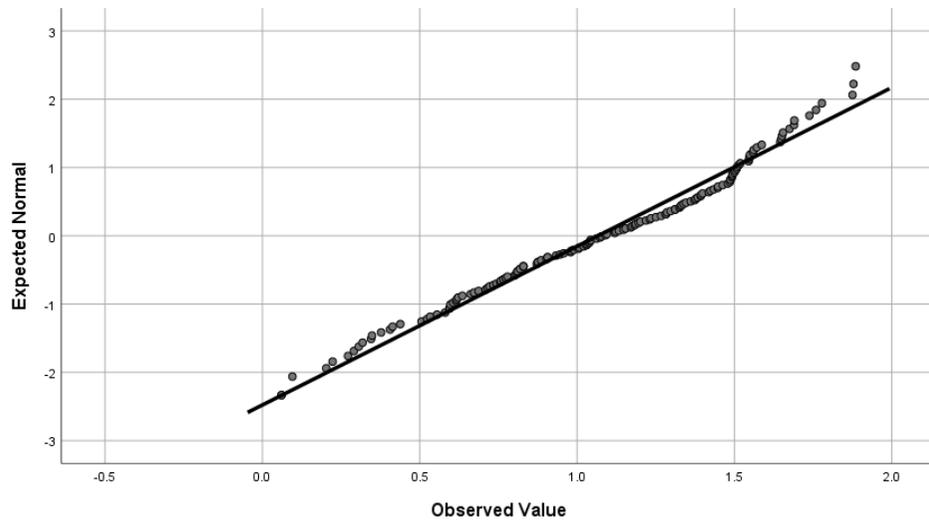


Figure 9: Q-Q plot transformed consumer attitude

8.5 Results Kruskal-Wallis test

	Product type	Group
Kruskal-Wallis H	3.281	6.083
Df	2	5
Asymp. Sig.	.194	.298

Table 9: Results Kruskal-Wallis test of effect on purchase intention

8.6 Results analysis of variance

Tests of Between-Subjects Effects					
Dependent Variable: Log consumer attitude					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.170 ^a	5	.234	1.275	.278
Intercept	170.913	1	170.913	931.465	.000
Saliency level	.003	1	.003	.019	.892
Product type	.491	2	.246	1.338	.266
Saliency level * Product type	.704	2	.352	1.919	.150
Error	26.789	146	.183		
Total	200.750	152			
Corrected Total	27.959	151			

a. R Squared = .042 (Adjusted R Squared = .009)

Table 10: Results analysis of variance of effect on consumer attitude

8.7 Results PROCESS-analyses model 4

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 : 4
Y : Purchase
X : Productt
M : Consumer

Sample
Size: 152

Coding of categorical X variable for analysis:

Productt	X1	X2
1,000	,000	,000
2,000	1,000	,000
3,000	,000	1,000

OUTCOME VARIABLE:

Consumer

Model Summary

R	R-sq	MSE	F(HC3)	df1	df2	p
,1270	,0161	1,6623	1,2196	2,0000	149,0000	,2983

Model

	coeff	se(HC3)	t	p	LLCI	ULCI
constant	3,3807	,1802	18,7594	,0000	3,0246	3,7368
X1	-,3929	,2538	-1,5480	,1237	-,8945	,1086
X2	-,2454	,2620	-,9367	,3504	-,7631	,2723

Standardized coefficients

	coeff
X1	-,3043
X2	-,1901

Covariance matrix of regression parameter estimates:

	constant	X1	X2
constant	,0325	-,0325	-,0325
X1	-,0325	,0644	,0325
X2	-,0325	,0325	,0686

OUTCOME VARIABLE:

Purchase

Model Summary

R	R-sq	MSE	F(HC3)	df1	df2	p
,8469	,7172	,5744	99,1858	3,0000	148,0000	,0000

Model

	coeff	se(HC3)	t	p	LLCI	ULCI
constant	-,5257	,1796	-2,9277	,0040	-,8805	-,1709

X1	-,0782	,1561	-,5008	,6173	-,3867	,2303
X2	-,1740	,1510	-1,1523	,2511	-,4724	,1244
Consumer	,9196	,0543	16,9306	,0000	,8123	1,0270

Standardized coefficients

	coeff
X1	-,0554
X2	-,1233
Consumer	,8417

Covariance matrix of regression parameter estimates:

	constant	X1	X2	Consumer
constant	,0322	-,0146	-,0140	-,0081
X1	-,0146	,0244	,0119	,0011
X2	-,0140	,0119	,0228	,0009
Consumer	-,0081	,0011	,0009	,0030

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

Purchase

Model Summary

	R	R-sq	MSE	F(HC3)	df1	df2	p
	,1422	,0202	1,9764	1,4160	2,0000	149,0000	,2459

Model

	coeff	se(HC3)	t	p	LLCI	ULCI
constant	2,5833	,2112	12,2341	,0000	2,1661	3,0006
X1	-,4395	,2809	-1,5646	,1198	-,9947	,1156
X2	-,3997	,2912	-1,3723	,1720	-,9751	,1758

Standardized coefficients

	coeff
X1	-,3115
X2	-,2833

Covariance matrix of regression parameter estimates:

	constant	X1	X2
constant	,0446	-,0446	-,0446
X1	-,0446	,0789	,0446
X2	-,0446	,0446	,0848

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

Relative total effects of X on Y:

	Effect	se(HC3)	t	p	LLCI	ULCI	c_ps
X1	-,4395	,2809	-1,5646	,1198	-,9947	,1156	-,3115
X2	-,3997	,2912	-1,3723	,1720	-,9751	,1758	-,2833

Omnibus test of total effect of X on Y:

	R2-chng	F(HC3)	df1	df2	p
	,0202	1,4160	2,0000	149,0000	,2459

Relative direct effects of X on Y

	Effect	se(HC3)	t	p	LLCI	ULCI	c'_ps
X1	-,0782	,1561	-,5008	,6173	-,3867	,2303	-,0554
X2	-,1740	,1510	-1,1523	,2511	-,4724	,1244	-,1233

Omnibus test of direct effect of X on Y:

	R2-chng	F(HC3)	df1	df2	p
	,0025	,6680	2,0000	148,0000	,5143

Relative indirect effects of X on Y

Productt	->	Consumer	->	Purchase
	Effect	BootSE	BootLLCI	BootULCI
X1	-,3614	,2349	-,8328	,0861
X2	-,2257	,2390	-,6898	,2478

Partially standardized relative indirect effect(s) of X on Y:

Productt	->	Consumer	->	Purchase
	Effect	BootSE	BootLLCI	BootULCI
X1	-,2561	,1637	-,5747	,0627
X2	-,1600	,1686	-,4819	,1768

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

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

Number of bootstrap samples for percentile bootstrap confidence intervals:
10000

NOTE: Standardized coefficients for dichotomous or multicategorical X are in partially standardized form.

NOTE: A heteroscedasticity consistent standard error and covariance matrix estimator was used.

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

model 7

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 : 7
 Y : Purchase
 X : Productt
 M : Consumer
 W : Salienc

Sample
 Size: 152

Coding of categorical X variable for analysis:

Productt	X1	X2
1,000	,000	,000
2,000	1,000	,000
3,000	,000	1,000

OUTCOME VARIABLE:
 Consumer

Model Summary

R	R-sq	MSE	F(HC3)	df1	df2	p
,229	,052	1,634	1,785	5,000	146,000	,119

Model

	coeff	se(HC3)	t	p	LLCI	ULCI
constant	3,382	,184	18,399	,000	3,018	3,745
X1	-,395	,256	-1,545	,125	-,901	,110
X2	-,243	,263	-,922	,358	-,764	,278
Salienc	-,128	,366	-,351	,726	-,851	,595
Int_1	-,385	,506	-,761	,448	-1,385	,615
Int_2	,807	,538	1,500	,136	-,257	1,871

Product terms key:

Int_1	:	X1	x	Salienc
Int_2	:	X2	x	Salienc

Covariance matrix of regression parameter estimates:

	constant	X1	X2	Salienc	Int_1	Int_2
constant	,034	-,034	-,034	-,007	,007	,007
X1	-,034	,066	,034	,007	-,022	-,007
X2	-,034	,034	,069	,007	-,007	,026
Salienc	-,007	,007	,007	,134	-,134	-,134
Int_1	,007	-,022	-,007	-,134	,256	,134
Int_2	,007	-,007	,026	-,134	,134	,290

Test(s) of highest order unconditional interaction(s):

	R2-chng	F(HC3)	df1	df2	p
X*W	,036	2,603	2,000	146,000	,077

Focal predict: Productt (X)
 Mod var: Salienc (W)

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

Moderator value(s):

Saliience - ,454

	Effect	se (HC3)	t	p	LLCI	ULCI
X1	-,221	,372	-,593	,554	-,956	,515
X2	-,609	,325	-1,877	,063	-1,251	,032

Test of equality of conditional means

F (HC3)	df1	df2	p
1,911	2,000	146,000	,152

Estimated conditional means being compared:

Productt	Consumer
1,000	3,440
2,000	3,219
3,000	2,830

Moderator value(s):

Saliience ,546

	Effect	se (HC3)	t	p	LLCI	ULCI
X1	-,606	,343	-1,766	,079	-1,284	,072
X2	,198	,429	,461	,646	-,651	1,046

Test of equality of conditional means

F (HC3)	df1	df2	p
2,549	2,000	146,000	,082

Estimated conditional means being compared:

Productt	Consumer
1,000	3,312
2,000	2,706
3,000	3,509

OUTCOME VARIABLE:

Purchase

Model Summary

R	R-sq	MSE	F (HC3)	df1	df2	p
,847	,717	,574	99,186	3,000	148,000	,000

Model

	coeff	se (HC3)	t	p	LLCI	ULCI
constant	-,526	,180	-2,928	,004	-,880	-,171
X1	-,078	,156	-,501	,617	-,387	,230
X2	-,174	,151	-1,152	,251	-,472	,124
Consumer	,920	,054	16,931	,000	,812	1,027

Covariance matrix of regression parameter estimates:

	constant	X1	X2	Consumer
constant	,032	-,015	-,014	-,008
X1	-,015	,024	,012	,001
X2	-,014	,012	,023	,001
Consumer	-,008	,001	,001	,003

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

Relative direct effects of X on Y

Effect	se (HC3)	t	p	LLCI	ULCI
--------	----------	---	---	------	------

X1	-,078	,156	-,501	,617	-,387	,230
X2	-,174	,151	-1,152	,251	-,472	,124

Omnibus test of direct effect of X on Y:

R2-chng	F(HC3)	df1	df2	p
,003	,668	2,000	148,000	,514

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:

Productt	->	Consumer	->	Purchase	
	Salience	Effect	BootSE	BootLLCI	BootULCI
X1	-,454	-,203	,340	-,880	,446
X1	,546	-,557	,309	-1,175	,035

Index of moderated mediation (difference between conditional indirect effects):

	Index	BootSE	BootLLCI	BootULCI
Salience	-,354	,455	-1,242	,540

	Salience	Effect	BootSE	BootLLCI	BootULCI
X2	-,454	-,561	,299	-1,165	,008
X2	,546	,182	,383	-,556	,957

Index of moderated mediation (difference between conditional indirect effects):

	Index	BootSE	BootLLCI	BootULCI
Salience	,742	,489	-,190	1,740

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

Level of confidence for all confidence intervals in output:

95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

10000

NOTE: A heteroscedasticity consistent standard error and covariance matrix estimator was used.

NOTE: The following variables were mean centered prior to analysis:

Salience

NOTE: Standardized coefficients not available for models with moderators.

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

8.8 Results of additional analyses

	Nostalgic	Purchase intention	Product evaluation	Aesthetic benefits	Hedonic benefits	Consumer attitude
Mean	3.4539	2.3070	3.4737	2.6184	3.1329	3.1697

Table 11: Mean values variables

		Group 1 Product type	Group 1 Salience of product uniqueness	Group 2 Product type	Group 2 Salience of product uniqueness	Group 3 Salience of product uniqueness	Group 4 Product type	Group 5 Product type
N	Valid	24	24	23	23	22	28	28
	Missing	128	128	129	129	130	124	124
Mean		5.46	5.46	5.35	4.09	4.18	5.29	5.39

Table 12: Results manipulation checks