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'Buy now or Cry later'. Do scarcity messages work in online shopping?

An investigation into the functionality of scarcity as an online persuasion measure within the fashion and travel industry.

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Abstract

The infinite possibilities of the internet and its immense accessibility to users all over the world has made the internet an extension of the offline world. Due to the fact that the internet reaches that many people, the medium has become very popular for commercial purposes. Many retailers and service providers joined the trend and started online selling activities (Lohse, Bellman and Johnson, 2000). Companies are challenged to adapt to the new online environment and to make their online business work with adequately managed marketing communications and sales techniques.

Selling often requires persuasion attempts, also when it concerns online selling. Therefore, this research aims to take a closer look at the usage and effectiveness of the principle of scarcity as a persuasion measure. Whereas scarcity messages are presented to the consumer frequently in online shopping, especially in both the fashion and travel industry, no existing literature empirically advocates for the effectiveness of online scarcity. Although it can be argued that online scarcity functions the same as offline scarcity, specific internet characteristics may influence the intention to purchase and the perceived product value. Especially the consumer's possibility to search for alternatives by high levels of information transparency offered by the internet could negatively affect the purchase intention and the perceived product value if consumers are willing to invest time before they make the actual purchase decision. Also, three moderator factors were proposed by literature and therefore included in this study; exposure to online marketing techniques, and personality traits 'need for uniqueness' and 'need for cognitive closure'.

156 consumers participated in an experiment in which scarcity appeals are tested in two different product categories. The results show differences among the tested product categories. Whereas a positive relationship between online scarcity and perceived product value was significant for the holiday, a negative relationship between decision time and purchase intention was found. None of the proposed modulating variables did have an effect on the relationship between scarcity and perceived product value.

The results imply that there is empirical evidence for online effectiveness of a scarcity message to stimulate sales, yet only for the holiday that was presented. This means that online scarcity seems not to be effective for all product categories. Furthermore, the decision time negatively affects the purchase intention, which could potentially be explained by the ease to search for alternative products online. Hence, it is suggested that the frequent use of scarcity messages by online retailers is ungrounded and the actual functioning of the sales technique should be questioned and further examined for more product categories.

Keywords: persuasion, scarcity, e-commerce, online, decision time, B2C, marketing communication.

Preface

Enschede, September 2015

A year ago, I finished my courses for my two Master degrees in Communication Studies and Business Administration at the University of Twente. Whereas my main interest belongs to Business Administration, I decided to combine these Master programmes out of my personal interest for marketing communication, and in particular persuasive communication. This is the main reason why I chose to conduct an internal assignment focused on persuasion techniques. Intrigued by fluctuating scarcity appeals from websites as Ryanair, and the credibility of these messages, I decided to focus on the functioning and the effectiveness of this persuasion technique in an online setting.

After six months, everything finally has come together and the results of the study are clear. Throughout the process, I have worked on the thesis and on this topic with great pleasure. The collaboration with my first supervisor, ms. Anna Fenko, went very smoothly and her pragmatic approach and open mind provided me with total freedom to create my personal approach to the research and to conduct a study I'm truly interested in. I'm very happy with the end result and I have perceived this Master thesis as an excellent final project to an interesting Master programme in which I learned a lot.

I want to express my gratitude towards my supervisors Anna Fenko and Ad Pruyn. Furthermore, I would like to thank the respondents that took the effort to participate in the experiment and fill in my online survey. Also, I would like to thank my parents and friends for the ongoing support and patience in this stressful period in which I managed to write two theses projects simultaneously.

Laura Klaver

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Introduction

1.1 Background

The infinite possibilities of the internet and its immense accessibility to users all over the world has made the internet an extension of the offline world. Surveys conducted in 2014 indicated that 87% of the American adults use internet on a regular basis (PewResearch, 2014), whereas the global penetration rate is 40%, resulting in 3 billion internet users across the world (Internetlivestats, 2014). In Europe, almost 75% of the population used the internet for several purposes, including purchasing goods (Eurostat, 2013). Due to the fact that the internet reaches that many people, the medium has become very popular for commercial purposes. Many retailers and service providers joined the trend and started online selling activities (Lohse, Bellman and Johnson, 2000). The rise of the internet has brought many changes to daily business in terms of communication, coordination and commerce (Berthon et al., 2012; Grewal, Levy & Marshall, 2002). Companies are challenged to adapt to the new online environment and to make their online business work with adequately managed marketing communications and sales techniques.

Selling often requires persuasion (Cialdini, 2001). Therefore, a lot of research has been dedicated to the exploration of the concept of persuasion. According to Cialdini (2001), the essentials of persuasion can be taught to anyone, however it has been a challenge to transfer the persuasion ability of a “natural” to someone that does not possess this skill naturally. A lot of researchers have been focused on finding out which factors can increase persuasive power of a person (Cialdini, 2001). This extensive research has led to the development of six principles; liking, reciprocity, social proof, consistency, authority and scarcity. Mastering these factors and combining all six of them will increase the persuasive power of a person.

In traditional, offline selling, the salesperson plays a key role as this person can be the persuasive factor to convince consumers to buy products. His affinity with several persuasion techniques, as proposed by Cialdini (2001), can determine the effectiveness of the persuasion and the eventual purchase decision of the customer (Wotruba, 1991). However, due to the fact that consumers step away from buying at ‘brick-and-mortar’ shops and start buying from online shops more often, the influence of the traditional sales person and his ability to persuade diminishes. Therefore, it can be argued that the presence and strength of these persuasion principles should be reconsidered (Slattery, Simpson and Utesheva, 2013). This study aims to contribute to the marginal knowledge about persuasion in e-commerce.

Although all principles should be further examined in the online environment, this research will focus on the principle of scarcity; *‘people want to have more of what they can have less’* (Cialdini, 2001). The researcher’s decision to go with the scarcity principle mainly stems from the belief that this persuasion technique is used frequently in online shopping environments, yet there is no empirical evidence that the technique works in an online setting. Examples of usage by companies are for example the Ryanair website, on which fluctuating scarcity appeals are shown to the consumer to trigger a purchase. Also websites as Zalando, Wehkamp.nl, and travel companies as Sunweb present scarcity messages on their websites. Therefore, focusing on the principle of scarcity would contribute both conceptually and practically. As the most renown scarcity appeals are examples of scarcity within the product categories of fashion and travel and leisure, these two product categories will be included in this study and scarcity messages will be tested upon products out of these categories.

1.2 Scarcity

Items that are less available to consumers seem to be more valuable to them (Cialdini, 2001; Jeong and Kwon, 2012), which makes these items more wanted due to an individual’s need for uniqueness (Tian, Bearden and Hunter, 2001; Lynn, 1991). Scarcity in an offline setting, used as a technique by many sales persons and shop advisors, has been proven to be extremely effective and positively affects consumer attitudes, purchase intention (Kaptein and Eckles, 2012; Jeong and Kwon, 2012) and perceived product value (Gierl, Plantsch and Schweidler, 2008). The principle of scarcity is frequently used online, most consumers probably will know the principle from booking websites. Everyone who has booked a flight with Ryanair in the past knows the line *‘only 4 seats left at this fare’*. Another example of online scarcity are pop-up banners with lines as *‘you are the winner, you have 10 seconds to react to this message by pressing the button below’*. Although there is no sales person present to ‘perform’ the scarcity technique, both examples limit the availability of a certain item which should trigger consumers to obtain the product even more. Besides the travel and leisure industry, scarcity techniques are also often applied to other consumer product categories as fashion. Websites trigger consumers to make the purchase decision immediately by stating that there is only one item left in a particular size. Another type of scarcity in fashion is a limited edition collection with only limited items of exclusive designs available to the consumer. Although frequently used, the effectiveness of scarcity in online retailing has been criticised by several scholars (Degeratu, Rangaswamy and Wu, 2000; Slattery, Simpson and Utesheva, 2013; Jeong and Kwon, 2012). It is unclear whether scarcity works and

whether companies as Ryanair can benefit from their scarcity attempts. Therefore this study not only contributes theoretically, but can also be valuable to companies which perform scarcity attempts to persuade consumers. The question is whether scarcity works in an online setting, and if so, which specific techniques are effective.

1.3 Information Transparency & Decision Time

Although scarcity is applied frequently to e-commerce, online retailing is significantly different from offline retailing. The information search and evaluation of alternatives from the traditional consumer decision making model are more emphasised in an online context due to one of the most essential internet characteristics; information transparency. The information transparency as offered by the internet enables consumers to review a product more thoroughly in an online context due to many sources of information that are available and easily accessible for consumers (Degeratu, Rangaswamy and Wu, 2000). Prior research indicated that the information transparency of the internet can affect a consumer's purchase intention (Degeratu, Rangaswamy and Wu, 2000). This transparency could also lead to changes in effectiveness of marketing and persuasion techniques. Whereas consumers in an offline setting have limited sources of supply to choose from, consumers in an online setting can search the web for suppliers offering the same product which lowers the feeling of scarcity as one of the unavailability measures set by suppliers disappears (Brock, 1968). The amount of time that a consumer takes to make the purchase decision can be spent wisely by examining the alternatives for the initial product, due to the high level of information transparency of the internet. This could weaken the initial product offer and one could question whether a persuasion technique as scarcity is still effective in an online setting as the information transparency offered by the internet enables consumers to search for a diverse range of suppliers of the same product (Slattery, Simpson and Utesheva, 2013; Brock, 1968). If one doesn't offer a product any longer, or consumers are dissatisfied with the offer made by the supplier, information transparency simplifies the process of looking for another supplier who sells the same product, yet perhaps against better conditions (e.g. lower price). The principle of scarcity, then, gets highly challenged. The amount of time to make the purchase decision, in combination with the ease of searching for alternatives that is offered by the internet, could have a considerable impact to online scarcity appeals. However, even though the information transparency of the internet gets acknowledged by scholars (Degeratu, Rangaswamy and Wu, 2000; Slattery, Simpson and Utesheva, 2013), it could be argued that transparency differs per product category, mainly depending on the number of alternative

suppliers of goods. The more suppliers of a certain product, the less overview the consumer has and the less transparent the market is. This aspect is worthwhile to consider when evaluating the product categories, and therefore will be discussed in more detail in the theoretical framework.

1.4 Persuasion Familiarity

Another important aspect of the internet is its magnitude and the frequent usage by consumers. When a consumer has a high online presence, this consumer is also frequently exposed to marketing tricks including scarcity, which could lead to familiarity with these techniques (Slattery, Simpson and Utesheva, 2013). It is suggested that familiarity erodes effectiveness and immunises people against marketing tricks (Slattery, Simpson and Utesheva, 2013). So instead of emphasizing the limited availability of a product, overexposure to scarcity could be counterproductive. This thought by Slattery and colleagues (2013) is consistent with findings from research conducted by Jeong and Kwon (2012), who were able to indicate that credibility of the scarcity message online is rather low, meaning that consumers don't trust the scarcity message. So next to the time to make the purchase decision, a person's familiarity with e-commerce and e-marketing techniques also seem to affect the functionality of scarcity online.

1.5 Personality traits

However, before the proposed variables can be tested, it is suggested that personality traits can be of influence on the sensitivity of an individual towards scarcity (Jung and Kellaris, 2004; Gierl et al., 2008). Jung and Kellaris (2004) suggest that one's need for cognitive closure and need for uniqueness mediates the effect of the level of sensitivity towards the scarcity principle as people would have a different response towards scarcity messages than people who don't have a need for cognitive closure and/or need for uniqueness. These traits affect the likeliness of compliance with the persuasion message and therefore should be included in this research as it could explain possible variance in the outcomes.

1.6 Research Question

To shed light on the construct of online scarcity, its effectiveness and possible mediation by internet characteristics, the following research question has been formulated:

How do familiarity with online marketing technique, a consumer's need for uniqueness and need for cognitive closure, affect the relation between scarcity and decision time, and a consumer's perceived product value and purchase intention with fashion products and leisure?

To be able to answer the research question, this paper aims to build a strong theoretical framework regarding the constructs involved in this research and to formulate hypotheses about the expected relationships between the constructs. Once all variables are well explained and operationalised, a structured online questionnaire will be set up to measure the different variables and to come to meaningful conclusions in the end.

Theoretical Framework

2.1 Scarcity

One method of sales promotion is to make some products scarce or to make them appear to be scarce (Gierl, Plantsch and Schweidler, 2008). Products and opportunities in several product categories (Jung and Kellaris, 2004) are seen to be more valuable as they become less available to consumers (Cialdini, 2001). It is the construct of scarcity that can accommodate this phenomenon. Scarcity can be implemented in several ways, yet the three most common possibilities are: time limitation, supply limitation, and one-of-a-kind offers (Cialdini, 2001; Jung and Kellaris, 2004; Gierl, Plantsch and Schweidler, 2008). An example of time limitation offers are offers that are only available for 48 hours. Examples of supply limitation offers are the well known 'limited edition' collections with exclusive items that have a limited availability. Examples of one-of-a-kind offers are cheap offers by travel discounters which only last for a certain time period and with limited availability. In general, these scarcity attempts are in place to let consumers know that unless they make the purchase right away, they will not be able to buy the product in the future (Wu et al., 2012). These three types of scarcity can be categorised in quantitative scarcity and time-limited scarcity (Gierl, Plantsch and Schweidler, 2008). Quantitative scarcity consists of supply limitation and one-of-a-kind offers and could arise because of a forced measure implemented by the vendor or because of a high demand from consumers. Time-limited scarcity is a variant that always gets established due to measures set by supply side (Gierl, Plantsch and Schweidler, 2008). In case scarcity appears due to decisions from the supplier, consumers can perceive scarcity as a marketing technique targeted on the consumer's compliance with the market offering (Gierl, Plantsch and Schweidler, 2008).

In this research context, a quantitative scarcity appeal will be performed as a supply limitation will be made visible within a product offer. Supply limitation, here, refers to a message in which is stated that there is only one product left in this size (in case of the presentation of a piece of clothing) or in a particular time period (in case of the presentation of a holiday offer). The decision to test scarcity among two different product categories has been made on the belief that consumer behaviour, and sensitivity towards scarcity, may differ among different products. Therefore, the supply limitation will be applied to clothing and a holiday offer. These product categories were selected because online suppliers of these products frequently use scarcity appeals in practice, without even knowing whether online scarcity actually works.

2.2 Perceived Product Value & Purchase Intention

Suppliers are always aiming to satisfy customer needs with their products. When suppliers are able to actually satisfy customer needs, they are delivering value to the customer, which puts the supplier in a strong competitive position (Sweeney and Soutar, 2001). As product value is subjective to the needs and wishes of consumers, the term of ‘perceived product value’ is more suitable to describe the value that consumers retrieve from buying and consuming a product. Therefore perceived product value can be described as the ‘*consumer’s overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given*’ (Sweeney and Soutar, 2001). A definition of perceived product value by Michael Porter (1990) suggests that the assessment of value is not based on solely two components; price and quality. His definition takes a broader stance as he defines perceived product value as: “*providing superior value to the buyer in terms of product quality, special features, or after-sale service*” (Porter, 1990). This is in line with the thoughts of Gietz, Plantsch and Schweidler (2008) that utility derived from a product not only depends on its base value, but also can be derived from other product features as exclusivity. So scarcity, or exclusivity, can be an important factor for product value for a certain group of consumers. If a consumer feels the need to be exclusive (Need for Uniqueness), it can be argued that one would rather value a limited available product instead of a widely available product (Gietz, Plantsch and Schweidler, 2008).

Commodity Theory by Brock (1986), which will be explained in detail further on in this chapter, also provides explanation about this matter. Commodity Theory suggests that any commodity will be valued to the extent that it is unavailable. In other words, consumers assess the product value based upon the level of availability of a product. Hence, the more available a product is, the lower the perceived value of a product will be. This implies that unavailability, which leads to a higher perceived product value, will make a product more desirable (Lynn, 1991). So people would be willing to invest more effort in products that they perceive as unique instead of products that are perceived as normal. Unique products are characterised by some sort of unavailability (Lynn, 1991), so scarcity should affect the perceived product value of a good.

This line of reasoning advocates a relationship between scarcity and perceived product value. As a consequence of the high perceived value of scarce products in offline settings, the intention to buy such a product is also higher (Kaptein and Eckles, 2012; Jeong and Kwon, 2012). It would be interesting to investigate whether this mechanism also holds true within e-

commerce with different kinds of scarcity techniques and the potential moderating effect of the transparency that the internet offers. The following hypothesis can be constructed:

Hypothesis 1: Scarcity increases perceived product value and purchase intention.

In order to test the level of perceived product value and purchase intention, the frequently used PERVAL scale (Sweeney and Soutar, 2001) is used to test the product value of the presented product as perceived by the consumer. Two items will be constructed to gauge the level of purchase intention of the consumer.

2.3 Decision Time

The internet offers a range of suppliers and products to choose from and due to the information transparency of the internet, it is easy to find a good alternative. Yet, searching for alternatives will take some time. The decision time that a consumer has refers to the amount of time to search for product alternatives and to come to a purchase decision. Therefore, the number of alternatives depends on the time limitation that an individual sets to come to a decision (Jung and Kellaris, 2004). Hence, the time to make a purchase decision and the usage of the information transparency of the internet, which simplifies the search process for alternative products, go hand-in-hand. It is suggested that someone who is not willing to invest too much time to search for alternatives, is likely to want to make a decision quickly. Quick decisions demand cognitive shortcuts, so people with a low time investment could be more sensitive to scarcity (Jung and Kellaris, 2004; Gietz, Plantsch and Schweidler, 2008). On the contrary, people that have plenty of time to search through the alternatives that the information transparency of the internet offers, can carefully consider their options and will be less sensitive to heuristic cues. Therefore, it can be argued that people with high time investment are less sensitive to scarcity signals. This results in the following hypothesis:

Hypothesis 2: The time to make a purchase decision negatively affects the perceived product value and consequently, the purchase intention.

In this research context, the decision time will be manipulated by presenting two different time slots in the scenarios offered to the respondents. Participants are either exposed to a time constraint of 1 week or 4 months.

2.4 Product Categories

The possibilities that the internet offers for e-commerce, has made an extensive number of suppliers decided to join the movement and start an online business (Lohse, Bellman and Johnson, 2000). The product and service offers presented on the internet cover a wide range of different product categories. Although the internet is clearly beneficial to suppliers of goods because of its reach, business activities, and mainly marketing and marketing communication activities, should be executed in a different way than most offline companies are used to ((Berthon et al., 2012; Grewal, Levy & Marshall, 2002). Nevertheless, a lot of online retailers have copied their offline sales techniques to an online sales context, which is also the case for the scarcity principle. Especially suppliers of fashion and travel and leisure items are well known for their use of scarcity appeals in online context. Because of the frequent usage of scarcity appeals in practice, and the knowledge gap regarding the effectiveness of online scarcity, an experiment will be conducted in which online scarcity is tested upon two items of the above mentioned product categories. However, these product categories are not identical and therefore, different results for the product categories may appear after analysis of the data. Hence, the product categories and the subsequent markets will be discussed in more detail below.

2.4.1 Fashion

The online marketplace for fashion is extensive with a high number of online suppliers. According to eMarketer (2015), the US e-commerce sales of apparel and accessories will reach 60 billion US dollars in 2015. In Europe, a similar trend is visible with an average growth rate for online retail of 18% (Ecommercenews, 2015). For the Netherlands, this means that the sub-industry for clothing and shoes accounts for 7,5% of the total online retail industry, implying that the online fashion industry is worth 787 million Euros in 2014 (Ecommercenews, 2015). The magnitude of the market, the continuous growth of the market and the ease to start selling clothing items online has made this industry very shattered. This implies that there are many suppliers of clothing items from which consumers can choose. Due to the high fragmentation of the market, one could argue that the market becomes less transparent for consumers as they might lose overview. Although online search engines simplify the process of searching for anything specific, and thus increase the level of market transparency, the extensive number of suppliers, both national and international, makes the market fuzzy and difficult to understand and to get grip of (Granados, Gupta and Kaufmann, 2008). This lower level of market transparency may have implications for the search ability of

consumers and how effective they can use their time to decide upon which offer they will purchase in the end.

The time that consumers take to come to the actual purchase decision is important as this time can be used to search for alternative offers and to make a considerate purchase decision. Even though decision time is an essential step in the process of buying, it is assumed that decision time is not as important for clothing. The lower level of market transparency, which hinders the search for alternatives, and the average product price of clothing, which makes clothing generally affordable for the majority of the public, will make the decision time and the search for alternatives less critical. Due to the complexity of the market, consumers may sooner compromise their needs with the first products they find. Also, because of the relatively low product prices, the decision to buy will be easier to make than when more money is involved. Hence, it is expected that the time that consumers have to come to the purchase decision plays a less important role for the product category clothing.

In general, the type of apparel that a consumer chooses complements its identity and appearance (Roach-Higgins and Eicher, 1992). Therefore, it is argued that fashion can take a major role in the establishment of uniqueness. Consumers that want to feel unique would be able to achieve this partially by selecting a specific type of garment. Therefore, it is expected that the importance of uniqueness is high for fashion items, which will make consumers, shopping for clothing, more sensitive to scarcity appeals.

The products that were selected to represent the first product category, fashion, is an outfit for a wedding. To make it more appealing to both male and female respondents, male respondents were exposed to a suit, whereas a dress was shown to female participants. The product chosen for the fashion product category is tactile. Furthermore, the product is something a consumer buys for a special occasion, and therefore not a daily purchase. The prices of both the dress and suit are higher than 'regular' clothing, and therefore these items could be categorised as higher segment items.

To summarise, it is expected that decision time will be less relevant to this product category, whereas scarcity appeals are expected to be effective in this category because of their contribution to the level of uniqueness of the consumer. Furthermore, the product is not a daily purchase, is higher priced, tactile and therefore can be considered as higher segment.

2.4.2 Holiday

The Dutch e-commerce industry was worth 10.5 billion Euros in 2014, 39% of the total revenue was derived from sales in travel and tickets. This results in a revenue of 4.1 billion Euros from travel and tickets, which makes it the most popular product category for online sales in the Netherlands (Ecommercenews, 2015). Although the online travel industry is the largest online industry, the market mainly consists out of large suppliers of holidays instead of many small suppliers. Examples of some big Dutch players on the market are Sunweb.nl, Arke.nl and D-reizen.nl. This market set-up makes it very transparent and clear for consumers to search for holidays and for potential alternatives. Also, the market entails several websites which collect and compare the holiday offers from other suppliers in the market, which simplifies the search process for consumers. All in all, it is expected that consumers would perceive the online market place for holidays as transparent, which makes it easier for them to search for alternatives and make a deliberate purchase decision.

The high market transparency of the online holiday industry and the general price of a holiday makes the decision time, that consumers take to make the actual purchase decision, rather important. Because of the ease to search for alternative offers, consumers are enabled to properly review and evaluate several options. The need to review alternatives is important in this industry due to the high product prices. The higher the product price, the lower the initial purchase intention (Dodds, Monroe and Grewal, 1991), which makes it important for consumers to review and re-think the offer before the actual purchase decision will be made. Hence, it is expected that the decision time consumers have to come to the purchase decision is important for the holiday product category.

Purchasing the holiday and enjoying the holiday will only marginally contribute to the uniqueness of the individual. Although the selection of the holiday destination depends on the intrinsic uniqueness of the consumer (Pasca, 2011), the holiday itself does not extensively contribute to a consumer's unique appearance to the outside world. Hence, it is expected that uniqueness will play a less important role for consumers who want to purchase a holiday. This implies that it is expected that scarcity will thus not work as well for this product category.

For this product category, a luxurious holiday was selected. A holiday is intangible, and therefore can be marked as a service. In general, holidays are much more expensive than clothing items, so price is also a differentiator between both products. Furthermore, the holiday destination that was selected has 4.5 stars, indicating that the service is rather

luxurious which places it in the top holiday segment. Similar to wedding outfits, 4,5 star holidays are not purchased on a daily basis and therefore should be seen as occasional purchases.

To summarise, it is expected that decision time plays a major role in the process of buying within this product category, whereas scarcity is expected to be less relevant. The holiday can be marked as a luxurious, top segment service, characterised by a high price and 4.5 stars.

2.4.3 Conclusion

From the short analysis of characteristics of the product categories above, differences can be found between the product categories. Being aware of these differences is essential as they could explain potential differences in effectiveness of scarcity. To provide some clarity, the following table with product characteristics per category is presented.

Table 2.1 Overview product characteristics

<i>Characteristics</i>	<i>Wedding outfit</i>	<i>Holiday</i>
Market	Less transparent	Transparent
Importance of decision time	Low	High
Importance of uniqueness	High	Moderate
Product or Service	Product	Service
Price	€100 - €200	€1099
Purchase type	Occasional	Occasional
Segment	High	Top

2.5 Fundamental Theories

The underlying psychological mechanism of the scarcity principle has its foundations in several psychological theories. The most frequently mentioned theories in relation to scarcity as a persuasion principle are Commodity Theory by Brock (1968) in combination with a Theory of the need for Uniqueness by Fromkin and Snyder (Lynn, 1991). Also, Reactance Theory by Brehm and Need for Cognitive Closure have been frequently mentioned (Lynn, 1991; Gietz, Plantsch and Schweidler, 2008; Jung and Kellaris, 2004). Yet, due to the underlying belief in this research that scarcity comes from the need to obtain something unique, or obtain something with a unique product feature, Commodity Theory and Need for Uniqueness seem to be the most suitable theoretical fundamentals and therefore will be further explained. Also, the Need for Cognitive Closure will be discussed as this trait explains one's

sensitivity towards decision heuristics as scarcity. Hence, the Need for Cognitive Closure could have major implications to the effectiveness of scarcity attempts in both online and offline selling (Jung and Kellaris, 2004; Gietz, Plantsch and Schweidler, 2008).

2.5.1 Commodity Theory

The commodity theory as introduced by Brock is the fundamental thought behind the concept of scarcity as a marketing technique (Lynn, 1991). At the basis of the commodity theory stands the belief that ‘any commodity will be valued to the extent that it is unavailable’, in which commodities can be defined as messages, experiences or objects that meet three criteria (Lynn, 1991). A commodity must be useful, commodities should be transferrable to another person and commodities should have the potential to be possessed (Lynn, 1991). If the object does not meet these criteria, an object is not relevant enough to an individual which implies that he or she will not be willing to make an effort to obtain the object.

Brock (1968) defines the value of the object as the commodity’s potency for affecting attitudes and behaviour (p. 246). The higher the perceived value of a commodity, the more desirable the commodity gets (Lynn, 1991). Furthermore, unavailability refers to scarcity and restrictions on the supply of a commodity. According to Brock, unavailability can be accomplished in four ways; (1) limits on supply or number of suppliers of the commodity; (2) costs of acquiring, of keeping, or providing a commodity; (3) restrictions that limit the possession possibility of a commodity and finally, (4) delays in providing commodities (Lynn, 1991). It could be argued that especially the first two unavailability measures to enhance scarcity could be less effective in an online context because of the information transparency that the internet offers, depending on the time investment of a consumer (Jeong and Kwon, 2012; Slattery, Simpson and Utesheva, 2013). Although Brock explicates the rationale behind the scarcity principle, the theory fails to specify the mechanisms that explain the effect of scarcity on perceived customer value (Lynn, 1991). The Theory of Need for Uniqueness does make a suggestion on how scarcity affects value perception.

2.5.2 Theory of Need for Uniqueness

The Theory of Need for Uniqueness (NFU) reasons that people need to feel moderately unique (Lynn, 1991). One way to differentiate from the general public is to choose for different consumer goods than the mainstream goods as used by the general audience (Tian, Bearden and Hunter, 2001). In such situations, an individual values and gets satisfied by the possession of scarce commodities as it enhances one’s personality and self concept (Tian, Bearden and Hunter, 2001; Lynn, 1991; Gietz, Plantsch and Schweidler, 2008). The need for

uniqueness of a person drives the desirability to obtain scarce items as it enhances one's image. This line of reasoning could explain why people value scarce commodities and has been backed up with empirical evidence in the past (Lynn, 1991; Gietz, Plantsch and Schweidler, 2008). An individual's need for uniqueness can be assessed by using a standardized scale developed by Tian, Bearden and Hunter (2001).

2.5.3 Theory of Need for Cognitive Closure

Another mechanism that could explain one's sensitivity to scarcity is a personality trait, Need for Cognitive Closure (NCC) (Jung and Kellaris, 2004; Gietz, Plantsch and Schweidler, 2008). Cognitive closure can be defined as an individual's desire for a definite answer to a question as opposed to uncertainty (Jung and Kellaris, 2004). Someone that scores high on NFCC likes to make decisions quickly to avoid uncertainty and therefore tends to rely strongly on heuristic information in deriving judgments and making decisions (Gietz, Plantsch and Schweidler, 2008). Sensitivity towards a scarcity appeal is suggested to occur directly from application of a decision heuristic that scarce objects are more valuable (Jung and Kellaris, 2004). Therefore, the heuristic rationale behind scarcity triggers individuals to make a cognitive shortcut. Scarcity should make people believe that the product has only limited availability, which seems to make the product more valuable. Consumers that are more sensitive to heuristic information to simplify the internal decision making process (high NCC), may base their purchase decision on the decision heuristic behind the scarcity appeal. Hence, it can be argued that an individual's Need for Cognitive Closure could affect the sensitivity of this person towards scarcity attempts in both offline and online selling (Gietz, Plantsch and Schweidler, 2008).

The personality traits 'Need for Uniqueness' and 'Need for Cognitive Closure' seem to be essential to a person's sensitivity towards scarcity messages. This implies that both traits are affecting the functioning of scarcity in both offline and online setting. Therefore attention should be paid to the sensitivity towards both TNU and NFCC, as it may explain the strength of scarcity on perceived product value and purchase intention. This leads to the following hypotheses.

Hypothesis 3: An individual's need for uniqueness positively affects the relationship between scarcity and perceived product value and purchase intention.

Hypothesis 4: An individual's need for cognitive closure positively affects the relationship between scarcity and perceived product value and purchase intention.

2.6 Persuasion Familiarity

Besides personality traits that could affect an individual's sensitivity towards scarcity, the frequent usage of marketing techniques makes consumers more aware of marketing messages and their aim to trigger a purchase (Kotler, Bowens and Makens, 2010; Friestad and Wright, 1994). When one would enter a supermarket, a consumer gets confronted with many different types of marketing techniques. Examples are direct selling techniques as a show-cook experience, while advertisement and sales promotions try to stimulate the buying decision of highlighted products. Also in other product categories as fashion and leisure, several marketing techniques are in place to persuade the consumer to make the buying decision. This is nothing different on the internet.

If an individual purchases goods online on a regular basis, one would recognise the marketing attempts at a certain point (Friestad and Wright, 1994). If the frequency of persuasion techniques is high, this will lead to familiarity, also called 'Persuasion Knowledge' (Slattery, Simpson and Utesheva, 2013; Friestad and Wright, 1994). A consumer's familiarity with marketing techniques leads to an adaption of the response towards the persuasion attempt to maintain control over the outcomes (Friestad and Wright, 1994). As a consequence of this familiarity with persuasion techniques, people adaptively respond to these techniques and get used to them which erodes effectiveness of the measure and immunises people against the persuasion measures (Friestad and Wright, 1994; Slattery, Simpson and Utesheva, 2013).

Due to the fact that scarcity is one way to persuade people and to possibly affect purchase intention and product value, consumers could recognise the sales attempt. Hence, it seems that persuasion knowledge, or familiarity, would also affect the functioning of scarcity attempts. Therefore, the following hypothesis can be formulated:

Hypothesis 5: An individual's familiarity of persuasion negatively affects the relationship between scarcity and perceived product value and purchase intention.

In this research context, the persuasion familiarity will be tested by using a 9-item, self-created, scale in which participants are asked to identify their level of awareness about several frequently used online marketing techniques.

2.7 Experimental Design

Based upon the findings from literature, the following experimental design can be created.

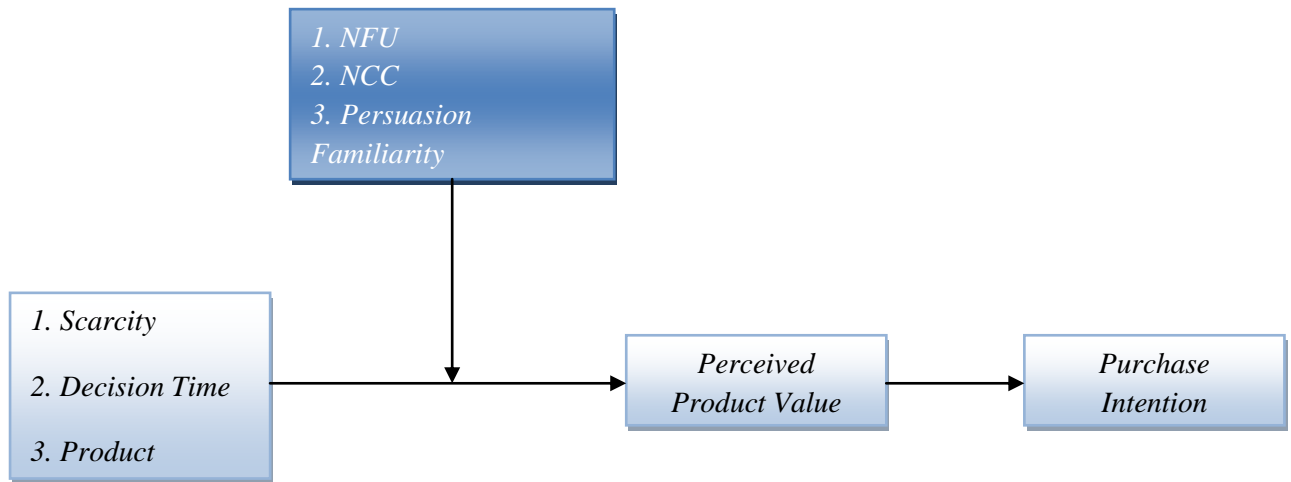


Figure 2.1 Research Model

The independent variables, scarcity and decision time affect the purchase intention through perceived product value. This proposed relationship will be tested for any moderating effects of the variables NFU (Need for Uniqueness), NCC (Need for Cognitive Closure) and persuasion familiarity. The following chapter will explain how the method was constructed to test the presented research design.

3. Method

The findings from literature led to the development of an experimental design for this study that aims to contribute to the understanding of the effectiveness of scarcity as an online persuasion technique to stimulate the purchase intention through an increase of the perceived product value. In this experimental design a few other constructs are included which are expected to have an impact on the direct relationship between scarcity, the product value and consequently the purchase intention. This chapter will discuss in further detail how the actual study was conducted and who was involved in the research. To do so, the method section will start off by elaborating on the participants and sampling procedure of the study. From there, the products that were used as stimulus material will be discussed in further detail. The final part of the chapter explains the application of the stimulus material, the scales that were used to test the variables of the experimental design and the procedure of the experiment.

The experimental design of the study that was created after a review of literature has been addressed to two different product categories. The decision to involve two product categories, instead of one, was made based on the assumption that consumer behaviour and a consumer's sensitivity towards scarcity appeals may differ per product category. Due to the frequent usage of scarcity appeals by suppliers of fashion products and leisure items, the experiments were conducted with items from these categories. Differences in sensitivity towards scarcity appeals are mainly expected to result from differences in product price and the level of exclusivity of the products. In section 2.4, an elaboration on the characteristics of the product categories is provided. For the fashion products, a dress was chosen for women and men were asked to assess a suit. In the holiday category, no distinction was made based on gender which indicates that all participants of this condition saw the same holiday offer from a renown Dutch online travel company.

3.1 Participants

To be able to conduct this study, a considerable amount of participants was needed to make the findings statistically relevant. The experiment is a 2x2x2 design (scarcity message (message/no message) x decision time (1 week/4 months) x product (clothing/holiday). This means that there are four groups within each product category. However, because of the product distinction that was made in the clothing category to make the scenario appealing to both male and female participants, this product category consisted of 8 groups. These 8 groups were constructed in order to have an equal distribution of male and female participants in the clothing product category. Yet, the output from these 8 groups was analysed all together as differences between male and female participants was not the focus of this research.

In total, a number of 156 individuals participated in the experiment by filling in the online questionnaire. The participants were equally distributed over the groups, resulting in a number of 13 respondents per group. As the clothing product category consisted of 8 groups, 104 participants were exposed to the clothing item as stimulus, whereas the remaining 52 participants did see a holiday destination as stimulus material for the leisure product category. In general, the mean age of the 12 groups lies between 28 and 38 years old. Furthermore, the female respondents in this experiment seem to be slightly younger than the men that participated. Table 3.1 reports the average age and online shopping behaviour per group.

Table 3.1 Demographics per condition

<i>Condition</i>	<i>Mean age</i>	<i>Median age</i>	<i>Frequency online shopping</i>	<i># of participants</i>
1. Dress, scarcity message, 1 week	28,2	24	3,7	13
2. Dress, scarcity message, 4 months	34,2	32	3,5	13
3. Dress, no scarcity message, 1 week	34,9	29	3,7	13
4. Dress, no scarcity message, 4 months	33,3	25	3,6	13
5. Suit, scarcity message, 1 week	37,3	28	3,7	13
6. Suit, scarcity message, 4 months	39,1	43	3,6	13
7. Suit, no scarcity message, 1 week	35,7	31	3,5	13
8. Suit, no scarcity message, 4 months	38,2	46	3,5	13
9. Holiday, scarcity message, 1 week	34,8	26	3,8	13
10. Holiday, scarcity message, 4 months	32,5	25	3,4	13
11. Holiday, no scarcity message, 1 week	38,9	38	3,4	13
12. Holiday, no scarcity message, 4 months	32,3	25	3,5	13

This table reports the mean age and median per condition group. The column with median age shows that especially group 6 and 8, with male participants, have a significant higher median age than the rest of the groups. However, the differences in mean age for the other groups are minimal and found to be similar among the groups ($F(11, 144) = ,68$, $p = 0.76$). Furthermore, the online shopping frequency is similar between the 12 condition groups as well ($F(11, 144) = ,42$, $p = 0.95$). The means of all groups indicate that , on average, the participants buy products online on a frequent basis. This implies that there is no difference visible between groups in online buying behaviour. More descriptive statistics of the participants and the ANOVA tables are included in Appendix 7.1.

3.2 Sampling Procedure

For this research, a considerable amount of participants was needed in a relatively short time period. The ideal number of participants would be 180 respondents, however it turned out that this was not achievable as not every participant fulfilled the criteria for the study and the holiday period made it difficult to reach people.

The number of participants of this study eventually turned out to be 156. To obtain respondents within a limited time frame, without any financial sources to address research panels, the researcher chose for a non-probability sampling method. Although a non-probability sampling method is inexpensive, quick and more achievable than a probability sampling method, it may not be a true representation of the population. Yet, it is expected that the findings from this study still provide a meaningful contribution to the current, conceptual knowledge of the effectiveness of online scarcity. Also, representativeness is not the main focus when conducting an experiment as has been executed in this research.

In this research context, convenience sampling has been chosen to approach participants and select respondents for this study. The researcher decided to construct an online questionnaire as it is expected to reach more potential respondents online. The easiest way to access respondents is by using social networking websites as Facebook. Hence, the online survey got distributed mainly via social platforms. To reach older respondents, the online survey also was distributed among a group of older employees of a company where family members of the researcher are employed. It was expected that using these channels would be the most convenient and easy ways to retrieve the amount of participants in a relatively short time period.

3.3 Stimulus Material

The main component of the experiment is the presentation of stimulus material that should make respondents aware of the time constraint and the scarcity condition. The stimulus consists out of two parts which are simultaneously shown to the respondent. The first aspect is a text in which a situation has been described. Depending on the time constraint to make a purchase decision, participants are presented with one out of the following scenarios. The original scenarios are added to Appendix 7.2.

The first situation, presented to both males and females in the clothing category, is the description of a last minute wedding to which the respondent is invited. However, due to the fact that the respondent was invited rather last minute, he or she only has 1 week to find an appropriate outfit.

The second situation, presented to both males and females in the clothing category, is the description of a wedding that the respondent will attend. The respondent has 4 months to find an appropriate outfit.

The third situation, presented to both males and females in the holiday category, is the description of holiday planning. The respondent is presented with a text in which becomes evident that the respondent is fed up with work and that he/she is in desperate need of a last minute holiday to re-charge the battery. The respondent wants to leave within 1,5 week and therefore only has 1 week to decide.

The fourth situation, presented to both males and females in the holiday category, is the description of the planning of a summer holiday for which a respondent has four months left to make the eventual purchase decision.

The subsequent image, a print screen of a product offer for a wedding outfit or a product offer for a holiday, is attached with or without a scarcity message integrated in the photo. The print screen for the clothing category are derived from the Dutch online retailer Wehkamp.nl. The print screen for the holiday category is copied from the Dutch online travel agency, Sunweb.nl. These websites are selected because the experiment was conducted with solely Dutch participants. Based upon the print screen in combination with the presented scenario, respondents are asked to fill out subsequent scales for perceived value and purchase intention.

In total, there are 12 scenarios:

1. Dress, long time manipulation (4 months), no scarcity manipulation
2. Dress, long time manipulation (4 months), scarcity manipulation
3. Dress, short time manipulation (1 week), no scarcity manipulation
4. Dress, short time manipulation (1 week), scarcity manipulation
5. Suit, long time manipulation (4 months), no scarcity manipulation
6. Suit, long time manipulation (4 months), scarcity manipulation
7. Suit, short time manipulation (1 week), no scarcity manipulation
8. Suit, short time manipulation (1 week), scarcity manipulation
9. Holiday, long time manipulation (4 months), no scarcity manipulation
10. Holiday, long time manipulation (4 months), scarcity manipulation
11. Holiday, short time manipulation (1 week), no scarcity manipulation
12. Holiday, short time manipulation (1 week), scarcity manipulation

The print screens of the products, with and without the scarcity message, are presented on the following pages.

Voor 23:00 uur besteld, is morgen in huis*

Op je gemak thuis passen

Inloggen | Mijn wehkamp.nl | Klantenservice

wehkamp

SHOP PREMIUM MAGAZINE





Zoeken

Prijzen eindverzendkosten

DAMES HEREN KINDEREN BABY WONEN & SLAPEN TUIN & KLUSSEN HUISHOUDEN ELEKTRONICA SPEELGOED & GAMES SPORT & VRIJETIJD MOOI & GEZOND SALE

1. TERUG NAAR FEESTJURKEN

VORIGE 103/107 VOLGENDE

Steps jurk

★★★★★ [Schrijf een review](#)

- Materiaal: 60% Polyester/40% Katoen; Trimming: 100% Polyester; Voering: 100% Polyester
- Kleur: Groen
- Lengte (om): 85
- Kraagvorm: Off shoulder
- Mouwlengte: Kapmouwtje

VIND MIJN MAAT

Maat 40 - direct leverbaar

109.95

KLIK EN BESTEL

♥ ZET OP WENSENLIJST

[Gespreid betalen met balansrekening*](#)

Let op! Geld lenen kost geld

BETROUWBARE SERVICE!

- Retourneren is gratis ook als we het thuis ophalen
- 14 dagen bedenktijd op je gemak beoordelen
- Voor 23:00 besteld is morgen in huis*
- Betaal zoals jij wilt vooraf achteraf of gespreid
- Wij bezorgen snel JJ bepaalt waar en wanneer

ARTIKELOMSCHRIJVING

Een dames jurk van Steps, uitgevoerd in een glanzende kwaliteit. Het getailleerde model heeft een wijde hals, afneembare spaghetti bandjes, off-shoulder mouwtjes en een blinde ritsluiting aan de achterkant. Het bovenlijfje zit aansluitend en de rok l...

[Meer informatie](#)

Figure 3.1.1 Dress – no scarcity message

Voor 23:00 uur besteld, is morgen in huis*

Op je gemak thuis passen

Inloggen

Mijn wehkamp.nl

Klantenservice

wehkamp

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← TERUG NAAR FEESTJURKEN

VORIGE

103/107

VOEGENDE

Laatste exemplaar!

Steps jurk

★★★★★ Schrijf een review

- Materiaal: 60% Polyester/40% Katoen;Trimming: 100% Polyester;Voering: 100% Polyester
- Kleur: Groen
- Lengte (cm): 85
- Kraagvorm: Off shoulder
- Mouwlengte: Kapmouwtje

VIND MIJN MAAT

Maat 40 - direct leverbaar

109.95

KLIK EN BESTEL

♥ ZET OP WENSENLIJST

Gespreid betalen met **baansrekening**?

Let op! Geld lenen kost geld

BETROUWBARE SERVICE!

- Retourneren is gratis ook als we het thuis ophalen
- 14 dagen bedenktijd op je gemak beoordelen
- Voor 23:00 besteld is morgen in huis*
- Betaal zoals jij wilt vooraf, achteraf of gespreid
- Wij bezorgen snel jij bepaalt waar en wanneer

ARTIKELOMSCHRIJVING

Een dames jurk van Steps, uitgevoerd in een glanzende kwaliteit. Het gedetailleerde model heeft een wijde hals, afneembare spaghetti bandjes, off-shoulder mouwtjes en een blinde ritssluiting aan de achterkant. Het bovenlijf zit aansluitend en de rok l...

[Meer informatie](#)

Figure 3.1.2 Dress – Scarcity message

Voor 23:00 uur besteld, is morgen in huis*

Op je gemak thuis passen

Inloggen | Mijn wehkamp.nl | Klantenservice

wehkamp

[SHOP](#)
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[DAMES](#)
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[HUISHOUDEN](#)
[ELEKTRONICA](#)
[SPEELGOED & GAMES](#)
[SPORT & VRIJETIJD](#)
[MOOI & GEZOND](#)
[SALE](#)

Collezione Verde smoking

★★★★★ [Schrijf een review](#)

- Materiaal: 50% wol/50% polyester
- Kleur: Zwart
- Lengte (cm): 74

[VIND MIJN MAAT](#)

Maat 48 - direct leverbaar

169.-

[KLIK EN BESTEL](#)

[♥ ZET OP WENSENLIJST](#)

[Gespreid betalen met balansrekening* ?](#)

[Let op! Geld lenen kost geld](#)

ACTIE

Smoking set met korting!

Bestel de smoking + shirt + strik van 239,- voor 189,-. De korting wordt automatisch verrekend in de winkelmand.

BETROUWBARE SERVICE!

Retourneren is gratis ook als we het thuis ophalen

14 dagen bedenktijd op je gemak beoordelen

Voor 23:00 besteld is morgen in huis*

Betaal zoals jij wilt vooraf, achteraf of gespreid

Wij bezorgen snel jij bepaalt waar en wanneer

ARTIKELOMSCHRIJVING

Heren smoking van Collezione Verde. Smoking jas met extra lange revers kraag in glansstof, 2 paspelzakken en 1 borstzak. De jas heeft 4 binnenzakken en is geheel gevoerd. De pantalon heeft een knoop-haak sluiting, 2 steekzakken en 2 paspelzakken met knoop... [Meer informatie](#)

Figure 3.2.1 Suit – No scarcity message

Voor 23:00 uur besteld, is morgen in huis*

Op je gemak thuis passen

Inloggen | Mijn wehkamp.nl | Klantenservice

wehkamp

SHOP PREMIUM MAGAZINE

Zoeken

Prima en voordelig

DAMES HEREN KINDEREN BABY WOMEN & SLAPEN TUIN & KLUSSEN HUISHOUDEN ELEKTRONICA SPEELGOED & GAMES SPORT & VRIJE TIJD MOOI & GEZOND SALE

Het laatste exemplaar!

Collezione Verde smoking

★★★★★ Schrijf een review

- Materiaal: 50% wol/50% polyester
- Kleur: Zwart
- Lengte (cm): 74

VIND MIJN MAAT

Maat 48 - direct leverbaar

169.-

KLIK EN BESTEL

♥ ZET OP WENSENLIJST

Gespreid betalen met balansrekening*?

Let op! Geld lenen kost geld

ACTIE

Smoking set met korting!
Bestel de smoking + shirt + strik van 239,- voor 189,-. De korting wordt automatisch verrekend in de winkelmand.

ARTIKELOMSCHRIJVING

Heren smoking van Collezione Verde. Smoking jas met extra lange revers kraag in glansstof, 2 paspelzakken en 1 borstzak. De jas heeft 4 binnenzakken en is geheel gevoerd. De pantalon heeft een knoop-haak sluiting, 2 steekzakken en 2 paspelzakken met knoop... [Meer informatie](#)

BETROUWBARE SERVICE!

Retourneren is gratis
ook als we het thuis ophalen

14 dagen bedenktijd
op je gemak beoordelen

Voor 23:00 besteld
is morgen in huis*

Betaal zoals jij wilt
vooraf, achteraf of gespreid

Wij bezorgen snel
jij bepaalt waar en wanneer

Figure 3.2.2 Suit – Scarcity message

Bel ons op 0900 0290 (70 ct per gesprek).

Klantenservice Mijn Favorieten Mijn Sunweb Zoeken...

Sunweb HOME BESTEMMINGEN ▼ ZOEK & BOEK AANBIEDINGEN ▼ VLIEGTICKETS FORUM

< terug

★★★★★

HOTEL THE ISLAND

Griekenland > Kreta > Gouves

BEWAREN ♥

€1099
Prijs Per Persoon

✈️ + 🚌 + 🛏️
zondag 12 juli, 13 dagen, 2 personen,
Halfpension
(wijzigen)

PRIJZEN ZIEN & BOEKEN

VERBERG PRIJSINFORMATIE

OVERZICHT ACCOMMODATIE ERVARINGEN VRAGEN & TIPS BESTEMMING VLUCHTINFO FOTO'S **PRIJZEN EN BOEKEN**

Figure 3.3.1 Holiday – No scarcity message

Bel ons op 0900 0290 (70 ct per gesprek).

Klantenservice Mijn Favorieten Mijn Sunweb Zoeken...

Sunweb HOME BESTEMMINGEN ✓ ZOEK & BOEK AANBIEDINGEN ✓ VLIETICKETS FORUM

< terug

★★★★★

HOTEL THE ISLAND

Griekenland > Kreta > Gouves

BEWAREN ♥

€1099
Prijs Per Persoon

✈️ + 🚌 + 🛏️
zondag 12 juli, 13 dagen, 2 personen,
Halfpension
(wijzigen)

Laatste kamer in deze periode

VERBERG PRIJSINFORMATIE

OVERZICHT ACCOMMODATIE ERVARINGEN VRAGEN & TIPS BESTEMMING VLUCHTINFO FOTO'S **PRIJZEN EN BOEKEN**

Figure 3.3.2 Holiday – Scarcity message

3.4 Measurement instruments

To test the proposed experimental design, a structured online questionnaire was created. The survey consists out of several standardised scales, self-created scales and a scenario in which respondents are introduced to a certain product with or without a supply-limited scarcity message. The stimulus material for the both product categories, with the inclusion of the independent variables scarcity and decision time have been presented in the previous section. In this sub-chapter, an elaboration on the measurements for the remaining of the variables from the experimental design is provided. Firstly, an elaboration on the dependent variables perceived product value and purchase intention is provided. Lastly, the measurements for the three proposed moderating variables persuasion familiarity, need for uniqueness and need for cognitive closure are presented in more detail.

All sub-chapters will report Cronbach alpha measures to indicate the reliability of the scales that have been used in the online questionnaire. To provide a clear overview, the following table briefly summarises the Cronbach alpha's. Further discussion about the validity and reliability of the scales will be provided in the sub-chapters.

Table 3.2 Summary scale reliability scores

<i>Scale</i>	<i># items</i>	<i>Cronbach's Alpha (α)</i>
Perceived Product value (PERVAL)	19	,89
Persuasion Familiarity	9	,89
Need For Uniqueness (NFU)	12	,88
Need for Cognitive Closure (NCC)	15	,76

3.4.1 Perceived Product Value and Purchase Intention

After exposure to the stimulus material, a print screen of a product offer with or without a scarcity message, respondents are asked to fill the 19 items about product value to get a better understanding of the perceived value of the consumer regarding the product they evaluated.

The 19 items scale uses a 7 point Likert scale to indicate the answer and consists out of four dimensions of perceived value that are tested: a) emotional value, b) social value, c) functional value (price/value for money) and d) functional value (performance/quality) (Sweeney and Soutar, 2001). The scale has proven to be reliable with Cronbach alpha's ranging from .80 to .94 (Sweeney and Soutar, 2001). The Cronbach's alpha also was assessed in the current research sample to re-check reliability. The PERVAL scored a Cronbach's alpha of .89 in this specific sample and therefore can be called reliable. This scale is necessary to structurally assess the perceived value of consumers towards the product and can identify variations, if any, on the above mentioned dimensions between respondents who were exposed to the scarcity appeal and respondents who did not see this message.

The 19 items scale measures four sub-constructs of product value; quality, emotional value, price and social value by proposing questions based upon these four dimensions (Sweeney and Soutar, 2001). The fourth question of the PERVAL is a negative question and therefore should be scored reversely when interpreting the data to retrieve the actual meaning from the answer. The PERVAL scale has been added to Appendix 7.3.

Additionally, to the PERVAL scale, one question was asked about the following step of the consumer; whether they would consider to buy or to search for alternatives on the internet. This question therefore captures the variable purchase intention. In case the respondent selected the option 'Consider to Buy', purchase intention got marked as 'Yes'. In case the respondent selected the option to search for alternatives on the internet, the purchase intention got marked as 'No'.

3.4.2 Persuasion Familiarity

After a few demographical questions and a question regarding the frequency of online shopping of the respondent, the respondent was asked to fill in a self constructed scale to measure the persuasion familiarity of the consumer. The general idea while creating the scale was to ask respondents about their familiarity with the most frequently used marketing techniques in online setting. The scale entails 9 questions and respondents are required to answer on a five-point Likert scale. A few examples of questions are the familiarity towards

online commercials, social media presence and pop-up banners. All items from the scale are captured in Appendix 7.4.

As the scale is self created, a factor analysis has been performed to test the construct validity of the tool. The Kaiser-Mayer Olkin Measure of sampling adequacy reports a score of .88, implying that the sample size is adequate for conducting a factor analysis. The findings from the factor analysis show that only 1 component has been found, explaining that all questions contribute to the same construct, which was intended while constructing the scale.

Furthermore, every question seems to contribute to the variance of persuasion familiarity to some extent, so it is not necessary to remove questions. Below, a table with the cumulative percentage of variance explained by the scale and the factor loadings is presented.

Table 3.3 Factor Analysis – Persuasion Familiarity

Question	Factor Loading	Cumulative %
1	,79	55,4%
2	,80	
3	,78	
4	,80	
5	,68	
6	,78	
7	,60	
8	,69	
9	,76	

Also, after running a factor analysis, a reliability analysis was performed to analyse the internal consistency of the scale. The Cronbach's alpha for this scale turns out to be .889, which indicates that the scale is well constructed and the items are consistent. The combination of the factor analysis and the reliability analysis indicate that the self constructed scale for the persuasion familiarity seems a good measure to test a consumer's familiarity with marketing techniques.

3.4.3 Need for Uniqueness

The final part of the online survey entails two standardised scales to measure the personality traits Need for Uniqueness (NFU) and Need for Cognitive Closure (NCC). These characteristics are expected to be of influence on one's sensitivity towards a scarcity message and therefore it would impact an individual's intention to purchase.

The scale for consumer's NFU, which was originally developed by Tian, Bearden and Hunter (2001), to investigate a consumer's need for uniqueness will be included in the questionnaire. The scale has been developed to investigate 'someone's pursuit of differentness relative to others that is achieved through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's personal and social identity' (Tian, Bearden and Hunter, 2001). The 31 items with a 5 point Likert scale tests three different sub-scales in the field of creative choice counter conformity (CCC), unpopular choice counter conformity (UCC) and avoiding similarity (AS). CCC stands for choices that are unique, novel and different, yet likely to be considered good choices by others, whereas UCC is the sub-scale to assess someone's sensitivity to choices that deviate from group norms and therefore are risky, yet are taken to create differentness from others (Tian, Bearden and Hunter, 2001). Avoiding similarity is the sub-scale to test whether someone is sensitive to discontinuous usage of goods that have become normal and are used commonplace (Tian, Bearden and Hunter, 2001). Although the 31 items with a 5 point Likert scale has been proven to be reliable and valid, the major criticism is that the scale is too long and therefore respondent fatigue is likely. Therefore, Ruvio, Shoham and Brencic (2008) developed a CNFU-short form. The authors reduced the initial scale to 12 items to assess the same sub-scales as proposed by the initial CNFU (CCC; Cronbach's alpha (0.93), UCC; Cronbach's alpha (0.85), AS; (0.93) (Ruvio, Shoham and Brencic, 2008)). The overall Cronbach's alpha conducted for this scale in the current research sample is .881, indicating that the NFU scale is reliable in this research sample. The CNFU-short form will be used in the questionnaire to assess the respondent's sensitivity towards need for uniqueness. The scale has been included in Appendix 7.5.

3.4.4 Need for Cognitive Closure

Besides the scale for Need for Uniqueness, there is also a standardised scale in place to test an individual on its sensitivity to the need for cognitive closure. The initial 42 items scale was designed by Kruglanski, Webster and Klem (1993) and has been developed to assess individuals' motivation with respect to information processing and judgment. The scale consists of five sub-scales; a) desire for predictability, b) preference for order and structure, c) discomfort with ambiguity, d) decisiveness and e) close-mindedness.

Although the scale was properly tested, the same problem occurs as with the initial CNFU scale, 42 items are too many to fill in. Therefore, to avoid respondent fatigue, a 15 items scale was retrieved from the original scale by Roets and van Hiel (2011). The shorter scale uses a 5 point Likert scale and reports a Cronbach's alpha of .87 and therefore can be called reliable (Roets and van Hiel, 2011). A reliability analysis conducted for this research sample reports a Cronbach's alpha of .76. Although lower than the alpha reported by Roets and van Hiel (2011), the scale used to test the NCC is still found to be reliable.

Both scales to identify the individual's traits will be used in all versions of the questionnaire as these traits can make a significant difference in the sensitivity towards scarcity and the intention to purchase the presented product (Jung and Kellaris, 2004; Gietz, Plantsch and Schweidler, 2008). The scale for cognitive closure also can be found in Appendix 7.6.

3.5 Procedure

The questionnaire was created to test a 2x2x2 experimental design. Independent factors are scarcity, decision time and product category, whereas the dependent factors are perceived value and purchase intention. Three constructs were proposed to impact the relationship between scarcity and perceived product value and purchase intention, as proposed by literature. These constructs are NFU, NCC and persuasion familiarity. All respondents were exposed to the decision time and the proposed moderating variables NFU, NCC and persuasion familiarity. For the scarcity variable, a control group was introduced that did not get exposed to a scarcity message in order to trace potential differences between the groups.

The research participants were told that they would participate in a study to investigate online consumer behaviour by filling in the survey. The choice to not mention persuasion was a considerate one as it might have biased the respondents' answers to the questions and the perception towards the scarcity message. Therefore, a more general introduction to the research was preferred. Throughout the questionnaire, the researcher tried to stress the

importance of taking a precise look towards the stimulus material. Also, during the question regarding the purchase intention, respondents were reminded of re-thinking the time constraint. These measures were taken to make sure respondents were well aware of the offered stimulus material, the subsequent restrictions and the potential consequences for the respondent's perception about product value and purchase intention.

In total, 156 respondents participated in the experiment and completed the entire survey, however the number of respondents that started the online questionnaire was much higher. 208 people started the online survey, which indicates a drop-out rate of 25%. The first question was created to exclude people from the survey with limited knowledge about online shopping. Hence, after question 1, 15 respondents were directed to the end of the survey and were marked as 'drop outs'. The remaining of the drop outs can be attributed to the usage of long, perhaps boring, scales to measure perceived product value and because of technical issues when the online survey was completed on a mobile phone. Respondents were not able to enlarge the print screen of the product offer when the survey was filled in on a mobile phone. This might have caused that people stopped in the middle of the survey.

3.6 Analysis

To unveil potential differences with scarcity (yes/no), decision time (1 week/4 months) and product (wedding outfit/holiday) as independent factors and purchase intention and perceived product value as dependent factors, two Analysis of Variance (ANOVA) are executed in which purchase intention and perceived product value are tested separately. Literature has suggested that the means for purchase intention and perceived product value should differ for groups of consumers who either saw or didn't see a scarcity message and for groups of consumers who either had 1 week to make the purchase decision or the group that had 4 months to decide.

4. Results

Although not much empirical evidence is in place in existing literature regarding the effectiveness of online persuasion, and in particular online scarcity, scholars do make conceptual assumptions and conclusions about the functioning of online persuasion. The literature review that has been conducted has led to the development of several hypotheses that are based upon conceptual findings from existing work from other scholars. The hypotheses combined were the fundament of the construction of this experimental design. In this chapter, an elaboration will be provided on the results from the analysis and the results will be linked to the hypotheses that were created based upon literature.

4.1 Hypotheses testing

In the literature review chapter of this study, five hypotheses were proposed in relation to scarcity and the effect on the dependent variables purchase intention and perceived product value. To recapitulate the hypotheses, they are listed below:

Hypothesis 1: Scarcity increases perceived product value and purchase intention.

Hypothesis 2: The time to make a purchase decision negatively affects the perceived product value and consequently, the purchase intention.

Hypothesis 3: An individual's need for uniqueness positively affects the relationship between scarcity and perceived product value and purchase intention.

Hypothesis 4: An individual's need for cognitive closure positively affects the relationship between scarcity and perceived product value and purchase intention.

Hypothesis 5: An individual's familiarity with persuasion negatively affects the relationship between scarcity and perceived product value and purchase intention.

In the initial situation, the hypotheses were tested by using 2x2x2 ANOVA's, in which scarcity message, decision time and product category are the between-subject factors. The findings from the ANOVA's for both purchase intention and perceived product value do not provide any significant results. An explanation for this observation could be the marginal sample size of the study with a 2x2x2 experimental design. Perhaps, when the researcher would have been able to reach more respondents to participate in the experiment, some relations might have been significant, especially the main effect for decision time on purchase intention (Table 4.1), and the main effect for scarcity on perceived product value (Table 4.2).

Below, the ANOVA tables for both purchase intention and perceived product value are reported.

Table 4.1 2x2x2 ANOVA – Purchase Intention

<i>Factor</i>	<i>df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	0,32	,57
NFU	1	0,43	,51
NCC	1	0,01	,96
Product	1	0,90	,34
Scarcity	1	0,00	,97
Decision Time	1	3,22	,08
Product*Scarcity	1	0,03	,87
Product*Decision Time	1	0,45	,51
Scarcity*Decision Time	1	0,09	,76
Product*Scarcity*Decision Time	1	0,16	,69

Dependent variable: Purchase intention

Table 4.2 2x2x2 ANOVA – Perceived Product Value

<i>Factor</i>	<i>df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	0,05	,94
NFU	1	1,12	,28
NCC	1	1,38	,24
Product	1	0,50	,48
Scarcity	1	3,62	,06
Decision Time	1	0,13	,91
Product*Scarcity	1	1,12	,29
Product*Decision Time	1	1,01	,32
Scarcity*Decision Time	1	0,01	,92
Product*Scarcity*Decision Time	1	1,05	,31

Dependent variable: Perceived Product Value

The results from the ANOVA's for the 2x2x2 design did not show any significant results. Hence, the decision was made to re-do the analysis and running four 2x2 univariate ANOVA's in which product category was excluded as a between-subject factor. This means that per product category, two ANOVA's were run to test the dependent variables purchase intention and perceived product value separately. The decision to use 2x2 ANOVA's instead of MANOVA was made based on the belief that the dependent variables would react differently to the manipulations of the experiment.

4.1.1 Clothing

Running 2 ANOVA's for the clothing product category has resulted in the following outcomes as presented by tables 4.3 and 4.4.

Table 4.3 2x2 ANOVA – Clothing – Purchase Intention

<i>Factor</i>	<i>df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	0,01	,91
NFU	1	0,38	,54
NCC	1	0,01	,92
Scarcity	1	0,01	,93
Decision Time	1	4,15	,04*
Scarcity*Decision Time	1	0,41	,53

Dependent variable: Purchase intention – Clothing

Note 1: * indicates significance level: $p < 0.05$

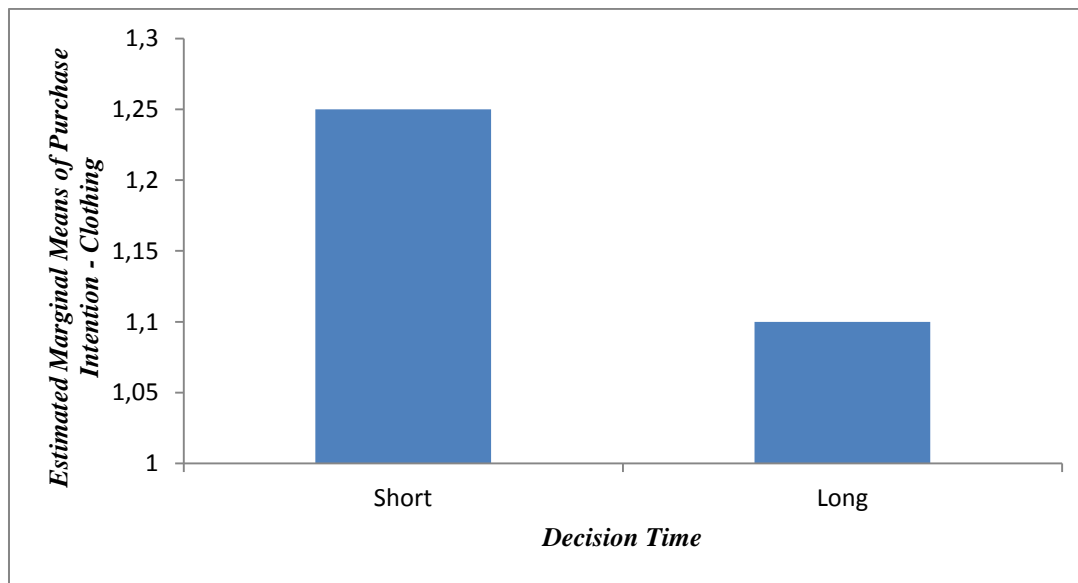
Table 4.4 2x2 ANOVA – Clothing – Perceived Product Value

<i>Factor</i>	<i>Df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	0,00	,94
NFU	1	0,56	,46
NCC	1	0,37	,54
Scarcity	1	0,40	,53
Decision Time	1	0,74	,39
Scarcity*Decision Time	1	0,42	,52

Dependent variable: Perceived Product Value – Clothing

The main effect of decision time on purchase intention was found to be significant for the clothing product category. Hence, the results from the clothing product partially support the hypothesis about decision time, in which is indicated that decision time would negatively affect the perceived product value and purchase intention. No evidence was found that decision time would have a negative effect on perceived product value, however, there was evidence to support a negative relationship between decision time and purchase intention ($F(1,96) = 4,15$, $p = 0.04$). In other words, the more time to decide upon the purchase of the clothing, the lower the product intention turned out to be. Figure 4.1 shows the bar charts with the differences in means per group. The remaining of the proposed relationships were found to be insignificant.

Figure 4.1 Main effect Decision Time - Clothing



4.1.2 Holiday

Also for the holiday product category, two ANOVA's were conducted to test the proposed relationships of the model. Table 4.5 and 4.6 present the findings from the analysis.

Table 4.5 2x2 ANOVA – Holiday – Purchase Intention

<i>Factor</i>	<i>Df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	1,28	,26
NFU	1	0,16	,69
NCC	1	0,00	,96
Scarcity	1	0,43	,52
Decision Time	1	0,14	,71
Scarcity*Decision Time	1	0,24	,63

Dependent variable: Purchase Intention – Holiday

Table 4.6 2x2 ANOVA – Holiday – Perceived Product Value

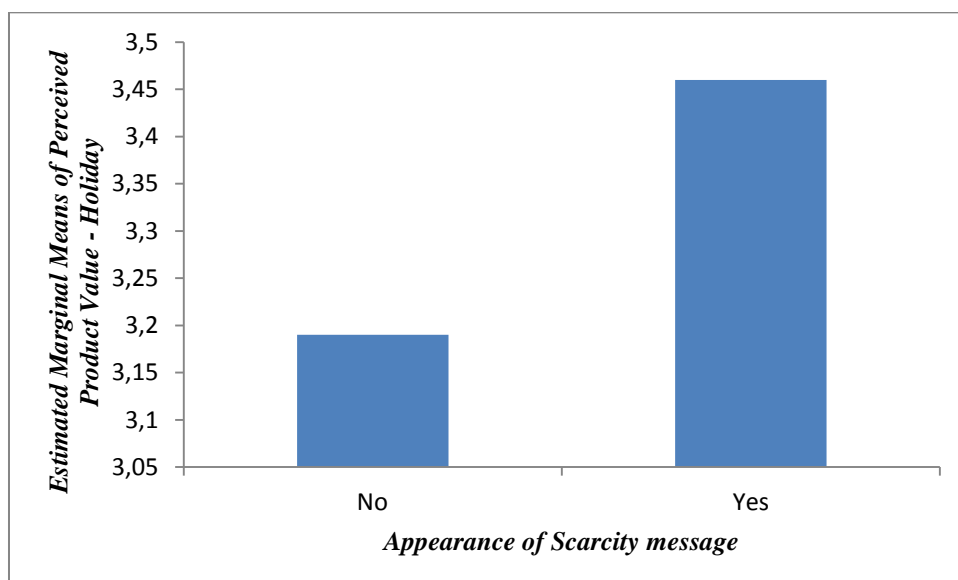
<i>Factor</i>	<i>Df</i>	<i>F</i>	<i>P</i>
Persuasion Familiarity	1	,03	,86
NFU	1	1,01	,32
NCC	1	1,61	,21
Scarcity	1	4,47	,04*
Decision Time	1	0,67	,42
Scarcity*Decision Time	1	0,69	,41

Dependent variable: Perceived Product Value – Holiday

Note 1: * indicates significance level: $p < 0.05$

There were no significant results between the proposed independent variables, moderator variables and the dependent variable purchase intention. However, in table 4.6, a significant main effect for scarcity on perceived product value becomes visible. This relationship is partially in line with hypothesis 1, indicating that scarcity appeals increase the perceived product value of a product ($F(1,45) = 4,47$, $p = 0.04$). Figure 4.2 shows the chart with the differences in group means for scarcity. Nevertheless, this relationship was only visible for the holiday product. Hence, based on the holiday product, it can be confirmed that scarcity does have an effect on perceived product value in an online retail situation.

Figure 4.2 Main Effect Scarcity - Holiday



The associated bar chart presents a positive direction to the relationship between scarcity and perceived product value. The mean for perceived product value is significantly higher for respondents who did see a scarcity message in comparison to the group of respondents who

did not see the scarcity message. This evidence partially supports the hypothesis 1 of this study. Also, the table of group means that has been added to Appendix 7.8, shows that the means for perceived product value are higher for the groups who were exposed to the scarcity message. Hence, based upon the output for the holiday product, it can be argued that scarcity appeals do contribute positively to e-commerce, which is in line with the effectiveness of offline scarcity.

4.2 Conclusion

To analyse the data and investigate whether there is empirical evidence to back up the hypotheses proposed by literature, four ANOVA's were executed. The majority of the proposed relationships by the experimental design were found to be insignificant, especially the moderating variables Persuasion Familiarity, Need for Uniqueness and Need for Cognitive Closure. Hence, it can be concluded that there is no proof that these variables moderate the relationships between online scarcity and perceived product value, and decision time and purchase intention, in any way. Furthermore, the significant results that were found are not supported in every product category. There is no empirical evidence that decision time has a negative effect on purchase intention in the holiday product category, whereas this relationship was found to be significant for the clothing category. On the contrary, online scarcity was found to have a positive effect on perceived product value of holidays, yet this trend was not visible for the clothing category. Therefore, it can be argued that the inconsistent results could be caused by the differences in product attributes. This line of reasoning will be reviewed in further detail in the Discussion chapter. Also, it should be considered that the sample size of the study has been too small to test the amount of independent variables.

From the analysis can be concluded that the hypotheses, that were mainly based upon literature dedicated to the effectiveness of offline scarcity, are not supported in case of online scarcity. Hence, it can be argued that the scarcity technique as persuasion measure works differently in an online context in comparison to an offline retail environment. This implies that online retailers cannot automatically assume the same effectiveness of application of scarcity messages in e-commerce. The Discussion chapter will dive deeper into the meaning of the findings and will provide suggestions for future research in the field of online persuasion, and especially online scarcity appeals.

5. Discussion

The goal of this study was to provide more insight into the functioning of scarcity appeals as sales technique in online selling environments. E-commerce becomes more and more important and statistics confirm the explosive pace at which this industry has developed. The industry exceeded an amount of 1.3 trillion dollars in sales in 2013 (Statista, 2015). Scarcity appeals as a tool to stimulate the purchase decision process of the consumer in an online retail setting, have been used frequently by a wide range of suppliers of different goods. However, consumers may perhaps best know the scarcity messages from retailers of fashion products and leisure items. Websites as Zalando and Wehkamp.nl, that sell fashion items, use scarcity messages to indicate the limited product availability. Scarcity appeals are also frequently used by online selling agencies for plane tickets and holidays, with the perhaps most notorious user of scarcity message being the vending website of airline Ryanair. In order to test the effectiveness of online scarcity appeals and provide an answer to the research question, an experiment was created to test the consumer's response to online scarcity messages with the interference of several aspects that possibly affect the functioning of the scarcity appeal.

The research question that has been formulated, and that was presented in chapter two of this essay is stated below:

How do familiarity with online marketing technique, a consumer's need for uniqueness and need for cognitive closure, affect the relation between scarcity and decision time, and a consumer's perceived product value and purchase intention with fashion products and leisure?

Based upon conceptual findings from literature, a moderating effect was expected from the variables persuasion familiarity, need for uniqueness and need for cognitive closure. Results from the analysis do not support any evidence for moderating involvement of these three factors. Furthermore, the research question implied that there would be a relationship between online scarcity and perceived product value, and purchase intention. The experiment that was conducted here indicates that such a relationship may not be assumed that easily. Evidence was found for a relationship between online scarcity and perceived product value, yet solely for the holiday stimulus. This means that there is no proof of a relationship between online scarcity and purchase intention at all, and that an effect from online scarcity on perceived

product value in this case only applies to the consumer's value estimation of the holiday. On the contrary, the expected negative relationship between decision time and perceived product value and purchase intention was solely visible for the clothing category and only significant for purchase intention. This means that decision time did have a negative effect on purchase intention, but that the proposed relationship between decision time and perceived product value could not be supported.

The question remains why these differences occur and what possible reasons could explain these differences. An elaboration on the significant results for both online scarcity and decision time will be provided below.

Online Scarcity

The effectiveness of online scarcity seems to depend on the product to which the scarcity appeal is applied. Whereas significant results were found for a positive relationship between online scarcity and purchase intention for the holiday, which is in line with expectations from other scholars (Kaptein and Eckles, 2012; Jeong and Kwon, 2012), there were insignificant results for the clothing category. Remarkably, scarcity was found to be effective for holidays, whereas a less strong effect of scarcity was expected at this product category, as it was assumed that an individual's uniqueness would be less brandished through a holiday. Yet, there is another explanation, based upon the product characteristics, that might explain why scarcity did work for holidays and not for clothing.

One of the differences between the products presented in this experiment was the segment to which they belonged. Whereas the clothing was categorised as high segment, the holiday was categorised as being top segment because of the 4,5 stars. At the beginning of this research, it was argued that the higher the perceived value of a commodity, the more desirable the product is (Brock, 1968; Lynn, 1991). It is assumed that products that are situated in the top segment would seem more valuable to consumers in comparison to products in lower segments. If additionally to a top segment product, a scarcity message gets applied, the perceived value of the product will increase even further and the product will get more desirable. Hence, it can be argued that the initial amount of perceived value, which depends on the segment the product is in, could explain why online scarcity was supported for holidays, but not for clothing. To examine whether the type of segment has an effect on the effectiveness of scarcity, online scarcity applied to two products of the same product category, but in different price segments, should be compared.

Also, the effectiveness of online scarcity could be attributed to the type of product, tangible or intangible (service). Significant results for online scarcity appeals were reported for a service, whereas scarcity appeals for the tangible product (clothing) were insignificant. This could be explained by the level of difference between offline and online buying. Whereas offline buying provides physical proximity between the consumer and a tangible product, which facilitates an evaluation based upon look and feel, online buying does not accommodate this. Hence, in online shopping, consumers miss the evaluation based upon look and feel of the tangible product. This could explain why a consumer who buys online might be less attached to the product than a consumer that saw the same product offline and had the chance to evaluate it with its senses. The differences in attachment could explain the levels of sensitivity towards scarcity for tangible products. In case of services, which are intangible, the process of offline and online buying is more similar to each other as the purchase of a service cannot be evaluated based upon look and feel prior to purchase. Therefore, it can be argued that the effectiveness of offline scarcity and online scarcity appeals are more similar because of more similar shopping conditions. Executing follow-up experiments with more product categories, with both products and services, should indicate whether this trend is visible.

Decision Time

The results from the clothing product showed a negative effect of decision time on purchase intention. Hence, the more time a consumer has to make a purchase decision, the less likely it is that the consumer will purchase the initial product. This is in line with thoughts from Jung and Kellaris (2004) and Gietz and colleagues (2008), as they also acknowledge that a shorter amount of decision time has a positive effect to purchase intention. Explanations for this observation could be that a short time period to make a decision limits the time to look for alternatives and therefore a consumer is more likely to purchase the initial product (Jung and Kellaris, 2004). Hence, the decision time and the search for alternatives are connected, and the search for alternatives could be included in future research on this topic. Another explanation provided is that a short decision time forces the consumer to make a cognitive short-cut on the decision process and hence consumers are more tempted to buy the initial product (Gietz et al., 2008). This result advocates for the use of time-restricted scarcity messages instead of supply-restricted scarcity messages (Cialdini, 2001; Jung and Kellaris, 2004; Gierl, Plantsch and Schweidler, 2008).

The reason why a time constraint only had effect on the clothing product category could be explained by the differences in product price between the holiday and the fashion item. The holiday would cost the consumer more than €1000,-, whereas the price for the clothing offer would be between €100 and €200,-. It could be argued that people would like to re-think their potential purchases and make a deliberate choice if more money is involved and therefore they could be less concerned about their time to make the purchase decision and more willing to invest time to search for alternatives. Hence, it would have been a meaningful addition if product price was added as a predictor variable of purchase intention to the experimental design.

5.1 Limitations

This study has been considerably developed and every step of the way was thought through in detail. However, a few limitations did appear during the study.

At first, it became apparent that there was not much literature on the functioning on Cialdini's principles of persuasion in online context. Therefore, hypotheses were partly based upon literature subjected to scarcity appeals in an offline context and partly based upon literature from online scarcity, however without any empirical evidence to back up the proposed relationships. Hence, it is questionable whether the hypotheses were suitable to scarcity in an online context. This makes it that the research has an explorative character and should be seen as a first step into explicating how online scarcity functions. Although the lack of existing literature, online scarcity has been used in practice frequently so conducting research in this field of expertise contributes to both the understanding of practitioners of scarcity appeals and the scientific knowledge about this specific topic.

Another limitation to this research is the uncontrollability of whether or not research participants have noticed the scarcity message and whether they have assessed the subsequent parts of the online survey accordingly. To keep the survey as objective as possible and to avoid desired answering from the respondents to the question in the online survey, no notion was made of the potential appearance of a scarcity message. Therefore, if respondents did not inspect the image carefully, they could have missed the actual scarcity attempt and answered differently, which would jeopardize the results of this research. This limitation could be considered to be a limitation of the chosen research technique.

Furthermore, this research technique presents a conceptual situation of a scarcity attempt. The question remains whether participants would react similarly to such an attempt in a conceptual setting as in reality. Hence, to check whether participants did see the scarcity message and to imitate a real online shopping environment and real consumer behaviour, it might have been better to choose a more qualitative technique as an observation. However, since this research has an exploratory character, using an online survey is satisfying at this moment as it is the most convenient, simple and economic way of testing whether or not there are relationships at all.

Another point that is worth mentioning is the selection and the appropriateness of the selected products to conduct the experiment with. Although the researcher deliberately chose the selected items for the scenarios of this experiment, one could argue that not every respondent would identify with the presented item. There is only a slight difference between liking the item, and liking the item for own usage, so the potential identification issue may have affected the way people assessed the perceived product value and purchase intention. To avoid this potential problem in future research, an extra covariate on product identification could be included in the research.

Lastly, attention should be paid to the marginal sample size of the study. Even though 156 respondents participated, this number seems not to be sufficient for a 2x2x2 experimental design and might explain some of the insignificant results from the initial 2x2x2 ANOVA conducted to analyse the data. In general the number of respondents per cell is marginal, yet especially the number of respondents for the holiday product category is low, and therefore problematic. The small sample size mainly gets caused by the limited resources in terms of time and money. Making use of panels could have solved this issue. Furthermore, the sample is characterised by a bimodal distribution, meaning that the sample is not a true representation of the population. Although the main focus of the research was to provide a first empirical step to get a better understanding of online scarcity, possible generalization of the results will not be possible.

5.2 Suggestions for Future research

This study has aimed to contribute to the first step in understanding the functioning of online scarcity. However, to make sound assumptions about the effectiveness of scarcity, more research is needed in this subject area. E-commerce is an extensive industry, a lot of online

retailers use online sales techniques that were designed in the past for offline sales purposes, so there is a real need for more research into this topic.

Also, it would be interesting to not focus on a supply limitation as scarcity appeal but to also include a time-limited scarcity message. This research indicated a significant negative effect for decision time as predictor of purchase intention, so this provides a basis for further research to examine whether time-limited scarcity is effective in online retail.

Furthermore, this research was solely focused on the effectiveness of scarcity based upon the consumer's need for uniqueness. However, the effectiveness of scarcity could also be explained by the risk for consumers to lose control over the situation and the ability to purchase. Incorporating this rationale would may have led to different findings for the effectiveness of online scarcity, as the information transparency of the internet, and the ease to search for alternatives, could counteract the loss of control caused by scarcity. Therefore, it is suggested to also investigate scarcity with a focus on a consumer's loss of control and the incorporation of the information transparency of the internet.

Another suggestion for future research would be to use a different research technique to investigate online scarcity appeals. A combination of observation and interviews would provide the researcher with the possibility to monitor the sensitivity of the research participant towards online scarcity messages and its answers accordingly, but also enables the researcher to get more insight in the underlying rationale of the research participants. This could shed light on other variables that are considered while assessing a product based upon a scarcity message and also provides the possibility to study the involvement of need for uniqueness and need for cognitive closure in online buying.

5.3 Implications

This investigation into online scarcity has resulted in the first steps towards an understanding of the online functioning of scarcity messages as a sales technique for persuasion. Although only a few of the proposed hypotheses were supported by the findings from this research, it can be argued that scarcity as an offline persuasion technique, that has been extensively described and researched by Cialdini (2001), works differently from online scarcity messages. Despite the frequent usage of scarcity appeals by online retailers, this study only provides evidence for the proposed effectiveness of scarcity as an online sales technique for the holiday product that was tested in this research. Therefore, it is suggested that online companies should review the effectiveness of the usage of scarcity messages to see whether it contributes

to the actual revenues. Furthermore, this study shows that effectiveness of offline sales techniques cannot be automatically assumed in an online context, implying that much more research is needed in order to conclude which sales techniques do work and which do not work.

5.4 Conclusion

This study has indicated that online buyers are less sensitive to scarcity appeals than consumers buying in traditional ‘brick-and-mortar’ stores. The internet provides the possibility to easily search for lots of alternative products that could possibly better suit the consumer’s demands. If consumers are willing to invest some time before they make the actual purchase, they will find out that many good alternatives are available to them. Therefore, the consumer is more powerful and in control and could make use of the severe competitiveness within the markets.

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7. Appendix

7.1 Descriptive statistics respondents

Descriptive statistics - Demographics

	N	M	SD
Online Purchase Frequency	156	3,58	,68
Gender	156	1,53	,50
Age	156	34,9	13,79

Distribution of Gender

	Frequency	Percentage
Men	74	47,4%
Women	82	52,6%
Total	156	100%

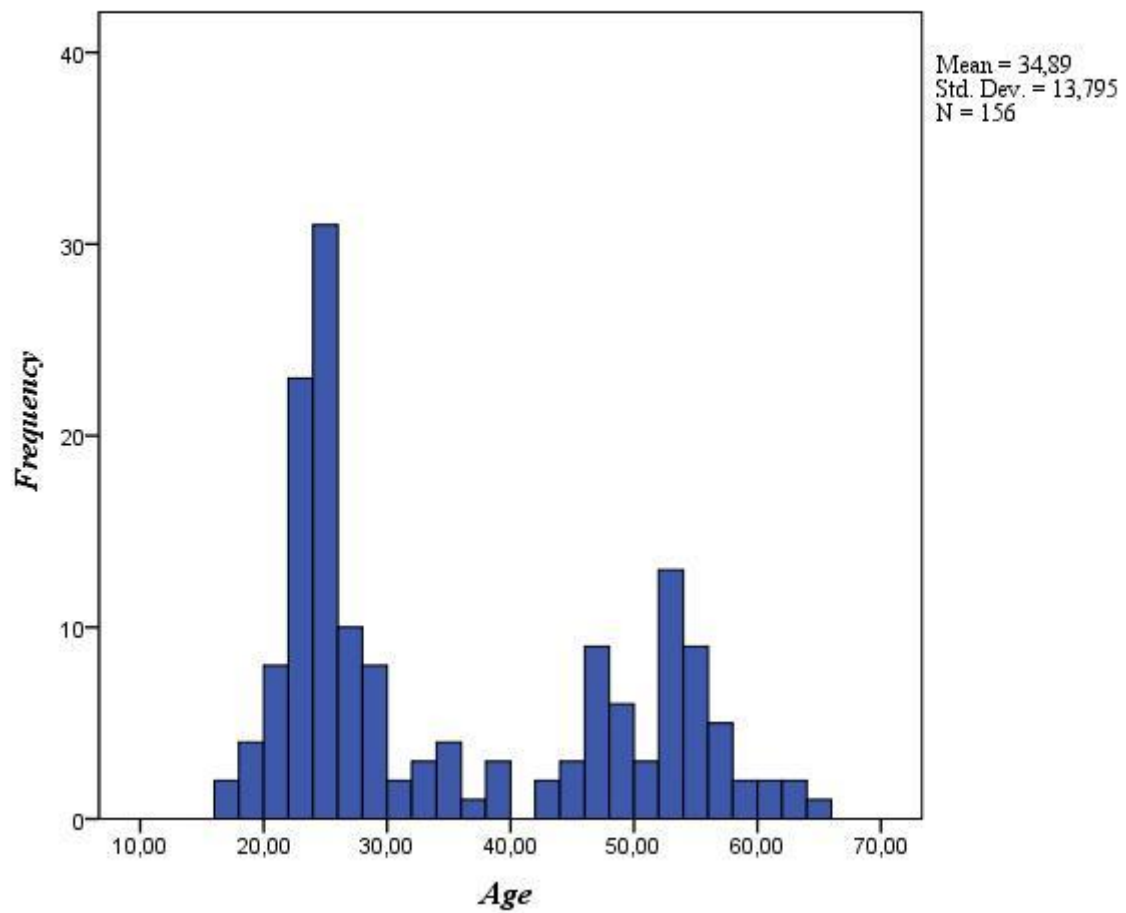
Distribution of Age

Quartiles	Age
25%	24
50%	27,5
75%	49

Online purchase frequency by gender

<i>How often do you buy products online?</i>			
Gender	Sometimes	Frequently	Very often
Men	39	25	10
Women	44	31	7
Total	83	56	17

Distribution of Age



ANOVA

<i>Factor</i>	<i>Df</i>	<i>F</i>	<i>P</i>
Age	11	,68	,76
Online Shopping Behaviour	11	,42	,95

7.2 Condition scenarios

WOMEN

Please read the situation below carefully

You are invited to the wedding party of your friend. As you want to dress nicely for this event, you decide to purchase a new dress. The wedding is in **four months**, but you have already started to look for a suitable dress for that special day. Below, you can see the dress that you are interested in for the wedding.

Take a close look at the product and the information presented on the website of the webshop.

Please read the situation below carefully

You are invited to the wedding of your friend. As you want to dress nicely for this event, you decide to purchase a new dress. Yet, you have to hurry up as the wedding is in **one week**. Below, you can see the dress that you are interested in for the wedding.

Take a close look at the product and the information presented on the website of the webshop.

MEN

Please read the situation below carefully

You are invited to the wedding party of your friend. As you want to dress nicely for this event, you decide to purchase a new suit. The wedding is in **four months**, but you have already started to look for a new suit for that special day. Below, you can see the suit that you are interested in for the wedding.

Take a close look at the product and the information presented on the website of the webshop.

Please read the situation below carefully

You are invited to the wedding party of your friend. As you want to dress nicely for this event, you decide to purchase a new suit. Yet, you have to hurry up as the wedding is in **one week**. Below, you can see the suit that you are interested in for the wedding.

Take a close look at the product and the information presented on the website of the webshop.

NOT GENDER-RESTRICTED

Please read the situation below carefully

You are in desperate need of a short break from work, so you have decided to book a lastminute holiday. As you want to leave in 1.5 week, you have **one week** left to pick a destination and book your trip. Below, you can find the holiday destination that you are interested in.

Take a close look at the product and the information presented on the website of the travel agency.

Please read the situation below carefully

Before you know it, the summer holidays are starting. To be sure of two weeks of relaxation at your favourite holiday destination, you have decided to start looking for a nice holiday offer. You have **four months** left until you are free from work and ready to go on holidays. Below, you can find the holiday destination that you are interested in.

Take a close look at the product and the information presented on the website of the travel agency.

7.3 PERVAL Scale

1. has consistent quality
2. is well made
3. has an acceptable standard of quality
4. has poor workmanship
5. would not last a long time
6. would perform consistently
7. is one that I would enjoy
8. would make me want to use it
9. is one that I would feel relaxed about using
10. would make me feel good
11. would give me pleasure
12. is reasonably priced
13. offers value for money
14. is a good product for the price
15. would be economical
16. would help me to feel acceptable
17. would improve the way I am perceived
18. would make a good impression on other people
19. would give its owner social approval

7.4 Persuasion Familiarity Scale

Indicate to what extent you are familiar with the following marketing techniques:

1. Online advertisements
2. Pop-up banners
3. Personalised offers
4. Newsletters
5. Social media activities of companies
6. Sales promotions (coupons, discounts, etc.)
7. Online chat function of companies
8. Personalised e-mails
9. Online commercials

7.5 Need For Uniqueness scale

Creative choice (CCC)

1. I often combine possessions in such a way that I create a personal image that cannot be duplicated.
2. I often try to find a more interesting version of run-of-the-mill products because I enjoy being original.
3. I actively seek to develop my personal uniqueness by buying special products or brands.
4. Having an eye for products that are interesting and unusual assists me in establishing a distinctive image.

Unpopular choice (UCC)

5. When it comes to the products I buy and the situations in which I use them, I have broken customs and rules.
6. I have often violated the understood rules of my social group regarding what to buy or own.
7. I have often gone against the understood rules of my social group regarding when and how certain products are properly used.
8. I enjoy challenging the prevailing taste of people I know by buying something they would not seem to accept.

Avoidance of similarity (AS)

9. When a product I own becomes popular among the general population, I begin to use it less.
10. I often try to avoid products or brands that I know are bought by the general population.
11. As a rule, I dislike products or brands that are customarily bought by everyone.
12. The more commonplace a product or brand is among the general population, the less interested I am in buying it.

7.6 Need for Cognitive Closure scale

1. I don't like situations that are uncertain.
2. I dislike questions which could be answered in many different ways.
3. I find that a well ordered life with regular hours suits my temperament.
4. I feel uncomfortable when I don't understand the reason why an event occurred in my life.
5. I feel irritated when one person disagrees with what everyone else in a group believes.
6. I don't like to go into a situation without knowing what I can expect from it.
7. When I have made a decision, I feel relieved.
8. When I am confronted with a problem, I'm dying to reach a solution very quickly.
9. I would quickly become impatient and irritated if I would not find a solution to a problem immediately.
10. I don't like to be with people who are capable of unexpected actions.
11. I dislike it when a person's statement could mean many different things.
12. I find that establishing a consistent routine enables me to enjoy life more.
13. I enjoy having a clear and structured mode of life.
14. I do not usually consult many different opinions before forming my own view.
15. I dislike unpredictable situations.

7.7 Online Survey – Dutch

1. Hoe vaak koopt u producten online?
 - a. Nooit
 - b. Zelden
 - c. Soms
 - d. Vaak
 - e. Erg vaak
2. Geslacht
 - a. Man
 - b. Vrouw
3. Leeftijd
4. Geef aan in hoeverre u bekend bent met de volgende marketing technieken
 - a. Online advertenties
 - b. Pop-up banners
 - c. Gepersonaliseerde aanbiedingen
 - d. Nieuwsbrieven
 - e. Social media activiteiten van bedrijven
 - f. Verkoop promoties (waardebonnen, kortingen, etc.)
 - g. Online chat met bedrijf
 - h. Gepersonaliseerde e-mails
 - i. Reclamespotjes online
5. Presentatie Scenario (één van twee scenario's)
 - a. Experiment I – Kleding
 - b. Experiment II – Vakantie
6. Wat vindt u van dit product? Tip: u kunt het product opnieuw bekijken door op vorige te drukken, antwoorden worden automatisch opgeslagen.
 - a. Heeft een consistente kwaliteit
 - b. Is goed gemaakt
 - c. Heeft een acceptabel kwaliteitsniveau
 - d. Zal niet lang meegaan
 - e. Zal consistent functioneren
 - f. Is iets waar ik van zou genieten
 - g. Zou ik willen gebruiken
 - h. Is iets waar ik me prettig bij zou voelen tijdens het gebruik
 - i. Zou me goed laten voelen
 - j. Het gebruik zou me plezierig maken
 - k. Is schappelijk geprijsd
 - l. Biedt waar voor mijn geld
 - m. Goede prijs/kwaliteit verhouding
 - n. Is economisch verantwoord
 - o. Zou me helpen om me geaccepteerd te voelen
 - p. Zou de manier hoe ik word gezien door anderen verbeteren

- q. Zou een goede indruk maken op anderen
 - r. Zou mij sociale status opleveren
7. Wat zou uw volgende stap zijn? *Denk aan de tijd uit het scenario, die u heeft om een beslissing te maken.*
 - a. Ik overweeg dit product te kopen
 - b. Ik zoek eerst op het internet naar goede alternatieve opties
 8. Geef aan in hoeverre u bereid bent om te kopen (only visible if 7a is selected)
 - a. Ik zou overwegen om dit product te kopen binnen de gestelde tijd
 - b. Ik weet zeker dat ik dit product ga kopen binnen de gestelde tijd
 - c. Ik koop het product nu meteen
 9. Geef een indicatie over hoe uw zoektocht naar een goed alternatief eruit zou zien (only visible if 7b is selected)
 - a. Ik zal op internet gaan zoeken naar een alternatief aanbod, maar ik zal het product, dat eerder werd gepresenteerd tijdens de situatie, uiteindelijk toch kopen.
 - b. Ik zal op internet gaan zoeken naar een alternatief aanbod en ik zal het beste aanbod, dat ik op internet kan vinden, kopen binnen de gestelde tijd.
 - c. Ik ga het product dat eerder werd gepresenteerd tijdens de situatie niet kopen en ik zal op het internet op zoek gaan naar alternatieven die ik zou kunnen aanschaffen binnen de gestelde tijd.
 - d. Ik zal op internet gaan zoeken naar een alternatief aanbod, maar ik zal het product, dat eerder werd gepresenteerd tijdens de situatie, uiteindelijk toch kopen.
 10. Geef aan in hoeverre u het eens bent met de volgende stellingen:
 - a. Ik combineer persoonlijke items op een manier dat ik een imago creëer dat niemand anders kan dupliceren.
 - b. Ik probeer vaak om meer interessante versies te vinden van simpele, massa items omdat ik het leuk vind om origineel te zijn.
 - c. Ik probeer actief mijn persoonlijke uniciteit te ontwikkelen door speciale items en speciale merken te kopen.
 - d. Oog hebben voor interessante, unieke items helpt mij in het ontwikkelen van mijn persoonlijke en unieke imago.
 - e. Ik heb geen vaste regels en gewoontes over welke producten ik koop en hoe ik ze vervolgens gebruik.
 - f. Ik heb vaak items gekocht die niet geaccepteerd werden of ongewoon zijn in mijn sociale omgeving.
 - g. Ik geniet ervan om de smaak van mensen in mijn omgeving te tarten door items te kopen die ze waarschijnlijk niet zullen accepteren.
 - h. Wanneer een item, dat ik heb, een trend begint te worden ga ik het minder gebruiken.
 - i. Ik probeer te vermijden om items of bepaalde merken te kopen die door de grote massa worden gekocht.
 - j. Ik heb een hekel aan producten of merken die op grote schaal worden gekocht door het gros van het winkelend publiek.

- k. Hoe gewilder een product is bij het gros van het winkelend publiek, hoe minder interesse ik ervoor heb.
11. Geef aan in hoeverre u het eens bent met de volgende stellingen:
- a. Ik hou niet van situaties waarin veel onzekerheid is.
 - b. Ik hou niet van vragen die op meerdere manieren beantwoord kunnen worden.
 - c. Ik vind dat een goed gestructureerd leven met vaste tijden het beste bij mij past.
 - d. Ik voel me niet prettig wanneer ik niet kan begrijpen waarom een bepaalde gebeurtenis zich in mijn leven voordoet.
 - e. Ik voel me geïrriteerd wanneer één persoon in een groep het niet eens is met het standpunt waar de rest van de groep het wel mee eens is.
 - f. Ik vind het niet prettig om ergens aan te beginnen zonder dat ik weet wat ik er kan van verwachten.
 - g. Wanneer ik een beslissing heb gemaakt voel ik me opgelucht.
 - h. Wanneer ik word geconfronteerd met een probleem doe ik er alles aan om zo snel mogelijk tot een oplossing te komen.
 - i. Ik zou snel ongeduldig en geïrriteerd worden als ik niet meteen een oplossing zou kunnen vinden voor een probleem.
 - j. Ik vind het niet prettig om bij mensen te zijn die impulsief zijn en onverwachte acties hebben.
 - k. Ik vind het niet prettig als een uitspraak van iemand verschillende dingen zou kunnen betekenen.
 - l. Een consistente routine neerzetten helpt me om meer van het leven te genieten.
 - m. Ik vind het prettig om een duidelijke en gestructureerde levensstijl te hebben.
 - n. Ik baseer mijn eigen mening vaak niet op veel verschillende gedachtes en meningen van anderen.'
 - o. Ik heb een hekel aan onvoorspelbare situaties.

7.8 ANOVA

2x2x2 ANOVA

Descriptive Statistics

<i>Dependent Variable: Purchase Intention</i>					
<i>Product</i>	<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Clothing	No	1 week	1,27	,45	26
		4 months	1,08	,27	26
		Total	1,17	,38	52
	Yes	1 week	1,23	,43	26
		4 months	1,12	,33	25
		Total	1,18	,39	51
	Total	1 week	1,25	,44	52
		4 months	1,10	,30	51
		Total	1,17	,38	103
Holiday	No	1 week	1,27	,45	26
		4 months	1,08	,27	26
		Total	1,17	,38	52
	Yes	1 week	1,23	,43	26
		4 months	1,12	,33	25
		Total	1,18	,39	51
	Total	1 week	1,25	,44	52
		4 months	1,10	,30	51
		Total	1,17	,38	103
Total	No	1 week	1,27	,45	26
		4 months	1,08	,27	26
		Total	1,17	,38	52
	Yes	1 week	1,23	,43	26
		4 months	1,12	,33	25
		Total	1,18	,39	51
	Total	1 week	1,25	,44	52
		4 months	1,10	,30	51
		Total	1,17	,38	103

2x2x2 ANOVA – Group Means

<i>Dependent Variable: Purchase Intention</i>				
<i>Product</i>	<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
Clothing	No	1 week	1,27	,072
		4 months	1,07	,074
	Yes	1 week	1,24	,073
		4 months	1,12	,074
Holiday	No	1 week	1,15	0,10
		4 months	1,09	0,11
	Yes	1 week	1,15	0,10
		4 months	1,07	0,10

2x2x2 ANOVA – Perceived Product Value

Descriptive Statistics

Dependent Variable: Perceived Product Value

<i>Product</i>	<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Clothing	No	1 week	3,30	,70	26
		4 months	3,17	,60	26
		Total	3,24	,65	52
	Yes	1 week	3,31	,49	26
		4 months	3,28	,44	25
		Total	3,29	,46	51
	Total	1 week	3,31	,60	52
		4 months	3,22	,53	51
		Total	3,26	,56	103
Holiday	No	1 week	3,09	,57	13
		4 months	3,27	,38	12
		Total	3,18	,49	25
	Yes	1 week	3,49	,33	13
		4 months	3,43	,37	13
		Total	3,46	,35	26
	Total	1 week	3,29	,50	26
		4 months	3,35	,38	25
		Total	3,32	,44	51
Total	No	1 week	3,23	,66	39
		4 months	3,20	,54	38
		Total	3,22	,60	77
	Yes	1 week	3,37	,45	39
		4 months	3,33	,42	38
		Total	3,35	,43	77
	Total	1 week	3,30	,56	78
		4 months	3,27	,49	76
		Total	3,28	,53	154

2x2x2 ANOVA – Group Means

<i>Dependent Variable: Perceived Product Value</i>				
<i>Product</i>	<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
Clothing	No	1 week	3,32	,10
		4 months	3,13	,11
	Yes	1 week	3,31	,10
		4 months	3,29	,11
Holiday	No	1 week	3,10	,15
		4 months	3,28	,15
	Yes	1 week	3,47	,15
		4 months	3,45	,15

2x2 ANOVA - Clothing

Descriptive Statistics

<i>Dependent Variable: Purchase Intention</i>				
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
No	1 week	1,27	,45	26
	4 months	1,08	,27	26
	Total	1,17	,38	52
Yes	1 week	1,23	,43	26
	4 months	1,12	,33	25
	Total	1,18	,39	51
Total	1 week	1,25	,44	52
	4 months	1,10	,30	51
	Total	1,17	,38	103

Group means – Clothing

<i>Dependent Variable: Purchase Intention</i>			
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
No	1 week	1,27	,076
	4 months	1,07	,077
Yes	1 week	1,23	,076
	4 months	1,13	,077

Note: Covariates appearing in the model are evaluated at the following values: Persuasion Familiarity: 3,66, Need for Uniqueness: 2,75, Need for Cognitive Closure: 3,04

Descriptive Statistics

<i>Dependent Variable: Perceived Product Value</i>				
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
No	1 week	3,30	,70	26
	4 months	3,17	,60	26
	Total	3,24	,65	52
Yes	1 week	3,31	,49	26
	4 months	3,28	,44	25
	Total	3,29	,46	51
Total	1 week	3,31	,60	52
	4 months	3,22	,53	51
	Total	3,26	,56	103

Group means – Clothing

<i>Dependent Variable: Perceived Product Value</i>			
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
No	1 week	3,32	,11
	4 months	3,14	,12
Yes	1 week	3,31	,11
	4 months	3,29	,12

Note: Covariates appearing in the model are evaluated at the following values: Persuasion Familiarity: 3,66, Need for Uniqueness: 2,75, Need for Cognitive Closure: 3,04

2x2 ANOVA - Holiday

Descriptive Statistics

<i>Dependent Variable: Purchase Intention</i>				
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
No	1 week	1,15	,38	13
	4 months	1,15	,38	13
	Total	1,15	,38	26
Yes	1 week	1,15	,38	13
	4 months	1,08	,28	13
	Total	1,12	,32	26
Total	1 week	1,15	,37	26
	4 months	1,12	,33	26
	Total	1,13	,35	52

Group means

<i>Dependent Variable: Purchase Intention</i>			
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
No	1 week	1,16	,10
	4 months	1,18	,10
Yes	1 week	1,14	,10
	4 months	1,06	,10

Note: Covariates appearing in the model are evaluated at the following values: Persuasion Familiarity: 3,49, Need for Uniqueness: 2,75, Need for Cognitive Closure: 2,97.

Descriptive Statistics

<i>Dependent Variable: Perceived Product Value</i>				
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SD</i>	<i>N</i>
No	1 week	3,09	,57	13
	4 months	3,28	,37	13
	Total	3,19	,48	26
Yes	1 week	3,49	,33	13
	4 months	3,43	,37	13
	Total	3,46	,35	26
Total	1 week	3,29	,50	26
	4 months	3,36	,37	26
	Total	3,32	,44	52

Group means

<i>Dependent Variable: Perceived Product Value</i>			
<i>Appearance of Scarcity Message</i>	<i>Decision Time</i>	<i>M</i>	<i>SE</i>
No	1 week	3,09	,12
	4 months	3,29	,12
Yes	1 week	3,48	,12
	4 months	3,46	,12

Note: Covariates appearing in the model are evaluated at the following values: Persuasion Familiarity: 3,49, Need for Uniqueness: 2,75, Need for Cognitive Closure: 2,97.