The effect of predictable and unpredictable colors on likeability and willingness-to-buy of brand logos

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Abstract

Research reveals that colors of brand logos and packages highly impact customers' purchase behavior. A color has the unique characteristic to break or make the potential success of a product. From electronics to the category of fast moving consumer goods, marketers use colors in innovative ways to take advantage of the associations of these colors. Despite this, little academic research has investigated the role of including colors that customers expect to appear in the logo of a brand - predictable colors - and colors customers do not expect to appear - unpredictable colors -. However, prior research provides support for the existence of a number of associations between flavors and colors. This paper examines the main effect of how the predictability of colors affects someone's likeability and willingness-to-buy of a brand logo. To test this, two types of research were conducted in this study. First of all, a pre-test was conducted to reveal which product categories are most strongly associated with which color, or in other words to determine the predictable color of a category. Subsequently, an experiment was conducted with two experimental groups. This between-subjects design consisted of two groups. Group 1 rated 16 logos with an unpredictable color, group 2 rated the same 16 logos accompanied by a predictable color.

This study reveals that including a predictable color in the logo of a brand contributes to a significant stronger likeability of that logo compared to including an unpredictable color. In addition, including predictable colors in brand logos also significantly induce someone's willingness-to-buy these brand logos. Furthermore, this study aims at the conjectured moderating effect that woman are more sensitive for the effect of predictability of color on someone's likeability than men. However, results indicate that such a moderating effect does not exist. On the other hand, this study does provide evidence that some product categories benefit significantly more from including a predictable color in their logo than other categories. This effect only applies to likeability and not to willingness-to-buy. Categories ketchup and tangerines reveal the largest alteration in likeability between the two types of color. Furthermore, results indicate that the effect of type of color on willingness-to-buy is mediated by likeability. Finally, customers who earn a net income of < €500 or €2000 - €2750 rate brands with predictable colors higher than brands with unpredictable colors, compared to other income classes.

Content

Chapter 1: Introduction

At the beginning of the twentieth century the world was a totally different place than it is nowadays. This is for instance reflected in the characteristics and quantity of the world population and knowhow of human beings. Furthermore, the total amount of different brands that existed in the middle of the twentieth century compared to nowadays is totally different. In the middle of the twentieth century, product and brand choice was much more limited than it is nowadays. This development is for instance indicated by Unilever. Unilever is a big manufacturer that is now responsible for manufacturing a wide variety of brands, such as Dreft, Unox, Ben & Jerry's and many more, but it was only established in 1930 (Onze geschiedenis, 2015). The assortment of retailer Albert Heijn consisted in 1910 of only 300 commodities. Now Albert Heijn has more than 850 establishments in the Netherlands ("Geschiedenis van Albert Heijn", 2015). Going back at least 70 years, all it took to be successful in business was to manufacture a product of good quality. If good coffee, whiskey or beer was offered, people would come to the store to purchase it. As long as product quality was superior to the competitors, there was nothing to worry about. (De Swaan Arons, 2011)

During the twentieth century, several developments took place that contributed to the increase of the variability in brands and products customers could choose from. Primarily, supplies increased as a result of an increased world population. As a consequence, manufacturers were encouraged to manufacture more products and brands to meet the increased demand ("IGCSE Population and GCSE Population", 2014). Moreover, new technologies within the production process were developed which made it easier to produce new products and brands. As a result of countries opening their borders, the international trade increased. The cost of transportation decreased, while the effectiveness of transportation increased. Furthermore, new ways of transport were developed which made it easier to transport goods to other parts of the world, also referred to as the Transportation Revolution ("De transportrevolutie in Europa", 2013). In the 1950s, consumer packaging goods companies like Procter and Gamble, General Foods and Unilever developed the discipline of brand management, or marketing as how it is known nowadays, when they noticed the quality levels of products being offered by competitors around them improved. Brand management involves a brand manager who is responsible for giving a product an identity that distinguishes it from close competitors. This standardization of quality products forced companies to find new ways to distinguish themselves from their competitors. (De Swaan Arons, 2011)

During the 1980s and early 1990s, retailers assumed that offering more varied product assortments met with the consumers' needs in a better way. Broad assortments should increase the chance that consumers find their most suitable product and offer more choice and flexibility for groups as variety seekers. As a consequence, in an attempt to serve the customer, the number of products offered in supermarkets increased to over 30,000 units in the early 1990s compared to 6,000 units in the 1980s. The amount of brands available increased as well. (Broniarczyk & Hoyer, 2005)

Nowadays, retailers sell dozens of brands per product category and even per product. Drugstore Kruidvat sells within the toothpaste category brands such as Colgate, Prodent, Ultradent, Aquafresh, Macleans, Gum Originals, Elmex, Oral B, Paradontax and more. The amount of brands available in

retail stores nowadays is enormous compared to 80 years ago. Even compared to 20 years ago, the market looks different. This explosive growth of branded offerings is overwhelming, confuses consumers and causes an abundance of choice. According to de Swaan Arons (2011), the average western consumer is exposed to some 3.000 brand messages a day. This indicates the amount of choice customers face nowadays when shopping at supermarkets, department stores, grocery stores, outlet stores and other retail stores. An abundance of product categories, brands and private labels are available combined with many words, colors, prices and smells that all try to reach the customer's brain.

The amount of information that consumers are exposed to is enormous, however, the customers' processing capacity is limited. Each and every second, customers are exposed to an estimated 11 million bits of information that reach the brain's system through all senses. However, humans are only capable of handling around 50 bits of all that information per second and as a consequence, they do not consciously perceive most of the incoming stimuli (Wilson, 2002). This clearly indicates that it is impossible for a customer to pick up all the stimuli he is exposed to into a store. The brain can simply not process all these stimuli.

In the sequel of this chapter relevance of this topic, the problem statement and finally the main research question will be discussed. The next part provides insight in existing theories and findings concerning this topic, the conceptual model and the formulated hypotheses. Subsequently, methodology and results will be discussed. Last part involves conclusions, implications, limitations and areas for future research.

1.1 Relevance of topic

Taking into account that customers are exposed to such an overwhelming amount of impressions and stimuli when walking in a store and their limited processing capacity, it could be difficult for brands to stand out or be seen. Even if a customer pays attention to a product, it does not mean customers purchase this product as there are so many alternatives available. In this decision making process a variety of factors play a role, but perhaps no choice is as vital to marketing as color. Whether determining a color for a product, package or for an e-mail marketing campaign, color has an enormous impact on everyone. This is because colors evoke affections, emotions and feelings ("Psychology of color", 2013). Thus, colors of brand logos and packages of products play a very important role in customers' purchase behavior.

According to Gillett (2014), in less than 90 seconds people make an unconscious assessment about a product or brand. The majority of these people base this judgment only on the colors of this product. "In fact, almost 85% of consumers cite color as the primary reason for buying a particular product" (Gillett, 2014). According to this study, each color is associated with certain aspects. The color red is for instance associated with the heat of sun and fire, evokes strong emotions and is considered a high-arousal color, whereas blue is often associated with peace, security and the coolness of the sea and sky. These findings indicate that colors of brand logos and packages are extremely influential for choosing and buying products.

Markowitz (2010) supports these findings. Markowitz states that there are several studies that have shown that a customer's decision to purchase a particular product can vary between 60 and 80% based on the color of a product. A color has the rare and unique competence to break or make the potential success of a product. "It does not cost you any more to make the right color decision for your product. But if you choose the wrong color, from the onset, you are not going to communicate what you want to your customer" (Markowitz, 2010). In other words, the (wrong) choice for a particular color can highly impact the overall performance of your organization. Singh (2006) goes even further and states that between 62 and 90% of the snap judgments of products is based on colors alone. According to him, rational use of colors could contribute to influencing emotions and feelings to create a substantial attitude towards particular products, but also to differentiating the individual products from the competition. Given the fact that colors play an important role in shaping customers' attitude and that customers' feelings can be very unstable, it is of great importance that marketers be aware of and understand the impact of colors (Singh, 2006).

Neuroscientist Bevil Conway, who has focused his recent research on the neural mechanism behind color, believes the science behind color processing to be very powerful, but underexploited. He believes that humans might be connected with certain colors. According to him, this could give handles into the understanding of the neural properties of emotion. The implications of the effects of colors on human's emotions are far reaching. Having knowledge of customers' associations to particular colors could increase the effectiveness and profitability of a company's branding methods. (Jaffe, 2014)

According to Soars (2009), sensory stimuli can have many positive effects. Using the right sensory stimuli (e.g. sound, sight, smell and touch) can calm, energize, de-stress, improve mood, impact the decision-making process and hence increase someone's probability to spend, if applied appropriately. Using the right sensory stimuli can also have a positive influence on waiting time. Moreover, Soars (2009) states that customers often base their purchases on a sound conscious reason. However, subconscious emotions can play a huge role as well; it can make them feel happy. "Mood is the main contributor to any individuals' mindset and retailers are yet to grasp its potential value to the bottom line" (Soars, 2009, p.289). Colors could be such a contributor of mood.

1.2 Problem statement

The increased amount of brands makes it more difficult for brands to be sold. Even when customers detect a product and pay attention to it, it does not mean they will (immediately) purchase it because so many other brands are available. This development makes a brand logo of crucial importance. When customers who are searching for a product in a store, actually pay attention to a brand, one of the first things they observe are the package and the logo of a brand. These two factors play a very important role in the decision making process (Alamgir et al., 2010). According to Schechter (1993), colors in a brand logo can make or break the success of a brand. A brand logo in combination with the colors that are included, can transfer both positive as well as negative effects to the company or their products. This is especially true for low involvement products such as fast moving consumer goods (Schechter, 1993). Colors are responsible for creating first impressions. Whether this is related to the colors of someone's clothes when meeting for the first time or the colors used in the logo and package of a product, colors play an important role in that process

(Pflaumer, 2014). These findings indicate that it is important to investigate the influence of colors of packages and brand logos. Brands could use bright colors such as yellow and orange in their logos, which make them attract more attention, but it does not automatically lead to a more positive attitude with respect to the brand or a purchase.

A distinction can be made between colors that customers expect or predict and colors that customers do not expect within a certain product category. For instance, it would be likely that a random person associates bottles of water with the color blue, or in other words a predictable color (Gillett, 2014). All other colors consist of colors that customers do not predict and do not associate with this particular product. This distinction is of crucial importance, because it could differ per product which color customers associate with it. Therefore, it could differ per product which color would be most effective to include in a product's brand logo. Different products evoke different colors in customers' memory (Gillett, 2014). Accordingly, it could be beneficial for a brand that sells a particular product to include other colors in their package and logo than brands that operate in a different market and sell other products. This paper investigates the influence of the predictability of brand logo colors on customers' likeability and willingness-to-buy.

These questions are especially useful and helpful for manufacturers. With the results of this study, manufacturers can decide more evidence-based what color should be given to their logo and packages, in order to increase the likeability and willingness-to-buy of their products. A catching example is related to a brand in the water category: the French brand Evian. Water in the sea and water in general is associated with the color blue (Gillett, 2014), (pre-test, see later on). However, Evian's brand logo largely exists of the color red, whereas the color blue is only represented in a small part of its brand logo. It can be speculated whether the color red, which is not associated with water, should be included in their brand logo. Especially for big brands like Evian, a small improvement of customers' willingness-to-buy Evian could increase turnover by a considerable amount. For retailers and advertising agencies this study could yield valuable implications as well. Advertising agencies should take the results of this study into account when designing brand logos for companies in particular product categories. Retailers can use the results for the logos of their own private labels. Moreover, retailers can give manufacturers advice about their logos. Retailers could benefit as well when a manufacturer sells more products.

Several studies (Bellizzi & Hite, 1992; Mehta, 2009; Milne & Labrecque, 2010; Grossman & Wisenblit, 1999 and more) examined customers' associations with particular colors, for instance red, blue and yellow. However, no research has been done yet into the specific effect of predictable and unpredictable colors on the likeability and willingness-to-buy of brands. If this study reveals that the likeability from customers towards brands increases when these brands make use of predictable colors, it would be a fruitful move to incorporate this color into its brand logo and packaging. If customers' willingness-to-buy increases as well by using predictable or unpredictable colors, it would even be a more effective idea.

The purpose of this study is to find out whether or not it is beneficial for brands to include the color these brands are associated with in their packaging and their brand logo. In other words, is it for a brand that sells water, assuming people associate water with the color blue, wisely to put the color

blue in the brand logo? Beneficial in this study is defined by customers' likeability and willingness-to-buy, as these two variables could result in a higher turnover.

This study focuses on brands that are sold in large retail stores, where they compete with brands that sell a similar product within the same product category, in other words; when there are multiple alternatives which could satisfy customers' needs. It is focused on situations where customers are not familiar and have not yet associations with all the different brands of a product they desire. This study is especially relevant for (novel) brands that have not yet designed a brand logo or brands that consider changing their brand logo and/or packaging. However, this study is only relevant for those brands that operate in product categories that are strongly associated with one particular color. The results of this study can finally increase sales and likeability of those brands. Changing brand logos is a time-consuming and costly process, but can be successful if executed well (e.g. McDonald's changing their logo from red to green).

1.3 Research question

To sum up, the area of interest in this study is related to the effect of predictable and unpredictable colors on the extent to which customers like a brand logo and the extent to which they are willing to buy that particular brand. Other effects are examined as well, but this main research question has the main focus in this study. All hypotheses are reflected in paragraph 2.3. The **main research question** suits with the title of this study and is formulated as follows:

What is the effect of including predictable and unpredictable colors in brand logos on customers'
likeability and willingness-to-buy of these brand logos?

Chapter 2: Theory

In this study, the effects of predictable and unpredictable colors in logo and packaging on the preferences and willingness-to-buy of brand logos are described. This chapter consists of identifying the theories related to this topic that are already conducted in the past. Subsequently, the conceptual model and hypotheses that are based on the literature are discussed.

2.1 Literature review

2.1.1 Colors
In this paragraph, recent findings of studies that are focused on the associations and effects of colors are mentioned. A distinction is made between associations of individual colors like blue, red and green and the effect of predictable and unpredictable colors.

2.1.1.2 Individual colors
Color is a basic facet of human perception. Color has intrigued many researchers to study its impact on cognition, emotion and behavior. The effects of specific primary and secondary colors of brand logos and packages have already been studied widely. For instance, several studies reveal that individual colors affect test performance and the well being of hospital patients. (Soldat et al., 1997; Verhoeven et al., 2006)

Bellizzi and Hite (1992) investigated in a shopping-related environment the effects of the colors blue and red on customers' purchase behavior. They conducted two laboratory experiments and in both experiments, retail environments were triggered using especially blue or red colors. The results of this study revealed that more positive retail outcomes appeared in blue compared to red environments. In blue environments, these more positive retail outcomes are reflected in fewer purchase postponements and a stronger propensity to shop and browse. Thus, according to Bellizzi & Hite (1992) the color red compared to blue may have less positive outcomes for most products. However, some products create positive associations and do benefit from using the color red. "Some products may benefit from creating a warm emotional meaning or an association with excitement. As a result, products like coffee, pipe tobacco and sports cars might benefit by using the color red, despite of the negative findings advanced for red in this study" (Bellizzi & Hite, 1992). Other research in marketing (Mehta, 2009; Milne & Labrecque, 2010) revealed that red is often associated with dangers, mistakes, excitement and arousal, and blue is frequently associated with openness, freedom, competence and trust. Moreover, cool colors (e.g., blue) are often associated with higher purchase intentions, more favorable product evaluations and a stronger tendency to shop. These findings are in line with those of Bellizzi and Hite (1992). Furthermore, the color yellow is often associated with sincerity as it generally elicits feelings of optimism, friendliness and extraversion.

2.1.1.2 Predictable and unpredictable colors
A study by Velasco et al. (2015) examined whether congruent (predictable) and incongruent (unpredictable) combinations of product packaging colors and flavor labels would result in slower or more rapid reaction times. They concluded that participants searched for the desired flavor labels

more rapidly when these labels were presented in a package having a color that was predictable or expected (e.g., blue/water) than when the color was unpredictable or unexpected (e.g., yellow/water) with the cued flavor. Furthermore, when participants were confronted with a packaging color that was unpredictable, those labels yielded slower reaction times than those that were less strongly tied to a specific color. Unpredictable packaging colors also caused more errors. These two phenomena are referred to as the Stroop interference or Stroop effect (Velasco et al., 2015). This Stroop effect is related to the situation in which a word, for instance the color name, is not equal to the color in which the word is presented. In these situations, people make more errors and it takes longer to respond to the color of the word (MacLeod, 1991). However, Velasco et al. (2015) did not examine whether predictable and unpredictable colors in product packaging would result in differences in attitude or purchase behavior.

2.1.2 Predictable and unpredictable sounds

No research has been done into the effects of predictable and unpredictable colors on purchase behavior and likeability. However, a recent study by Herry et al. (2007) revealed the effects of predictable and unpredictable *sounds*. In this study, neutral sounds were played in both a predictable and unpredictable pattern. Predictable sounds can be described as a continuous, predictable pattern of sounds. Unpredictable sounds have an unpredictable duration between the sounds, thus are more randomized. They concluded that this predictable and unpredictable pattern of sounds engages the amygdala. Beside the involvement of the amygdala in responding to environmental circumstances, their findings reveal that information presented simultaneously with a predictable sound event may be perceived relatively more favorable than an unpredictable sounds event. Another outcome of this study is that playing predictable and unpredictable sound sequences simultaneously led both humans and mice to react in a more anxiety-like manner. This indicates that the response of the amygdala to unpredictability causes avoidance prone behavior. These unpredictable stimulations cause more activity in the amygdala relative to predictable stimulations. Herry et al. (2007) suggest that this reaction of the amygdala to unpredictable contextual circumstances is of critical importance for producing initial avoidance responses to novel perceptual events.

Ramsøy et al. (2012) wrote an article about the effect of predictable and unpredictable sounds on the preference or likeability of brand logos. They attempted to assert whether contextual unpredictability has a negative effect on preferences. They randomly assigned subjects to a two (sound: unpredictable or predictable) by four (brand logo category: cosmetics, beer, electronics, finance) factorial design. The purpose of their study was to test to what extent preferences would be influenced by contextual unpredictability, such as unpredictable sounds. During this study, all subjects were exposed to 60 images of unknown brand logos, equally divided over the four product categories. When subjects were exposed to a brand logo, a predictable or unpredictable sound was played. Among the total of 60 logos, 30 logos were randomly paired with a predictable sound, the other 30 logos were paired with an unpredictable sound. Finally, subjects rated their liking for each brand logo on a five-point Likert scale. They concluded that if unpredictable sounds were heard, subjects rated the brand logos significantly lower than when an accompanying predictable sound was heard. Moreover, they found a gender effect. This effect reveals that men relative to women rate the likeability of brand logos more positive when hearing a predictable sound event compared to an unpredictable sound event. According to Ramsøy et al. (2012), further research can be executed on

this specific topic: "We contend that these finding should be tested using stimulus predictability in other sensory domains, such as visual, tactile, and olfactory stimuli, when possible" (Ramsøy et al., 2012, p.223).

2.1.3 Predictable and unpredictable stimuli in general

According to the studies earlier mentioned, unpredictable stimuli in general relative to predicable stimuli, could result in slower reaction times, more errors, perceiving brand logos lower and relatively less favorable. All these consequences of unexpected stimuli could be formulated as 'negative outcomes'. Mackworth (1968) and Davis (1970) found similar results. These studies revealed that if humans receive sensory stimuli at constant rather than varying intervals, different forms of behavioral habituation occur more quickly (Mackworth, 1968; Davis 1970). Moreover, unpredictable sensory stimuli could result in evoking anxiety and fear as well. Providing organisms with predictable rather than unpredictable sensory information is fundamental for an organism to successfully interact with the ongoing circumstances and to maintain its safety and security. This finding is, for instance, illustrated by the discovery that harmful or aversive stimuli, such as electric jolts or pain, evoke more anxiety and fear if these stimuli are presented in a temporally unpredictable, relative to a predictable manner (Mineka & Kihlstrom, 1978; Grillon et al. ,2004).

Ramsøy et al. (2012) support these findings. They state that unexpected, novel and unknown perceptual stimuli are somewhat negatively valued by the brain. Brain structures that are responsible for evoking negative feelings, avoidance behavior and feelings of anxiousness reveal a stronger reaction to novel compared to usual, expected information. However, the more exposures are repeated, the more such responses tend to decline. This is because further exposure to an object induces increased appreciation by the affective system signaling that the object is not that dangerous or frightening as it initially appeared to be.

Hence, it is reasonable to assume that predictable factors can affect emotional responses and judgments in a positive way compared to unpredictable factors. This relationship could be explained by unforeseen, unpredictable developments that could be a signal of the abrupt appearance of deadly predators or other threats that would require immediate action. The brain has a functional advantage of being able to provoke a fast reaction by means of swift changes in behavior, without the brain having to consciously and cognitively recognize what predator or threat it is actually dealing with (Changizi & Shimojo, 2008).

Other neurological researches reveal the same outcome with regard to the reactions of the amygdala. The neural structure of the amygdala plays a crucial, central role in computing emotional responses to perceptual predictability. Several studies provide evidence that the amygdala is sensitive to environmental and contextual circumstances. When the amygdala is processing aversive stimuli, it displays increased activation. Furthermore, these studies suggest that the development and formation of preferences are influenced by adjustments in amygdala activity. (Fischer et al., 2003; Ramsøy & Skov, 2010; Wright et al., 2003)

2.2 Conceptual model

The conceptual model of this study is visualized in figure 1. In this paragraph, the different components of this model and the relations between them are discussed.
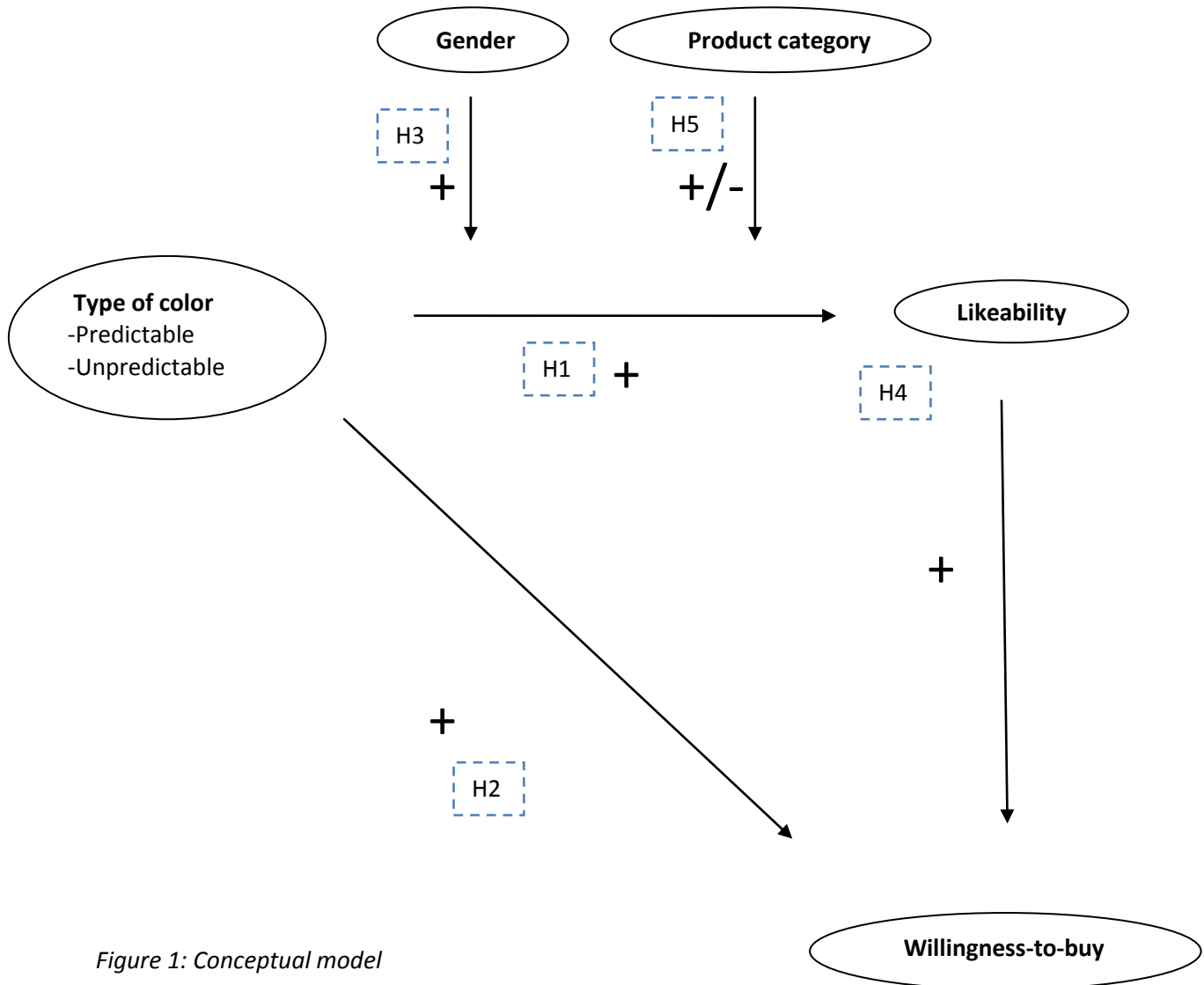

Figure 1: Conceptual model

Conceptualization

The conceptual model consists of different variables: predictable colors, likeability of brand logos, willingness-to-buy these brand logos, product category and gender. Each variable is specified and explained hereafter.

Predictability of color is the main independent variable in this model. It is the variable that is manipulated during the experiment. This independent variable is relative to predictable colors. Thus, if a positive relationship with another variable exists, there only exists a positive relation for unpredictable colors, not for predictable colors. The color that is predictable or unpredictable differs per product and is determined in the pre-test.

Likeability of brand logos is a measure of brand preference used in the Ramsøy et al. (2012) study and indicates to what extent people prefer or like a particular brand. The term 'preference' is not mentioned in the conceptual model as it could be confusing because it could be associated with the preference for a particular color, which is not true. In the sequel, preference is measured by likeability of brand logos. The extent to which customers like a brand logo is of high importance. When a logo is rated more favorable, a customer has a more positive attitude towards the brand (logo), which could lead to purchases, promoting these products to friends or other potential actions that are in favor of this brand.

Willingness-to-buy is a dependent variable. It explains how likely customers would buy a particular brand or product. Willingness-to-buy is similar to customers' purchase intentions. Willingness-to-buy is an important variable as well, especially in the current market economy. When sales decrease for a longer period, continuation of the business will be undermined. Financial resources decrease and as a consequence companies have to cut their costs which can lead to dismissal of employees and finally to a worse competitive position. Willingness-to-buy could be related to someone's likeability, but willingness-to-buy could depend on more variables than likeability.

In this study, a distinction is made between product categories, products and brand logos. Product categories or product classes describe a series of product groups from which a customer can choose in order to meet a particular need, for instance the product category alcoholic drinks. Product categories consist of different product types or product variants that in their turn consist of different products and brands. Products are combinations of intangible and tangible properties that provide a product or service in a need of a consumer. Products are differentiated by brands and brand logos to distinguish themselves from other competitive products (Verhage, 2009). During the pre-test, both products and product categories were tested. As a matter of ease, the term 'product categories' is used in the sequel of this study. The variable product category is also added to the conceptual model. It includes the four product categories that were determined in the pre-test, see later on.

2.3 Hypotheses

The hypotheses and conceptual model in this study are mainly based on the earlier mentioned Ramsøy et al. (2012) study. Based on their outcomes and theories and those of the other earlier mentioned studies, it can be assumed that unexpected or unpredictable stimuli can influence emotional responses and judgments in the amygdala. According to them, it could be possible that such influences can have an impact across other sensory domains than audition as well, for instance vision. Moreover, it is reasonable to assume that unpredictability of stimuli causes a lower preference for concurrently presented information. Ramsøy et al. (2012) found that brand logos presented by predictable sounds were classified significantly higher than logos accompanied by unpredictable sounds. Hypothesis 1 and 2 determine whether this is true for colors instead of sounds and therefore focus on whether predictable colors have a positive effect on both people's likeability of brand logos (H1) and willingness-to-buy brand logos (H2). These hypotheses are supported by Herry et al. (2007), Velasco et al. (2015) and other studies earlier mentioned. These studies state that unpredictable stimuli could contribute to more negative reactions. Based on their previous findings and theories, it is reasonable to assume that predictable colors can affect emotional responses, judgments and purchase intentions positively.

|H1: *Brand logos accompanied by predictable colors are rated significantly higher on likeability than logos accompanied by unpredictable colors.*

|H2: *Customers that face brand logos accompanied by predictable colors are more willing to buy the brand than logos accompanied by unpredictable colors.*

The socio-demographic variables age and education are included as control variables for the final model. Age and education are not mentioned in the conceptual model; they are used to regulate the flow of control. Gender is included as a moderating variable, because it is likely that the relationship between the independent variable type of color and the dependent variable likeability of the brand logos is influenced by the variable gender. I presume a moderating effect exists between gender and type of color. This is based on the results of the Ramsøy et al. (2012) study of the observed gender effect. This effect reveals that men relative to women rate the likeability of brand logos more positive for predictable sounds compared to unpredictable sounds.

Hypothesis 3 focuses on the possibility that another independent variable, namely gender, interacts. In H3, it is therefore hypothesized that men rate the likeability of a brand logo higher than women do, when taking type of color into account.

|H3: *For men, the effect of type of color for brand logos on the likeability of that brand logo is stronger than that of women.*

Cobb-Walgren et al. (1995) conclude that high brand equity induces greater brand preference and that it translates this higher brand preference into higher purchase intentions. According to them, a relationship exists between brand equity, via preferences to purchase intention, but also between brand equity and purchase intentions directly. Another study by Djerv & Malla (2012) reveals a similar effect. In their revised version of the model ´Antecedents and Consequences of Brand Equity´, they argue that purchase intentions are explained by someone´s preferences (figure 2). This model is partly adjusted compared to the Cobb-Walgren's model, but Djerv & Malla (2012) also state that purchase intentions are influenced by preferences.
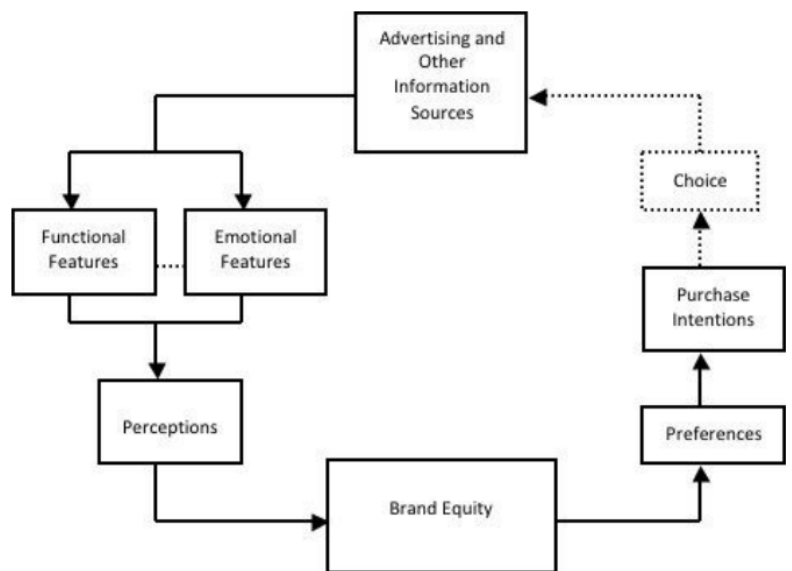

Figure 2: Antecedents and consequences of brand equity – The revised version (Djerv & Malla, 2012)

In other words, it is plausible to expect that someone's willingness-to-buy a brand logo is explained by the extent he or she prefers or likes this brand. This presumable mediating effect of type of color via likeability on willingness-to-buy is measured in hypothesis 4.

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|H4: *The effect of colors on willingness-to-buy of a brand logo is mediated by likeability of that brand.*

The final hypothesis 5 involves a conjectural moderating effect between product category and predictability of color on the likeability score. Ramsøy et al. (2012) investigated the direct effect of logos that belong to different product categories on likeability score. In their study, beer logos received highest ratings of subjects, followed by cosmetics, bank, and electronics logos. They also paid attention to the moderating effect of product category and predictability of color on the likeability score (figure 3). As can be observed in this figure below, some product categories seem to benefit more from a predictable stimulus (electronics), than other categories (cosmetics), compared to unpredictable stimuli. Unfortunately, they did not investigate whether this moderating effect for sound type is statistically significant. In H5, the moderating effect of category and type of color on likeability score is measured.

|H5: *Some product categories are more sensitive to the effect of color predictability than other categories.*
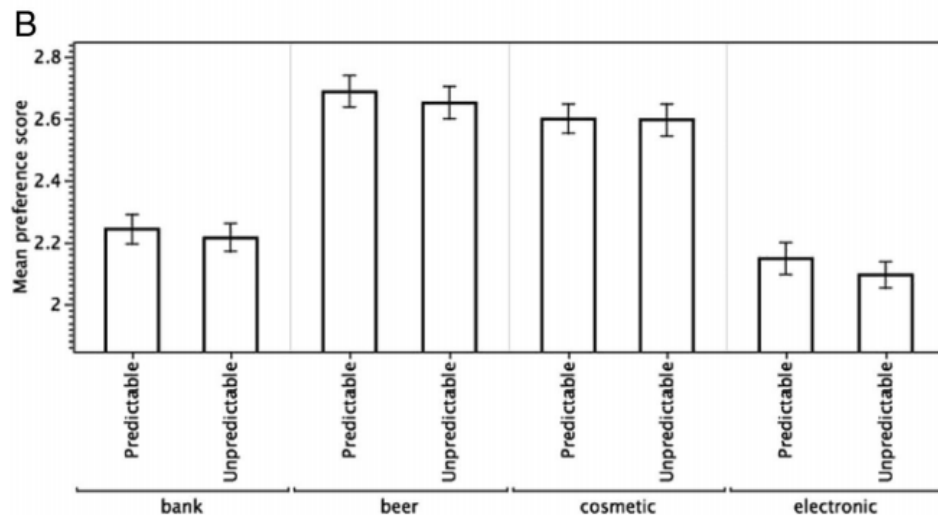

Figure 3: Likeability scores per category and type of sound (Ramsøy et al. 2012)

Chapter 3: Methodology

To examine the formulated research question, a two (color: unpredictable or predictable) by four (four brand logo categories) factorial design study was designed. During this research, the variables likeability and willingness-to-buy of unknown brand logos were tested by implementing an experiment. Moreover, in advance a pre-test was executed.

This current factorial design is partly based on the first test of the Ramsøy et al. (2012) study as in this study is tested whether judgments or likeability of brand logos are rated significantly higher when predictable colors on brand logos are observed, compared to unpredictable colors. In other words, the main difference between this study and the study of Ramsøy et al. (2012) is the difference in sensory domain: color versus sound. Moreover, in this study not only likeability of brand logos was tested, but also the willingness to buy these brand logos.

The design of these two studies is approximately the same; in both studies a two by four factorial design was used. However, Ramsøy et al. (2012) did not use two experimental groups that both receive a different treatment. In their study, subjects were presented to the same 60 logos, 30 logos were randomly connected with predictable sounds and 30 were randomly connected with unpredictable sounds. In this study, a between-subjects design with two experimental groups was used. One group observed brand logos with a predictable color, the other group brand logos with an unpredictable color.

The brand logo categories between the study of Ramsøy et al. (2012) and this one differ as well. In their study, the four selected brand logo categories were cosmetics, electronics, finance and beer. In this study, the product categories depended on the outcomes of a pre-test, because it is unknown which product category subjects associate with which color. Stated differently; what are the predictable and unpredictable colors of the chosen product categories? In this study, four product categories were selected which are mostly associated with one particular color. In the Ramsøy et al. (2012) study, it did not matter which product category to choose. This is because the (un)predictable sounds can be combined with every brand logo, because the pattern of sounds make the effect predictable or unpredictable. In this study it is more complex to formulate unpredictable and predictable colors, because this depends on the product category. Therefore, a pre-test was conducted to find out which color subjects actually associate with the selected product categories.

3.1 Data collection methods

3.1.1 Pre-test
Before the experiment was conducted to reveal whether it is beneficial for brands to use predictable colors in their brand logo and package, a pre-test was set. This pre-test was conducted to reveal which colors are predictable for a particular product category. This is a necessary condition for the experiment. Subjects were asked what color they associate with the selected product categories. For instance, cheese is presumably associated with the color yellow; however, to be certain, it was tested by means of a pre-test.

The pre-test was performed for ten different product categories. The selected products and product categories included water, plants, lipstick, sunburn, chocolate, ketchup, tangerines, apples, milk and cheese. According to Gillett (2014), people associate certain product categories with specific colors. Gillett combined a variety of valuable sources to come to this conclusion. These ten mentioned product categories are partly based on Gillett's findings. The list of product categories was complemented with other categories that were expected to be associated with a particular color.

The pre-test consisted of one simple question for all tested product categories: 'What color do you associate mostly with the following product category?' These product categories were presented alphabetically (appendix 1). Subjects were only allowed to select one answer from the response options: red, yellow, blue, white, purple, green, orange, black, brown and pink. In addition, subjects were asked for their age, gender and highest level of completed education. This questionnaire was executed online by using the survey tool Qualtrics and took approximately two minutes to complete. The Qualtrics questionnaire was promoted on Facebook and Twitter.

3.1.2 Experiment

After the pre-test was conducted, the four product categories that were most strongly associated with one particular color were added to a two by four factorial design (paragraph 4.1). This two by four factorial design was implemented by means of an experiment or a between-subjects test. The test that is described in this paragraph slightly differs from a real experiment as no pure pre-test and post-test were conducted in this study. However, in order to increase comprehensibility, the term experiment is used throughout this paper.

3.1.2.1 Between-subjects design

Within every of the four product categories, four brands that operate in that particular category were presented to the subjects, and as a result every subject faced the same 16 brand logos. During this type of research a between-subjects design was used. Half of the subjects were allocated to group 1, the group that observed the 16 brand logos with a predictable color that was derived from the pre-test, and the other subjects to group 2, who observed the same 16 logos with an unpredictable color that is not associated with that particular product category.

This between-subjects design deviates somewhat from the design used in the study of Ramsøy et al. (2012). In their study, every subject rated half of the presented logos with a predictable stimulus and the other half with an unpredictable stimulus. Thus, every subject was exposed to the manipulating factor. In this study, subjects were exposed to either logos with a predictable stimulus or logos with an unpredictable stimulus. This between-subjects design was selected because if the same subject would observe the first logo with a predictable color, the next logo with an unpredictable color, the subsequent logo with a predictable color etcetera, subjects could perhaps conjecture the purpose of the experiment. This could bias the results. Moreover, the between-subjects design lowers the chances of participants suffering boredom after a long series of logos, as they observe only a few logos once.

Another reason for choosing a between-subjects design is that if the groups are (more or less) the same, a difference in likeability or willingness-to-buy between the two groups is caused by the manipulating factor: a predictable or unpredictable color. As indicated before, a requirement is that the two groups are the same. It is important that enough subjects were included in both groups.

A design where subjects had to rate each logo two times, once with a predictable color and once with an unpredictable color, could have been selected as well. Differences in rating could be related to the manipulating factor. However, results would be biased as well. The advantage of the between-subjects design compared to this form of a within-subjects design is related to the carryover-effect. This within-subjects test could induce a carryover-effect, because subjects would rate the same logo two times within a short period of time. This could cause biased results as they could probably still remember how they rated the first of the two brand logos. As a result, there is a high probability that subjects would rate the second brand logo similar to the first one and the results would be biased: the first treatment carries over when the second treatment is applied (Boyd, 2012).

A drawback of the reflected between-subjects design is that more subjects were needed to find significant relationships, because subjects can only be assigned to one of the two groups and for every subject in a group another subject is needed in the other group. Another drawback is that it is required that the two groups should be more or less the same, in other words to avoid occurring a selection-effect. A selection-effect occurs when the difference in rating is not caused by the difference in the manipulating variable predictability of color, but by differences between the groups that already existed at the beginning of the experiment (Baarda, 2009). To prevent this from happening, subjects were randomly allocated to one of the two groups. Assuming these two groups are practically the same, a significant difference in rating between the two groups should be based on the manipulating factor predictability of color.

3.1.2.2 Execution of the experiment

The experiment was executed face-to-face. Research was not conducted online because during the pilot of the experiment, it appeared that some participants still had questions. Thus, to increase validity and to maintain control, the experiment was executed offline in attendance of the interviewer. During the experiment each subject faced 16 brand logos, either with a predictable or unpredictable color. Unpredictable colors were selected randomly. During the experiment, the 16 brand logos were all unknown for the subjects, the only thing subjects knew was that a particular brand logo was related to one of the four product categories. Beforehand, the subjects were told which logo belongs to which product category. Every subject observed four brands logos of each product category.

During the experiment, all participants were able to look five seconds at each logo (figure 4). This time restriction of five seconds was included to mimic the buying situation in retail stores. Individual brands only have a short period of time to stand out as countless brands are offered, therefore it is about the subject's first intuition. After these five seconds, subjects rated their judgments of the brand logos on a form in front of them. Subjects were asked to rate their liking and willingness-to-buy for each brand logo, using a five-point scale. For both of the dependent variables; likeability and willingness-to-buy, another scale was used (appendix 3). These measurement scales are more or less

comparable with five-point Likert scales. Likert scales are originally ordinal scales, but these scales are treated as interval scaled because of the assumption of equal appearing intervals (Janssens et al., 2008).

After the rating, the next brand logo was shown to the subjects. During the experiment, the interviewer and subject did not talk. If a subject was familiar with a logo, this logo was excluded from the experiment. If a subject was already familiar with a brand logo, he could have built up associations in the past which could have led to biased judgments. In this particular case, this brand logo was replaced by another unknown brand logo within the same product category. This is another reason why the experiment is executed face-to-face as it is complicated and confusing for subjects to replace a logo online. As a result, every subject observed the same amount of brand logos: 16. Rating a large quantity of 16 logos made the outcomes less sensitive to outliers; perhaps subject would rate two logos as very attractive, but to rate 16 logos as very attractive is much more unlikely. No more than 16 logos were presented to the subjects, because this could cause a loss of concentration and motivation as no compensation was given.

Subjects were divided into two experimental groups and were randomly assigned by tossing a coin. Randomization was performed to ensure that there is no bias as everyone had an exactly equal chance to be placed in one of the two groups. Moreover, by making use of a randomized selection process for the two groups, the more subjects that take part in the experiment, the bigger the chance the two groups consist of subjects with the same characteristics. Including more subjects levels the possible presence of outliers; in other words, the groups would tend to approach each other.

The 16 unique brand logos were selected from foreign markets, especially from the markets in India, Australia, New Zealand and Pakistan, to increase the chance of subjects' unfamiliarity with these brand logos. Finally, subjects were asked about age, gender, highest level of completed education, nationality and income. Every subject observed the brand logos in the same, randomly selected order and as a consequence, no differences between the two groups could have arisen on this matter. Results were analyzed confidentially. For an overview of all the presented logos during the experiment and the accompanying colors, see appendix 5.
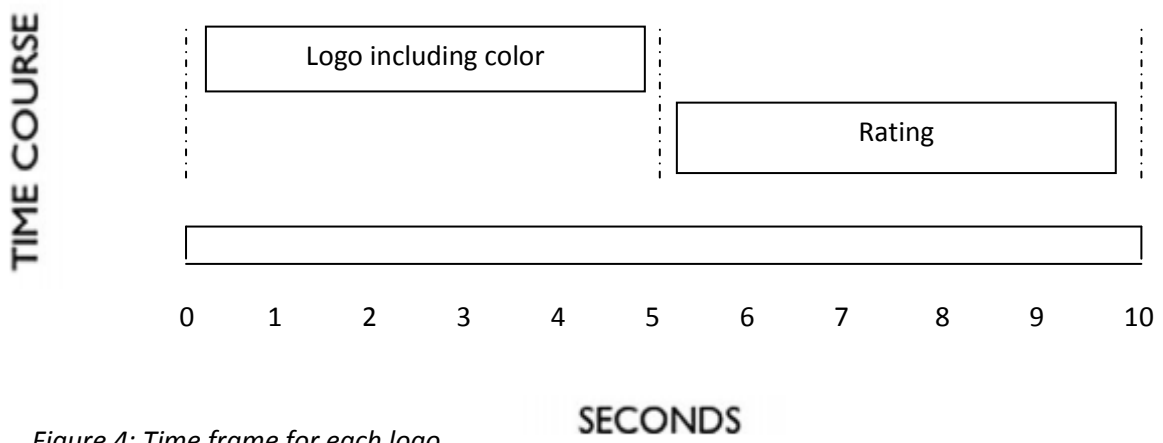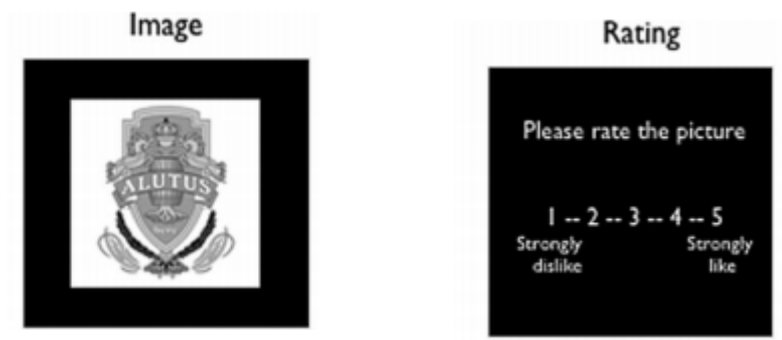
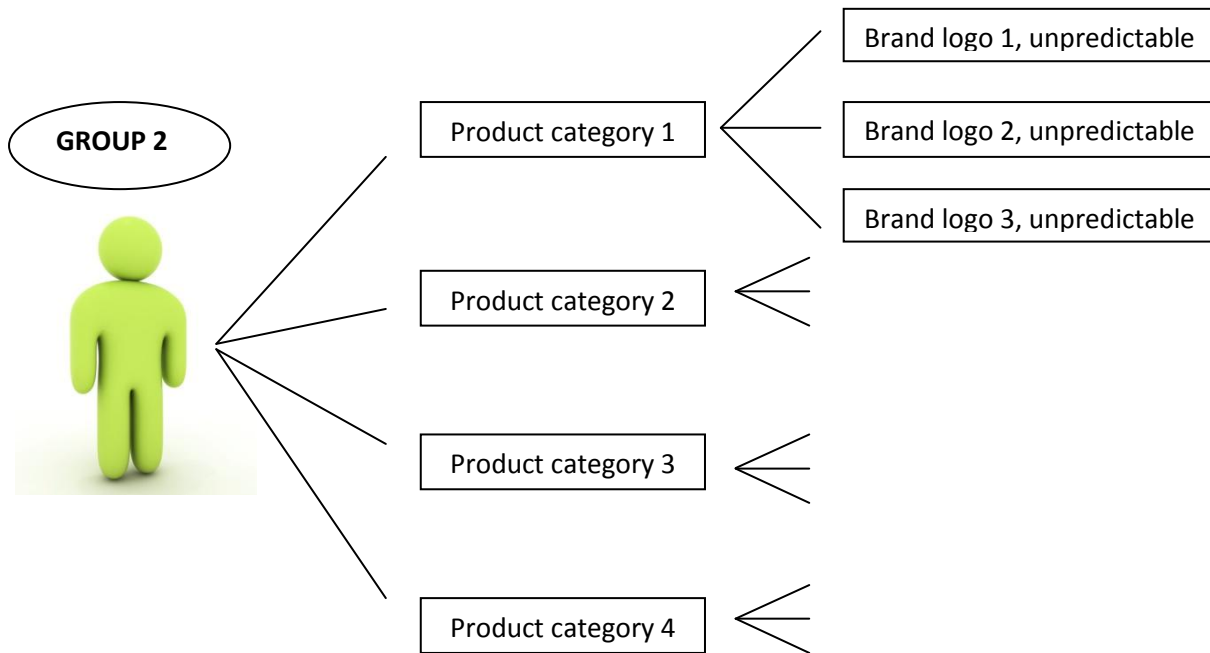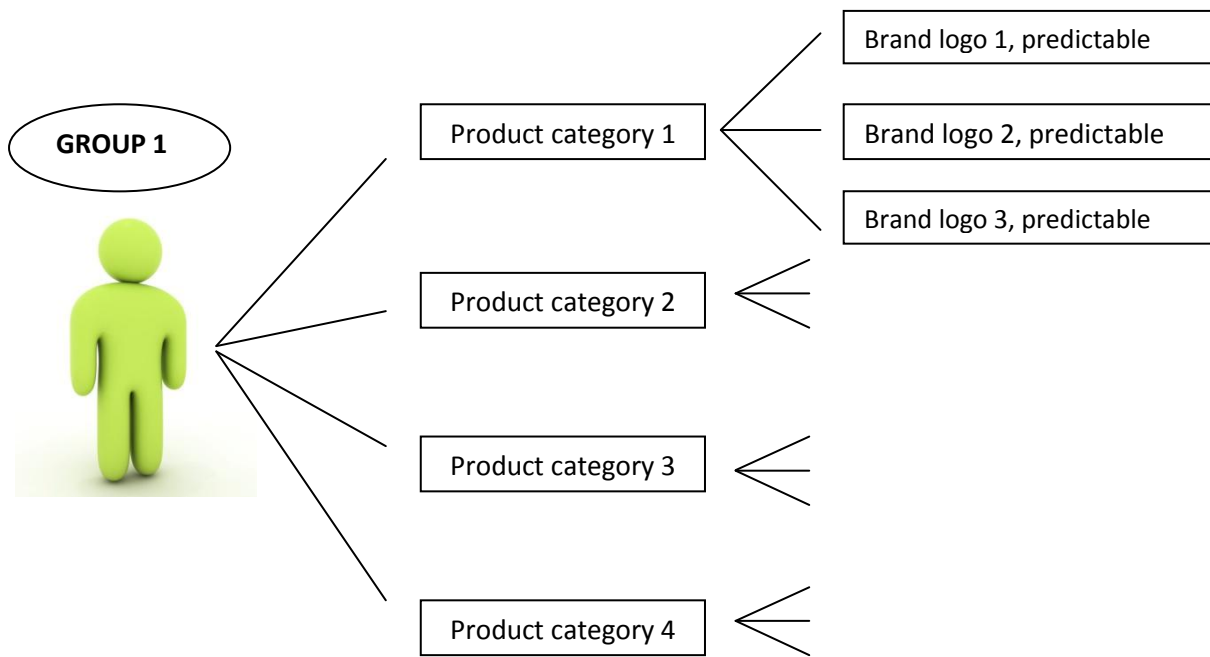Figure 4: Time frame for each logo

GROUP 1

Product category 1 → Brand logo 1, predictable
Product category 1 → Brand logo 2, predictable
Product category 1 → Brand logo 3, predictable

Product category 2

Product category 3

Product category 4

GROUP 2

Product category 1 → Brand logo 1, unpredictable
Product category 1 → Brand logo 2, unpredictable
Product category 1 → Brand logo 3, unpredictable

Product category 2

Product category 3

Product category 4

Figure 5: Design experiment

Chapter 4: Results

This chapter consists of the outcomes of the pre-test and the experiment. This chapter provides insight in the characteristics of the sample group of both the pre-test and the experiment, the four selected product categories and subsequently the most important results that are found by conducting the experiment. In the end, a final model is presented.

4.1 Pre-test

The pre-test was executed among 102 subjects, who successfully completed the questionnaire anonymously on a voluntary basis as no form of compensation was offered. This number of 102 is large enough to provide valid outcomes. 40% of these subjects are female; the other 60% are male. The average age of the subjects is 31,2 years. The main age group that completed the survey is between 15-23 years (45%) followed by the 24-33 age group (30%). More than half of the subjects noted university or higher vocational education, 19% intermediate vocational education, 28% secondary school and 2% primary school as their highest completed level of education (appendix 2).

In this pre-test, subjects were examined which color they associate with the 10 product categories. According to the subjects, cheese and tangerines are 100% associated with respectively the colors yellow and orange. 99% of the subjects associated ketchup with the color red and 98% associated water with the color blue. These four product categories are associated mostly with one particular color. Subjects associate the other six product categories less unanimously with one particular color. For an overview of which color subjects associate with which of the 10 product categories, see appendix 2. Therefore, cheese, ketchup, water and tangerines were added to the factorial design. Subjects were randomly assigned to this two (color: unpredictable or predictable) by four (brand logo category: cheese, ketchup, water, tangerines) factorial design (table 1).

Categories, predictable color	Categories, unpredictable color
Cheese, yellow	Cheese, unpredictable color
Ketchup, red	Ketchup, unpredictable color
Water, blue	Water, unpredictable color
Tangerines, orange	Tangerines, unpredictable color

Table 1: Two by four factorial design used in this study

4.2 Experiment

The sample group in this paper consisted of 112 subjects who participated in the experiment on a voluntary basis. The 112 subjects were equally allocated over the two groups, which means that 56 subjects were allocated to group 1 – unpredictable colors – and 56 subjects were allocated to group 2 – predictable colors –.

4.2.1 Descriptive statistics

The two experimental groups consist of an equal man/woman ratio: 30 men and 26 women participated in each group of the experiment. These two groups cover the same man/women ratio, because as long as this ratio was not (approximately) equal, new subjects were acquired (with a maximum of 80 subjects for each group). This measure is taken to get as equal groups as possible. Therefore, a difference between the two groups can be more quickly assigned to the manipulating factor instead of factors that already existed at the start of the experiment.
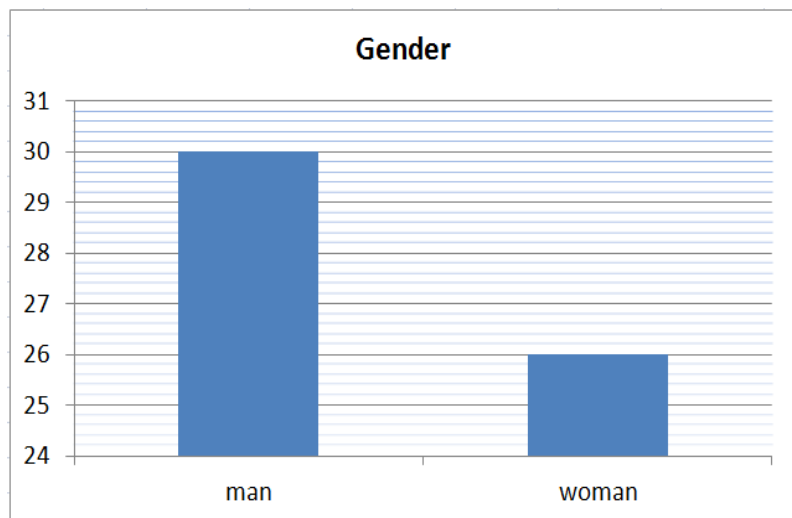
Figure 6: Man/woman distribution in both of the two groups

On the other hand, some small differences between the two experimental groups exist related to the other variables. However, because of the large sample size, percentages of the two groups tend to approach each other. As a result, the groups reveal approximately equal distributions of gender, level of education, age, nationality and income.

In both groups, higher vocational education is the most frequent category of highest completed level of education. In group 1, most of the subjects have an age under 24 years, but in group 2 most subjects belong to the category 24-33 years. However, the average age of each subject is forthwith the same: 31,3 years (sd =15,5) for group 1 and 31,1 years (sd =13,2) for group 2. Moreover, both experimental groups exist mainly of subjects with the Dutch nationality. For an overview of the descriptive statistics of the sample, see table 2.

During the statistical analysis, no violations of assumptions were detected when conducting the tests. All histograms were normally distributed and no multicollinearity was found as the correlations differed significantly from zero but were not greater than 0.60. Other assumptions were not violated as well.

	Categories	Group 1 – Unpredictable colors		Group 2 – Predictable colors	
		Quantity	Percentage	Quantity	Percentage
Age	< 24 years	26	46,4%	16	28,6%
	24-33 years	16	28,6%	30	53,6%
	34-53 years	6	10,7%	4	7,1%
	> 53 years	8	14,3%	6	10,7%
Gender	Man	30	53,6%	30	53,6%
	Woman	26	46,4%	26	46,4%
Level of education	Primary school	2	3,6%	0	0,0%
	Secondary school	4	7,1%	10	17,9%
	Intermediate vocational education	2	3,6%	4	7,1%
	Higher vocational education	34	60,7%	30	53,6%
	University	14	25,0%	12	21,4%
Income	< €500	16	28,6%	10	17,9%
	€500 - €1250	12	21,4%	16	28,6%
	€1250 - €2000	14	25,0%	18	32,1%
	€2000 - €2750	10	17,9%	10	17,9%
	> €2750	4	7,1%	2	3,6%
Nationality	Dutch	54	96,4%	46	82,1%
	Not Dutch	2	3,6%	10	17,9%

Table 2: Characteristics of the two experimental groups

4.2.2 Likeability

Hypothesis 1 is formulated as follows: *Brand logos accompanied by predictable colors are rated significantly higher on likeability than logos accompanied by unpredictable colors.* According to the theoretical framework, it is reasonable to expect a relationship between these two variables in this between-subject design. To test this hypothesis, a linear regression was conducted to find a possible causality between the predictability of the color and the rating of likeability. Linear regression provides clear insight in testing a relationship between only two variables.
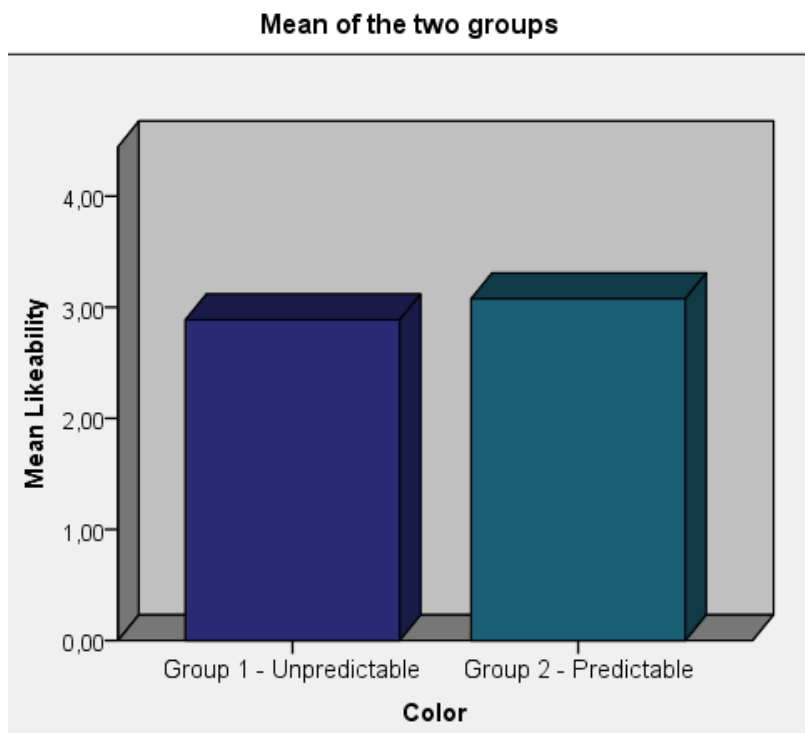
Figure 7: Average likeability of subjects in the two groups. This main effect shows a significant higher preference score for logos coupled to predictable colors relative to unpredictable colors

Consistent with this expectation, a significant relationship was found for predictability of the color and likeability by conducting a linear regression. The values in table 3 indicate that subjects who observe a logo with a predictable color, rate this logo 3,076 on a five-point scale. However, when subjects observe logos with an unpredictable color, they rate the same logo 0,190 points lower. These values are both significant. The p-value from the 'regression ANOVA' table is significant (0,002), which means that a relationship exists between type of color and likeability (table 4). Thus, the model has an added value, is meaningful and therefore, regression coefficients can be interpreted (Janssens et al., 2008). Hence, the new equation model becomes:

*Likeability = 3,076 − 0,190 * Predictability of color + e*

	Unstandardized Coefficients		Standardized Coefficients	Significance
	B	**Std. Error**	**Beta**	
Constant	3,076	,043		**,000**
Predictability color (1= unpredictable)	-,190	,061	-,145	**,002**

Table 3: Regression with likeability as the dependent variable

ANOVA[a]					
	Sum of Squares	**df**	**Mean Square**	**F**	**Significance**
Regression	4,032	1	4,032	9,568	**,002[b]**
Residual	187,932	446	,421		
Total	191,964	447			

Table 4: The regression ANOVA table explaining likeability

It can be concluded that H1 is supported and that according to this data, type of color has a significant effect on likeability. The test reveals that the main effect, the negative relationship between unpredictable colors and likeability of a brand logo or the positive relationship between predictable colors and likeability, is highly significant. Thus, predictable colors included in brand logos increase someone's likeability of those brand logos.

4.2.3. Gender effect

In the study of Ramsøy et al. (2012), likeability of brand logos was driven by a more positive rating by men compared with women. In contrast, in this study, men overall rate brand logos lower than women do. What stands out is that men in this study rate brand logos higher on a five-point scale (0,30 points) compared to the ratings in the Ramsøy et al. (2012) study, but especially women rate brand logos much higher (0,77 points).

According to Ramsøy et al. (2012), men relative to women rate the likeability of brand logos more positive when hearing a predictable sound compared to an unpredictable sound. In this paragraph, the same relationship is examined for type of color instead of sounds. Hypothesis 3 is about the conjectured moderating effect of gender on the relationship between type of color and brand likeability. To support or reject hypothesis 3, it was tested whether there is a significant moderating effect between the variable predictability of color (the two groups) and the variable gender on likeability, by making use of a Two-way ANOVA test. A Two-way ANOVA test can accurately reflect a conjectured moderation effect.

Hypothesis 3 is formulated as follows: *For men, the effect of type of color for brand logos on the likeability of that brand logo is stronger than that of women.* However, figure 8 actually already rejects this hypothesis. As shown in figure 8, group one and group two differ more within the group women compared to men. In the sequel of this paragraph, an ANOVA-test confirms this conjecture.

In addition, this ANOVA-test checks hypothesis 3 the other way around: whether the effect of predictability of colors on likeability is stronger for *women* than for *men.*
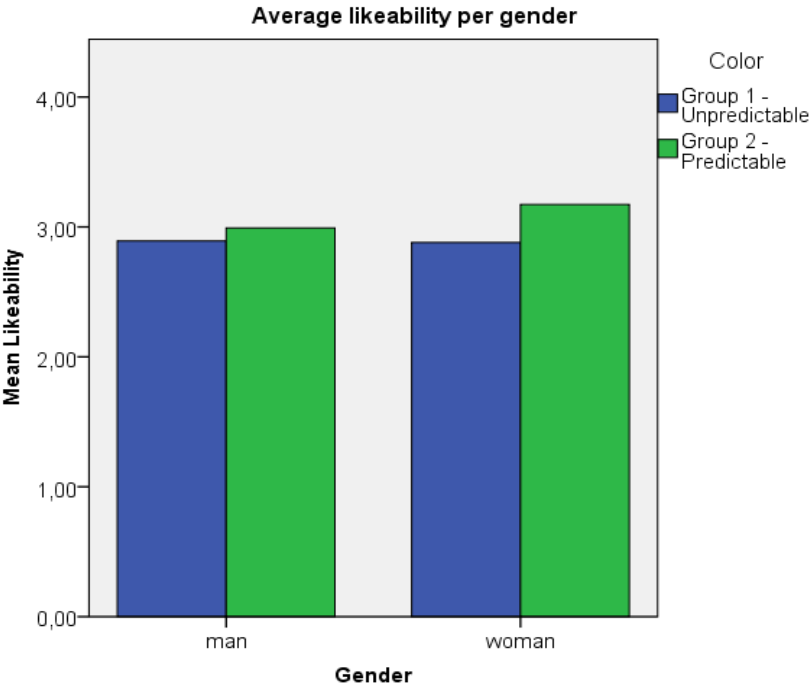

Figure 8: Likeability scores per group and gender

As noted earlier, according to this data a relationship between predictability of color and likeability exists. However, no direct relationship between gender and likeability exists, as gender reveals to be insignificant when explaining likeability. When conducting a Two-way ANOVA in table 5 for the moderating effect of gender and predictability of color, it reveals that indeed no significant moderating effect exists between these two variables (p-value =0,116). Moreover, table 5 shows that gender does not have a significant effect (p-value =0,168) on likeability of brand logos, but predictability of color is still significant (p-value =0,001).

Source	F	Significance
Corrected Model	4,671	**,003**
Intercept	9469,536	**,000**
Gender	1,911	,168
Predictability color	10,280	**,001**
Predictability color * Gender	2,483	,116

Table 5: Tests of Between-Subjects Effects explaining likeability

To sum up, the combination of gender and type of color does have an effect on someone's likeability of brand logos (figure 8), but this effect is not significant. In other words, there is not sufficient evidence to conclude that for men, the effect of predictable colors of brand logos on the likeability is stronger than that of women. Gender has no significant effect on likeability either; type of color does have a direct significant effect on this dependent variable.

4.2.4 Product category effect

Another interesting question is whether the effect of the predictability of colors on likeability and willingness-to-buy is stronger for some product categories than for others, which includes H5. To disclose such a possible relationship, a Two-way ANOVA is conducted. The ANOVA-Test of Between-Subjects Effects reveals that predictability of color (p-value =0,001), product category (p-value =0,000) and the interaction of type of color and product category (p-value =0,016) are all significant (table 6). Thus, predictability of color, product category and the interaction of predictability of color and product category all have a significant effect on likeability. By executing a Post-Hoc test, it becomes clear which product categories are valued higher on average.

Source	F	Significance
Corrected Model	20,397	**,000**
Intercept	12086,347	**,000**
Predictability color	12,240	**,001**
Category	40,055	**,000**
Predictability color * Category	3,458	**,016**

Table 6: Tests of Between-Subjects Effects explaining likeability

The direct relation between category and likeability is significant. Performing pair wise comparisons of brand logo categories by executing a Tukey Post-Hoc test reveal that water received significant highest ratings, followed by ketchup, tangerines and finally cheese.

The significant interaction between predictability of color and product category indicates that the combination of type of product category and predictability of color has a significant effect on likeability. Some product categories benefit more from including a predictable color in the logo than other categories. In figure 9, it becomes clear that for instance category tangerines 'benefits' much more from including a predictable color in the logo than category cheese, indicated by the difference in height between the bars. Product category tangerines is more sensitive to the predictability of colors than for instance product category cheese.
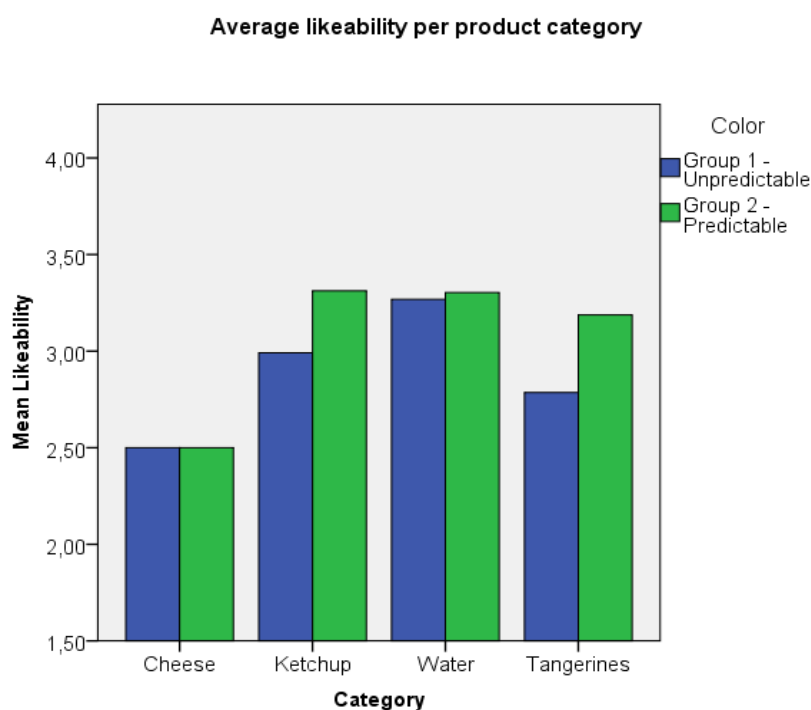
Figure 9: Likeability scores per group and product category

In table 7 the result of the ANOVA-Test of Between-Subjects Effects are reflected for the dependent variable willingness-to-buy, instead of likeability. Outcomes reveal a significant result for type of color (p-value =0,000) and product category (p-value =0,000), but an insignificant outcome for the moderating effect of type of color and product category (p-value =0,069) at the 95% significance level.

Source	F	Significance
Corrected Model	19,421	**,000**
Intercept	11525,093	**,000**
Predictability color	18,468	**,000**
Category	36,775	**,000**
Predictability color * Category	2,385	,069

Table 7: Tests of Between-Subjects Effects explaining willingness-to-buy

In other words, the two direct effects are significant. Performing pair wise comparisons reveal that again water receives highest ratings, followed by ketchup, tangerines and cheese. However, the combined effect of product category and type of color is not significant: none of the four product categories receive a significantly higher rating on willingness-to-buy from a predictable color in the logo compared to the other categories. However, figure 10 does make clear that all product categories benefit from using predictable colors instead of unpredictable colors.
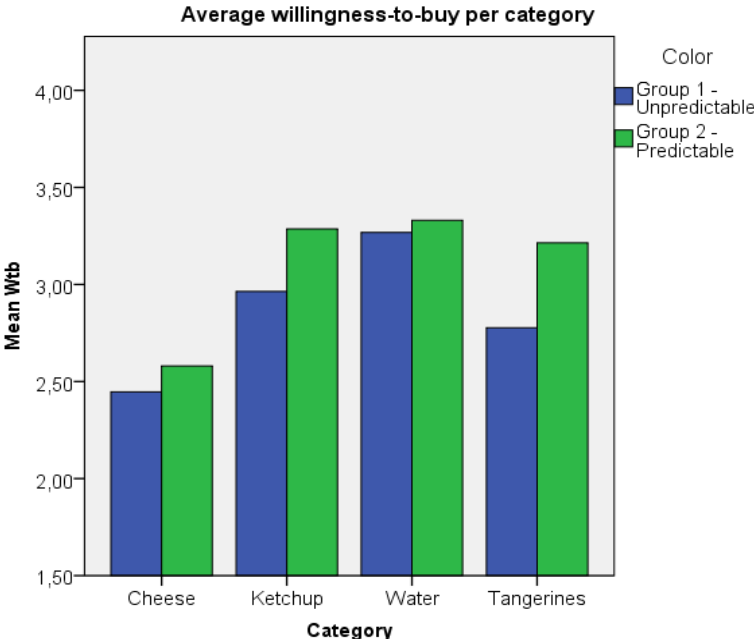
Figure 10: Willingness-to-buy per group and product category

4.2.5 Income effect

In this paragraph, a third moderating effect was examined between income class and predictability of color. This effect was not included in the conceptual model as no other studies conjecture such a relationship between these two variables. However, if this moderating effect appears to be significant, which means that some income classes would be more sensitive for using predictable colors than others, this could be of valuable information for marketers in different branches. That is exactly why this moderating effect was tested.

To test this moderating effect between income and type of color explaining likeability, a Two-way ANOVA was conducted. This ANOVA-Test of Between-Subjects Effects which is presented in table 8, reveals that income (p-value =0,059) does not significantly explain likeability, but the interaction of type of color and income (p-value =0,001) is significant.

Source	F	Significance
Corrected Model	4,212	**,000**
Intercept	5716,188	**,000**
Income	2,295	,059
Predictability color	11,879	**,001**
Predictability color * Income	4,623	**,001**

Table 8: Tests of Between-Subjects Effects explaining likeability

Based on the data in this study, it can concluded that the combined effect of income and type of color is significant (p-value =0,001). It means that subjects who belong to some of the five examined classes like brands accompanied by a predictable color compared to an unpredictable color significantly more than subjects that belong to other income classes. It becomes clear that income classes < €500 and €2000 - €2750 rate likeability of brands with a predictable color much higher than brands with an unpredictable color. Income class > €2750 even rates brands with predictable colors lower than brands with unpredictable colors. However, very few subjects with an income class of > €2750 participated in this study. The results for this income effect are visualized in figure 11.
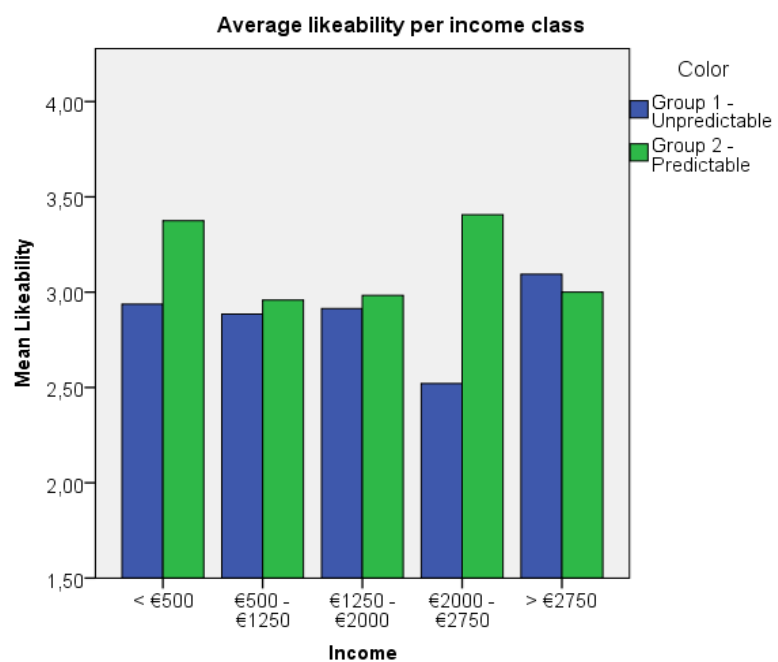

Figure 11: Likeability per group and income class

For willingness-to-buy the same ANOVA-Test of Between-Subjects Effects was conducted. The only difference is that income does explain willingness-to-buy significantly (p-value =0,000). The moderating effect of income and type of color is significant (p-value =0,001) as well (table 9).

Source	F	Significance
Corrected Model	6,329	**,000**
Intercept	5864,523	**,000**
Income	5,725	**,000**
Predictability color	17,171	**,000**
Predictability color * Income	4,818	**,001**

Table 9: Tests of Between-Subjects Effects explaining willingness-to-buy

Beside the significant moderating effect of type of color and income on likeability, the same applies to willingness-to-buy as dependent variable. Subjects who belong to some of the five examined classes are significantly more willing to buy brands accompanied by a predictable color than subjects that belong to other income classes. Figure 12 shows that again income classes < €500 and €2000 - €2750 rate brands with predictable colors (much) higher than brands with unpredictable colors. Especially within income class €2000 - €2750 a substantial difference is perceptible. Within class €500 - €1250, a clear difference is observable as well. Remarkably, again income class > €2750 rates brands with predictable colors lower than brands with unpredictable colors.
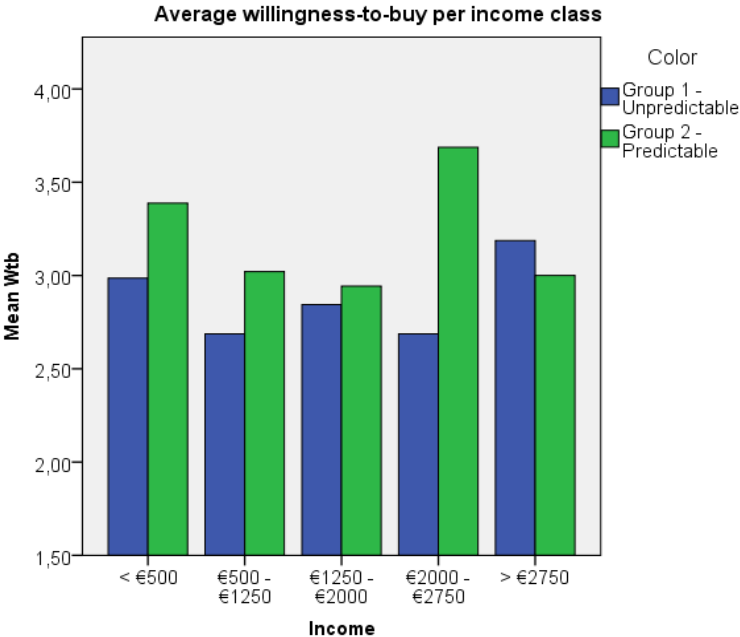
Figure 12: Willingness-to-buy per group and income class

4.2.6 Willingness-to-buy

According to H2 in the conceptual model, customers that face brand logos accompanied by predictable colors are more willing to buy the brand than logos accompanied by unpredictable colors. As can be observed in figure 13, subjects belonging to group 2 – predictable colors – are more willing to buy the logos (3,103) compared to group 1 – unpredictable colors – (2,864).
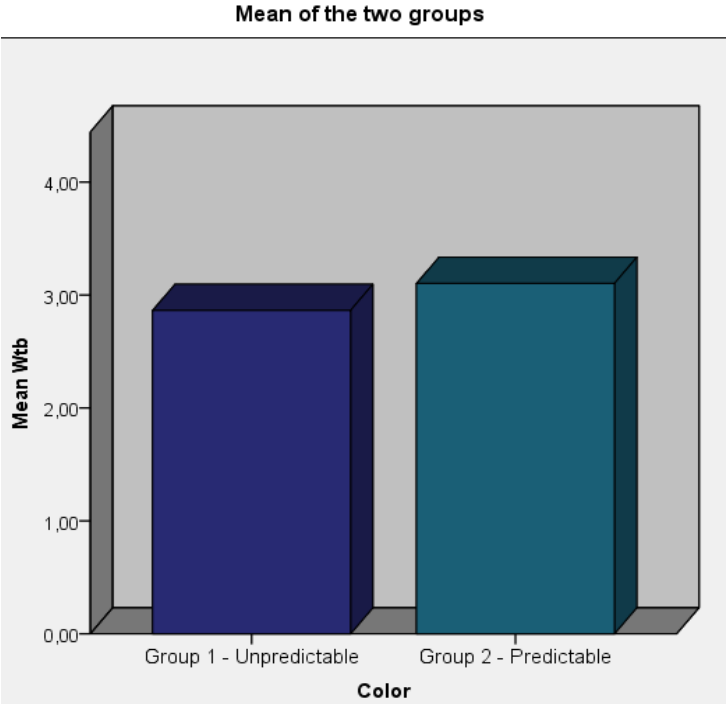

Figure 13: Average willingness-to-buy of subjects in the two groups. This main effect shows a significant higher preference score for logos coupled to predictable colors, relative to unpredictable colors.

To test the role played by type of color in predicting willingness-to-buy, the following regression equation was designed: Willingness-to-buy = α + β * Predictability of color + e.

The linear regression analysis, which was conducted in table 10, reveals that indeed a relationship between predictability of color and willingness-to-buy exists. These values indicate that predictable colors of brand logos have a positive effect on someone's willingness-to-buy compared to unpredictable colors. A logo with an unpredictable color scores 0,293 points lower on a five-point scale than a logo with a predictable color. Noteworthy is the p-value in the 'regression ANOVA' table which is 0,000. Therefore, it can be assumed that subjects who face brand logos accompanied by predictable colors are more willing to buy a brand than logos accompanied by unpredictable colors and that this model is useful. The new equation model becomes:

*Willingness-to-buy = 3,103 − 0,239 * Predictability of color + e*

	Unstandardized Coefficients		Standardized Coefficients	Significance
	B	Std. Error	Beta	
Constant	3,103	,044		**,000**
Predictability color (1= unpredictable)	-,239	,062	-,179	**,000**

Table 10: Regression with willingness-to-buy as the dependent variable

4.2.7 Mediation effect

Hypothesis 4 suggests that the effect of the type of color on willingness-to-buy of a brand logo is mediated by the variable likeability of the brand logo. Thus, willingness-to-buy is actually not explained by the variable type of color, but by the mediation effect of type of color over likeability. To reject or support this hypothesis, three linear regressions were conducted. Because the independent variable likeability of the brand logo is not a nominal variable, linear regression is conducted. The first regression tests the relation between predictability of color and willingness-to-buy, the second regression determines whether or not a relationship between likeability and willingness-to-buy exists and the third regression determines whether a mediation effect exists.

The first relationship that was tested is the effect of predictability of color on willingness-to-buy. In table 10 in the previous paragraph, this test is already conducted and it can be stated that the relationship between type of color and willingness-to-buy is significant (p-value =0,000).

A linear regression with independent variable likeability and dependent variable willingness-to-buy reveals that a positive significant (p-value =0,000) relation exists between these two variables. The coefficients in table 11 indicate that willingness-to-buy increases with 0,840 on a five-point scale when subjects score one point higher on likeability. The model has a score of 0,679 on the Adjusted R square, which is relatively high. It means that 67,9% of the variance in the dependent variable willingness-to-buy is explained by the independent variable likeability or in other words; likeability is a good predictor of willingness-to-buy. The p-value (0,000) in the 'regression ANOVA' table confirms the significant relationship between likeability and willingness-to-buy. The equation model becomes:

*Willingness-to-buy = 0,479 + 0,840 * Likeability + e*

	Unstandardized Coefficients		Standardized Coefficients	Significance
	B	Std. Error	Beta	
Constant	,479	,083		**,000**
Likeability (1-5)	,840	,027	,824	**,000**

Table 11: Regression with willingness-to-buy as the dependent variable

When the last regression was conducted, predictability of color and likeability were both added as independent variables. If one of these two independent variables would have become insignificant, it is clear that the effect is taken over by the other variable. The regression analysis reveals that likeability is still significant (p-value =0,000), however predictability of color is not significant anymore (p-value =0,093). It can be observed that only the variable predictability of color becomes insignificant, despite the fact that without adding likeability to the model, type of color is highly significant (p-value =0,000). Thus, when adding likeability to the model, type of color becomes insignificant, whereas likeability still has a significant value in explaining the dependent variable. The adjusted R square has a value of 0,570; 57% of willingness-to-buy is explained by this model. The p-value in the 'regression ANOVA' model notes 0,000, as a result it can be concluded that this model is relevant. The equation model becomes:

*Willingness-to-buy = 0,663 + 0,793 * Likeability + e*

	Unstandardized Coefficients		Standardized Coefficients	Significance
	B	Std. Error	Beta	
Constant	,663	,219		**,003**
Likeability (1-5)	,793	,070	,725	**,000**
Predictability color (1= unpredictable)	-,088	,052	-,109	,093

Table 12: Regression with willingness-to-buy as the dependent variable

Considering the fact that both likeability and predictability of color are significant when those variables are the only independent variables, but predictability of color becomes insignificant when both variables are included as independent variables in the same model, it can be concluded that a mediation effect of type of color via likeability to willingness-to-buy exists.

4.2.8 Analysis of the final model

Finally, in this paragraph the final model will be discussed. After the separate analyses, all variables and moderating variables were included into a final model, with likeability as the dependent variable (table 13). In the final model, likeability was included as dependent variable instead of willingness-to-buy. The reason for this is that the relationship between likeability, as one of the independent variables, and willingness-to-buy is already obvious and self-evident (Cobb-Walgren et al., 1995; Djerv & Malla, 2012). Therefore the final model would be of less value as this relationship is already confirmed. As is indicated in table 11 as well, likeability is a very good predictor of willingness-to-buy as likeability explains very much of the variance in willingness-to-buy. Table 11 reveals that the

Standardized Coefficient of likeability in explaining willingness-to-buy is 0,824 and its p-value 0,000. This indicates that likeability has a great effect on the dependent variable willingness-to-buy (Moore et al., 2011).

A linear mixed model was conducted to observe the separate effects of each independent variable on the dependent variable. This linear model provides insights in the value and importance of all added variables (table 13). Independent variables that were included into the model consist of age, gender, type of color, nationality, level of education, income and the moderating variables of gender & predictability of color, product category & predictability of color and income & predictability of color. The separate product category variables were not added to the final model, because little value should be attached to the effect of product category on likeability (table 6). This relation indicates that only in this study such a sequence of rating in product categories exists. A sequence in ratings of product category could have been expected in advance, because only four logos per product category were presented. One or two less attractive logos within a product category, compared to the other categories, would immediately result in differences in likeability. Because only four logos do not represent the entire product category, outcomes could be related to the attractiveness of the logos itself, and not per se to the product categories. Thus, the insight that cheese logos in this study reveal a significant lower rating than logos in the other three categories, does not automatically mean cheese logos in general are rated significantly lower than logos of the other three product categories. Due to this, the four product categories were not included in the final model as those variables would not be good predictors in 'the real world'.

This model does not explain a large part of the variance, as the Adjusted R square is 0,124. A few of the variables that were included in the model are significant, which contributes to the fact that the model explains 12,4% in the variance of likeability. Therefore, this model with its current independent variables is a not a very good predictor of the dependent variable likeability. The p-value in the 'regression ANOVA' table is highly significant (p-value =0,000).

The five variables that are significant and contribute to a better model include predictability of color (p-value =0,010), primary school as the highest level of finished education (p-value =0,004), secondary school as the highest level of finished education (p-value =0,006), the moderating variable Category*Predictability color (p-value =0,000), the moderating variable Income*Predictability color (p-value =0,045) and finally the constant-value that is significant as well (p-value =0,000). Selection of the variables is based on the 95% significance level. Income class €2000 - €2750 is just outside the range of the significance interval and was therefore not included into the final model; same applies to the remaining variables. The final equation model becomes:

*Likeability = 2,917 - 0,222 * Predictability of color + 0,120 * Primary school + 0,146 * Secondary school + 0,105 * Category*Predictability color - 0,034 * Income*Predictability color + e*

	Unstandardized Coefficients	Standardized Coefficients	Significance
	B	Beta	
Constant	2,917		**,000**
Age	-,001	-,015	,787
Gender (1=man)	,042	,032	,693
Predictability color (1= unpredictable)	-,222	-,169	**,010**
Nationality (1= Dutch)	,278	,131	,119
Primary school	,120	,024	**,004**
Secondary school	,146	,074	**,006**
Intermediate vocational education	-,010	-,003	,948
Higher vocational education	-,034	-,026	,656
< €500	-,195	-,129	,582
€500-€1250	-,372	-,252	,178
€1250-€2000	-,260	-,188	,232
€2000-€2750	-,334	-,145	,071
Gender*Predictability color	-,285	-,193	,143
Category*Predictability color	,105	,347	**,000**
Income*Predictability color	-,034	-,109	**,045**

Table 13: Regression of the final model with likeability as the dependent variable

Chapter 5: Discussion

The main purpose of this paper is to clarify whether differences in predictable and unpredictable colors in logo and packaging could result in differences in appreciation and finally willingness-to-buy of these brand logos. It addressed an existing gap in empirical testing of the effects of predictability and unpredictability in the visual domain. Various studies (Herry et al., 2007; Ramsøy et al., 2012 and more) examined the effects of predictability of stimuli on the sounds domain. According to them, simultaneously presented information, when using predictable sounds, may be perceived more favorable than using unpredictable sounds. Velasco et al. (2015) examined the effect of congruent and incongruent combinations of packaging colors and flavor labels on the rapidity of reaction times. Despite the recent research of Velasco et al. (2015), the effect of unpredictability within the visual domain remained underexposed. This chapter contains the conclusions of the main research question and other findings, managerial implications, limitations and finally areas for future research. Table 14 provides an overview of which formulated hypotheses are supported and which are rejected.

5.1 Conclusion

In this study, most of the hypothesized conjectured effects are significant. The main research question, hypotheses 1 & 2, are both supported by the data that is obtained by the experiment in this study. Both willingness-to-buy and likeability of brand logos are significantly influenced by the type of color these brand logos are presented in. The results in the final model confirm this relationship. Predictable colors increase both customers' likeability and willingness-to-buy, compared to unpredictable colors. These two significant hypotheses reveal that a similar relationship between predictability and more favorable alterations in judgments exists in visual domain compared to sound domain. These results could be related to the fact that uncertainty and unexpectedness, which could be caused by the abrupt appearance of dangerous predators and threats, increase fear, avoidance behavior and aversion in the amygdala (Changizi & Shimojo, 2008; Herry, et al., 2007; Christopoulos et al., 2009).

Analysis of a moderating effect of gender and predictability of color revealed an insignificant effect. In other words, no significant differences between the two sexes were found in the effect of predictable colors on likeability. In contrast to the study of Ramsøy et al. (2012) where men rate brand logos accompanied by predictable sounds patterns compared to unpredictable sounds significantly higher on likeability than women do, in this study it is the exact opposite. Women rate brand logos accompanied by predictable colors compared to unpredictable colors higher than men do. However, this difference between the two sexes is not significant and as result no relationship is determined. As a consequence, this conjectured moderating effect is not supported according to this dataset and therefore hypothesis 3 is rejected.

As predicted, it can be concluded that a mediation effect exists according to this data: a mediation effect of predictability of color via likeability on willingness-to-buy. Both predictability of color and likeability reveal a direct significant effect when those variables separately are the only predictors of willingness-to-buy. However, when both variables were added as independent variables, type of color became insignificant, which provides evidence for a mediation effect. The effect of type of color

on willingness-to-buy is taken over by likeability, as likeability is the mediator. It seems that likeability is a good predictor of the extent to which customers would like to buy a product. As stated earlier by Cobb-Walgren et al. (1995) and Djerv & Malla (2012), purchase intentions are explained by someone´s preferences. Hypothesis 4 is supported.

Finally, sufficient evidence was found to conclude that some product categories significantly benefit more from including a predictable color in their logo than other categories (H5). In other words, the data supports a moderating effect between predictability of color and product category, as was expected in advance. In this study, ketchup and tangerines note the largest mutation in likeability between the two types of color, categories cheese and water the least. This significant moderating effect only applies to the dependent variable likeability and not to willingness-to-buy, which implicates that hypothesis 5 is supported as well. Although no moderating effect exists when explaining willingness-to-buy, all product categories benefit from using predictable colors instead of unpredictable colors.

	Hypothesis	Expected effect	Findings	Conclusion
H1	Effect of type of color on likeability	+	Supported	Predictable colors increase someone's likeability of brand logos
H2	Effect of type of color on willingness-to-buy	+	Supported	Predictable colors increase someone's willingness-to-buy of brand logos
H3	Moderating effect of gender and type of color on likeability	+	Rejected	The effect of predictable colors of brand logos on the likeability is equal for both of the two sexes
H4	Likeability as a mediator between type of color and willingness-to-buy	+	Supported	A mediation effect of type of color exists via likeability to willingness-to-buy
H5	Moderating effect of product category and type of color on likeability	+ / -	Supported	Some product categories benefit significantly more from including a predictable color in the logo than other categories

Table 14: Summary of the hypotheses

Although this effect was not hypothesized, a moderating relationship was found between income and type of color on both likeability and willingness-to-buy. Especially income classes < €500 and €2000 - €2750 rate brands with predictable colors higher than brands with unpredictable colors, compared to other income classes. Beside these outcomes, no clear connection was found that higher incomes in general are more sensitive for predictable colors than lower incomes or vice versa.

From the final model, it becomes clear that customers who noted primary or secondary school as highest form of completed education, like brand logos significantly more than those who finished a

higher level of education. However, this finding does not suggest that they are also more willing to buy those brand logos, because it would make sense that customers with lower education have less money to spend.

5.2 Managerial implications

Color is only one of the many components of a brand's logo and packaging. However, the selection of colors is one of the most important elements of creating a strong brand, because a color is one of the primary reasons to buy a particular product (Gillett, 2014). Every particular color has numerous associations and different impressions. "By choosing a color or a combination of colors for your brand identity, you will take on those associations. Colors evoke certain emotions and feelings towards your brand so it is vital to choose a color that will represent your identity effectively" (Fadeyev, 2008). Perhaps of even greater importance for marketers is to include colors in their brand logo that customers expect and give their brand recognition with the product category. Predictable colors enhance a brand's likeability and the extent to which customers wish to buy a product. Not including colors that customers associate with the product category into a brand's logo and package would be regretful as it could increase turnover considerably. Including predictable colors could even increase brand awareness as it would be likely customers grab the brand off the shelf more quickly. Other colors than the predictable one could also be included. However it is important that the predictable color stands out. Especially in current markets with many competitors and little differences in quality between brands, unconscious motives as predictable colors in logos and packaging play an important role in the decision making process.

The results in this study indicate that the extent to which customers wish to buy a brand, strongly depends on the degree they like a brand. For marketers who want to increase customers' willingness-to-buy, it is important to increase likeability of the brand. According to Wayhart (2013) of marketing consulting and coaching firm Brandmill, there are many ways to improve brand likeability. Wayhart states that it is very important for the management of a brand to be friendly, kind and optimistic in the relation with your customers. Moreover, it is essential to be empathetic, positive and passionate. Di Somma (2011) adds to this list that companies should also be authentic: companies should not deceive, over-promise or engage in dubious behavior. Moreover, Di Somma emphasizes to be different, but still intriguing.

During this study the effect of both predictable and unpredictable colors of four product categories was examined. Research reveals that brands within product categories ketchup and tangerines are most positively influenced by using predictable colors instead of unpredictable colors. Both likeability and willingness-to-buy increase considerably. The product categories cheese and water also show a slight increase, but not as substantial as the earlier mentioned categories. Therefore, brands that operate in the categories ketchup and tangerines should definitely include respectively red and orange in their logos and packaging as it increases both a brand's likeability and willingness-to-buy considerably. Brands that operate in the categories water and cheese should include predictable colors as well, although this leads to somewhat less positive outcomes.

Many companies, especially the larger ones, know exactly who their target group is. These companies have extensive knowledge of their customers about a variety of demographic, geographic and psychographic factors, including income. This study reveals that especially customers that have a net income between €2000 - €2750 rate brands with predictable colors much higher than brands with unpredictable colors. Results reveal a strong moderating effect for customers belonging to this income class. For customers with a net income of less than €500, a similar somewhat weakened effect is perceptible. Marketers of companies who know their customers especially belong to one of those income categories, should definitely include predictable colors in their logo and packaging. Including predictable colors could enhance preference and purchases considerably. Remaining income classes €500 - €1250 and €1250 - €2000 reveal an increase in likeability and willingness-to-buy as well when using predictable instead of unpredictable colors, although this increase is less voluminous. Including predictable colors in logos of brands that serve customers within these two classes, could lead to an increase in likeability and willingness-to-buy as well.

5.3 Limitations

The current study focuses on those products and product categories that are associated with one particular color. Although this study is relevant for companies that operate in such a category, this study is not for those brands that do not. Especially for companies that operate in the four chosen product categories – cheese, water, tangerines and ketchup – but also in other categories as milk, vegetation and more, this study is definitely of high importance. Various sources investigated which product categories and which type of products are associated with which particular color (Gillet, 2014; Rodin 2015). However, some brands could be associated with two, three or perhaps even more colors. This study focused on those product categories that are only associated with one specific color. In other words, for a brand that sells cheese, it would be beneficial for purchases to include yellow in their brand logo. It seems likely that it is beneficial for brands that operate in product categories that are associated with more than one color, to include those colors in their logo as well, but this is not tested. However, adding too many colors to a brand logo could be counterproductive. "Using too many colors in your logo could drive people away before they have a chance to absorb your content" (Bradley, 2010).

Secondly, in practice, this study is especially relevant for new brands that have not yet designed a brand logo. Of course it is relevant for existing brands as well, but redesigning a brand logo is accompanied by a loss of brand awareness as the current logo is transformed in another. Marketing managers are in general not supporters of such a change in brand logos as it could cost the company many financial resources to rebuild the lost brand awareness (Hartman, 2012).

Furthermore, it is important that customers do not yet have (positive) associations with one of the brands that is offered in the store. If a customer is already familiar with one of the brands, and the customer's associations with the brand are positive, then there is a high probability the customer would buy that brand instead of the unknown, perhaps more attractive one. When observing the familiar brand, associations play a larger role. The effect of the predictable logo color becomes less important. As a consequence, the outcomes of this study are best applicable in environments with a variety of competing products, such as department stores and large supermarkets. Large outlet stores often have shelves of 10 or 20 meters long that include a large variety of brands that belong to

only one type of product. When such an abundance of brands is offered that fulfill the same need, the colors of the brand logo and package is what first stands out (Gillett, 2014; Psychology of color, 2013).

Finally, this study does not give insights in which brands in all product categories should use a certain predictable color. In the pre-test, 10 product categories were selected and only of those 10 product categories, associations with a particular color were tested. This study provides no handles for other product categories as for most product categories it is unclear which color consumers associate with it.

5.4 Future Research

In this study, subjects rated their likeability and willingness-to-buy about brands within product categories that are associated with only one color. However, some product categories like apples are associated with two (or more) colors (appendix 2). It might be interesting to test whether brands within such a product category would be valued higher when those two or three predictable colors are included in the brand logo. Stated differently, including one predictable color in the brand logo and package increases likeability and willingness-to-buy the brand, but is it the same when two or three predictable colors are included into the logo? Does a certain point of saturation exist in including more predictable colors to a logo?

Other future research could be related to other types of products. The current study is mainly focused on the predictability of colors of fast moving consumer goods. Future research could focus on product categories that cannot be categorized within the fast moving consumer goods, for instance durable goods, but also goods that cannot be consumed and more expensive products. Theoretically, reaction on predictability of colors could differ for other product categories, but this is not very likely as in the Ramsøy et al. (2012) study, small differences in preference scores between the four different product categories – bank, beer, cosmetic and electronic – are found.

This study is solely focused on the visual domain, as only eyes were triggered in the experiment. Most of the outcomes are in accordance with the outcomes of the sounds study of Ramsøy et al. (2012). However, in other sensory domains, little research has been conducted relative on this specific topic. Hence, these findings should be tested using predictable stimuli in other sensory domains, such as tactile and olfactory.

Geographical areas could be extended in future research because this study limits itself well-nigh to the Netherlands. Future studies should focus on a more international perspective to make statements about cross-cultural meanings of predictable and unpredictable colors in marketing as well.

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Appendix 1 - Design pre-test
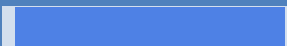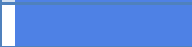
During the pre-test, the subjects answered one question for all 10 different product categories: 'What color do you associate mostly with the following product category?'

		Red	Yellow	Blue	White	Purple	Green	Orange	Black	Brown	Pink
1	Apples										
2	Cheese										
3	Chocolate										
4	Ketchup										
5	Lipstick										
6	Milk										
7	Plants										
8	Sunburn										
9	Tangerines										
10	Water										

Appendix 2 - Pre-test outcomes

This appendix reveals the most important outcomes of the pre-test. It presents some characteristics of the subjects who participated and the outcomes of the four selected product categories in percentages: cheese, ketchup, tangerines and water.
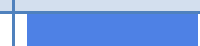
What is your gender?

	Answer		Response	%
1	Man		62	60%
2	Woman		41	40%
	Total		**103**	**100%**

What is your age?

	Answer		Response	%
1	15-23		46	45%
2	24-33		31	30%
3	34-53		14	14%
4	54-75		11	11%
	Total		**102**	**100%**

What is your highest completed form of education?

	Answer		Response	%
1	Primary school		2	2%
2	Secondary school / vmbo		11	11%
3	Secondary school / havo		6	6%
4	Secondary school / vwo		11	11%
5	Intermediate vocational education		20	19%
6	Higher vocational education		39	38%
7	University		14	14%
	Total		**103**	**100%**

What color do you associate mostly with the following product category? - Cheese -

	Answer		Response	%
1	Red		0	0%
2	Yellow		102	100%
3	Blue		0	0%
4	White		0	0%
5	Purple		0	0%
6	Green		0	0%
7	Orange		0	0%
8	Black		0	0%
9	Brown		0	0%
10	Pink		0	0%
	Total		102	100%

What color do you associate mostly with the following product category? - Ketchup -

	Answer		Response	%
1	Red		101	99%
2	Yellow		0	0%
3	Blue		1	1%
4	White		0	0%
5	Purple		0	0%
6	Green		0	0%
7	Orange		0	0%
8	Black		0	0%
9	Brown		0	0%
10	Pink		0	0%
	Total		102	100%
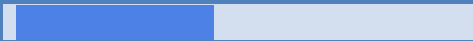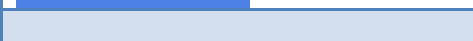
What color do you associate mostly with the following product category? - Tangerines -

	Answer		Response	%
1	Red		0	0%
2	Yellow		0	0%
3	Blue		0	0%
4	White		0	0%
5	Purple		0	0%
6	Green		0	0%
7	Orange		102	100%
8	Black		0	0%
9	Brown		0	0%
10	Pink		0	0%
	Total		**102**	**100%**

What color do you associate mostly with the following product category? - Water -

	Answer		Response	%
1	Red		0	0%
2	Yellow		0	0%
3	Blue		100	98%
4	White		2	2%
5	Purple		0	0%
6	Green		0	0%
7	Orange		0	0%
8	Black		0	0%
9	Brown		0	0%
10	Pink		0	0%
	Total		**102**	**100%**

What color do you associate mostly with the following product category? - Apples -

	Answer		Response	%
1	Red		45	44%
2	Yellow		4	4%
3	Blue		0	0%
4	White		0	0%
5	Purple		0	0%
6	Green		53	52%
7	Orange		0	0%
8	Black		0	0%
9	Brown		0	0%
10	Pink		0	0%
	Total		**102**	**100%**

Appendix 3 - Design experiment

During the experiment, subjects were asked to rate 16 unknown brand logos and to answer some demographic questions. Ratings were marked on the five-point scales below. Every O corresponds to a 1, 2, 3, 4 or 5. When a subject did not like a logo at all or definitely did not want to buy that particular logo, a 1 was noted. When a subject liked a logo very much or definitely wanted to buy that particular logo, a 5 was noted. More average attitudes were marked by 2, 3 and 4. The distance between every neighboring point on the scales is equal.

A) In welke mate vind je dit merk **leuk/aantrekkelijk**? / To what extent do you **like** this brand?

Strongly dislike O---------O---------O---------O---------O **Strongly like**

                                 1   2   3   4   5

B) In welke mate ben je **bereid dit merk te kopen**? / To what extent are you **willing to buy** this brand?

Very unlikely to buy O---------O---------O---------O---------O **Very likely to buy**

                                 1   2   3   4   5

Logo	A)Aantrekkelijkheid/Likeability (1-5)	B)Mate van koopbereidheid/Willingness-to-buy (1-5)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

17 Wat is je geslacht? What is your gender?

O Man

O Vrouw / Woman

18 Hoe oud ben je? What is your age?

19 Wat is jouw hoogst afgemaakte opleiding? What is your highest completed level of education?
O Basisschool / Primary school
O Middelbare school / Secondary school
O MBO / Intermediate vocational education
O HBO / Higher vocational education
O WO / University

20 Wat is je nationaliteit? What is your nationality?

21 Wat is je maandelijkse netto-inkomen? What is your monthly net income?
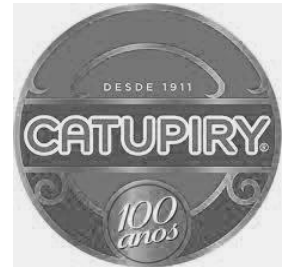O < €500
O €500 - €1250
O €1250-€2000
O €2000-€2750
O > €2750

Appendix 4 - Unpredictable logos

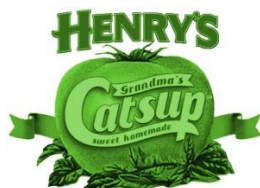*An overview of the 16 logos with an unpredictable color that were shown to group 1, arranged by product category.*

Water

Cheese

Ketchup

Tangerines

Appendix 5 - Predictable logos

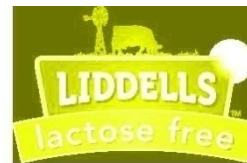*An overview of the 16 logos with a predictable color that were shown to group 2, arranged by product category.*

Water

Cheese

Ketchup

Tangerines