



The value of color:

The impact of logo color on perceived consumer value.

Helena von Kempis

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Abstract

Title: The value of color: The impact of logo color on perceived consumer value

Author: Helena von Kempis

Color has extensive psychological and physiological effects, which have been studied in the fields of marketing as well as psychology. Establishing a connection between logo color and consumer perceived value is a new concept that might show important effects. The color of a corporate logo may have a significant impact on how consumers perceive the quality of the product and brand. This thesis gives an overview of existing research on both color as well as consumer perceived value before elaborating on an experimental study testing the effect of three different logo colors (red, green, and blue) on consumer perceived value, using an academically developed scale on the concept. The results reveal a statistically significant effect of logo color on consumer perceived value, showing that a red logo has a negative impact whereas blue has a positive effect.

Keywords: Color, Color effects, Color psychology, Value, Consumer perceived value

Sumário

Título: O valor da cor: O impacto da cor do logótipo no valor percebido pelo consumidor

Autor: Helena von Kempis

A cor tem vários efeitos psicológicos e fisiológicos que têm sido estudados nos campos do marketing, bem como da psicologia. Estabelecer uma ligação entre a cor do logótipo e o valor percebido pelo consumidor é um novo conceito que pode mostrar efeitos importantes. A cor do logótipo de uma empresa pode ter um impacto significativo na forma como os consumidores percebem a qualidade do produto e da marca. Esta tese dá uma visão geral da investigação existente tanto sobre a cor como sobre o valor percebido pelo consumidor antes de elaborar um estudo experimental testando o efeito de três cores diferentes (vermelho, verde e azul) do logótipo sobre o valor percebido pelo consumidor, utilizando uma escala academicamente desenvolvida sobre o conceito. Os resultados revelam um efeito estatisticamente significativo da cor do logótipo no valor percebido pelo consumidor, mostrando que um logótipo vermelho tem um impacto negativo enquanto que o azul tem um efeito positivo.

Palavras-chave: Cor, Efeitos de cor, Psicologia da cor, Valor, Valor percebido pelo consumidor

Table of Contents

1.	Introduction.....	1
1.1	Problem Statement	2
1.2	Relevance.....	3
1.3	Structure.....	3
2.	Literature Review	4
2.1	Color	4
2.1.1	Color Perception.....	4
2.1.2	Primary Colors.....	5
2.1.3	Color in Psychology.....	5
2.1.4	Color in Marketing.....	6
2.1.5	Logo Color	7
2.2	Value and consumer perceived value	7
2.2.1	Value definitions.....	7
2.2.2	Axiology.....	8
2.2.3	Consumer perceived value (CPV)	8
2.2.3.1	Definitions	8
2.2.3.2	Theoretical Approaches to CPV	8
2.2.3.3	Background of Sweeney and Soutar	9
2.2.3.4	Sweeney and Soutar’s CPV scale	9
2.3	Hypothesis development.....	10
3.	Methodology.....	11
3.1	Research Strategy and Design.....	11
3.2	Participants.....	12
3.3	Materials and Procedure	12
4.	Results	13
4.1	Scale Reliability	13
4.2	Descriptive Statistics	13
4.3	Hypothesis Testing	14

5.	Final Discussion.....	16
5.1	Summary of study results	16
5.2	Implications.....	17
2.3	Limitations and Future Research.....	18
6.	Conclusion	20
7.	References.....	21
	Appendix	24

1. Introduction

Color matters. A company's logo does not only impact customers by its shape and written information (Foroudi et al., 2017): The simplest basis of its design, its color, is a critical part of capturing the interest of consumers and communicating with them (Foroudi et al., 2017).

In the past, studies have researched the various impacts of logo and brand color, as well as design, on the consumer, such as perceived eco friendliness (Ranaweera et al., 2020), brand loyalty (Jin et. al. 2019), and consumer behavior (Ruzbeh & Lois, 2020). But what effect may color have on consumer perceived value? Do different colors invoke different feelings of value in customers? This thesis will try to answer these questions or, more specifically, the question: Does logo color have an impact on consumer perceived value?

To research the impact of logo color on consumer perceived value, one must first understand the meaning of the terms value and consumer perceived value. Value is a concept that has been proven hard to define (Perry, 1914). Neap and Celik's (1999) definition of the term might give a somewhat clear idea: "the owner(s)/buyer(s)' desire to retain or obtain a product" (p.181).

This thesis, however, deals with a more concrete concept of value, the concept of consumer perceived value. This term has been defined as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p.14). It is a concept that has been studied intensely in the field of marketing (Chi & Kilduff, 2011) and several researchers have proposed models to measure it. The model deemed most suitable for this analysis is the one derived from Sweeney and Soutar's (2001) multiple item scale. Sweeney and Soutar (2001) defined four value types when it comes to perceived consumer value: quality (meaning the utility derived from the perceived quality and expected performance of the product), price (meaning the utility derived from the product due to the reduction of its perceived short term and longer-term costs), social (meaning the utility derived from the product's ability to enhance social self-concept), and emotional (meaning the utility derived from the feelings or affective states that a product generates). These value types will be the basis of this thesis' study, since this model offers a sense of multidimensionality that makes for a more well-rounded image of consumer perceived value. Multiple value dimensions have been shown to be better suited to explain consumers' decision making than the simple idea of a financial equivalent (Sweeney & Soutar, 2001). The purpose of this study is to measure the

impact of color perception on these value types individually and as well as the impact on the entire concept of perceived consumer value.

The human decision-making process is constantly impacted by color decisions (Elliot & Maier, 2014). It is therefore understandable that color might be given a high level of importance in marketing. For instance, Igloo products took advice from a color specialist to develop a colored product line of coolers. A significant increase in sales of 15% was considered to be the result of these new colored coolers (Grossman & Wisenblit, 1999). It is therefore eminent that color has always played a critical role in marketing. Color plays such a vital role in marketing because consumers make decisions within 90 seconds after first interacting with a product (Ranaweera & Wasala, 2020). According to Singh (2006), 62-90% of the decision-making process, from obtaining to retaining a product, is based on color. This is greatly due to the fact that most colors are associated with emotions. Firms use this information to portray themselves in a certain way. For example, companies wanting to be perceived as young and vibrant may use bright colors as opposed to those wishing for a more sophisticated feel, who therefore may choose darker colors (Cunningham, 2017). But does the color of a firm's logo have an actual impact on the value consumers allocate to said firm's products?

1.1 Problem Statement

To relate the concepts of brand value and color with each other, I will study the impact of several, differently colored, logos on a research sample. I will use a model derived from the research conducted by Sweeny and Soutar in 2001 as a base for this study. As already touched on in the introduction, Sweeney and Soutar (2001) found four dimensions or types of value when constructing their multiple item scale of perceived consumer value. The scores of the four dimensions are derived based on several items. The impact of color on these items will be measured in order to answer the question: Does logo color have an impact on consumer perceived value? This question is further broken down into the following research questions:

RQ1: Does the color red in a logo impact consumer perceived value?

RQ2: Does the color blue in a logo impact consumer perceived value?

RQ3: Does the color green in a logo impact consumer perceived value?

This thesis will attempt to answer these research questions by conducting an experimental study consisting of a survey given to a large sample of test subjects.

Table 1

Sweeney and Soutar's 19 item scale

Quality	Emotional	Price	Social
has good quality	is one that I would enjoy	is reasonably priced	would help me to feel acceptable
is well made	would make me want to use it	offers value for money	would improve the way I am perceived
has an acceptable standard of quality	is one that I would feel relaxed about using	Is a good product for the price	would make a good impression on other people
would <i>not</i> last a long time	would make me feel good	would be economical	would give its owner social approval
would perform consistently	would give me pleasure		

1.2 Relevance

This thesis aims to add to the existing research about the impact of color on the consumer by testing its specific impact on consumer perceived value. Reviewing existing literature has shown a gap in research when it comes to the impact of color on consumer perceived value that this thesis aims to close. The research obtained by this study will be valuable not only for future marketing and psychology research, but it can also be of help to firms trying to convey a certain image of their product and brand. Firms may decide whether to use a different color for their logo or stick to their existing logo after researching the associations their customers have to that color. The conclusions drawn from this research might also serve as an inspiration for further research on the topic, leading to more studies that might include more colors or different aspects of color.

1.3 Structure

After this brief introduction, a literature review will explain the two variables forming the research question of this study and give insight to the research that has been conducted on them in the past. The first part of the literature review is dedicated to the topic of color and its importance to the field of marketing. It starts by providing a brief overview of the history of color research and the scientific background of human color perception and goes on to clarify what are known as the primary additive colors (red, green, blue) and their specific properties.

Finally, I explain some of the research done in the field of marketing on the role played by color and, specifically, the importance of logo color in several concepts of marketing. Second, it explains the theoretical background behind the concepts of value and perceived consumer value. To provide a clear overview of the topic, this part of the chapter starts by giving some definitions of the term value as well as explaining the science of axiology (i.e., the study of value) and its main theories. I then move on to the more concrete term perceived consumer value, its definitions, and the theoretical approaches to the concept so far. The chapter ends with an overview of Sweeny and Soutar's (2001) framework, which will build the base for the following quantitative study.

Following the literature review, a methodology chapter will delineate the research design, as well as provide a description of the participants who took part in the study and the procedure with which the data was collected. Subsequently, I will analyze the data obtained in the study and discuss the results of said analysis. Finally, the main conclusions drawn from the study will be presented.

2. Literature Review

2.1 Color

2.1.1 Color Perception

The concept of color has been contemplated for thousands of years (Elliot, 2015). For the last 2500 years, great minds like Goethe and Newton have attempted to build a bridge between the physical and psychological side of color (Mausfeld & Heyer, 2003). A revolutionary breakthrough in the field of color research was achieved in 1671 by Sir Isaac Newton (Crone, 1999). He discovered, when shining white light through a glass prism, that he was able to break the light up into 7 individual colors: red, orange, blue, yellow, green, indigo, and violet (Mollica, 2013). This experiment proved that color is a property of light and not of objects (Crone, 1999) and built the base for today's understanding of color (Mollica, 2013). Today, color can be defined as light that travels on wavelengths and is absorbed by the eyes and brain to create the colors we perceive (Singh, 2006). Therefore, there would be no color perception without light (Bleicher, 2012).

Bleicher (2012) differentiates between sensation (response to a visual stimulus of light) and perception (the interpretation of said stimulus) when it comes to the process of human color perception. The eye receives the sensation as light traverses the cornea, aiding in focusing the

light waves. The light then travels through the fluid-like aqueous humor and continues through the lens before contacting the retina (Bleicher, 2012). The part of the eye that is responsible for the actual reception of color information is the photoreceptor layer of the retina, which is made up of rods (more than 100 million per eye) and cones (about 6 million per eye). Rods can only make out light and dark, they have no means to process color information, whereas cones are responsible for all color reception (Bleicher, 2012). There is no definite answer as to how cones process colors, the leading theory being the trichromatic theory, which posits that there are three types of cones, each responsible for receiving a different wavelength of light: blue-violet for short range, green for middle range, and red for the longest wavelengths (Bleicher, 2012).

Bleicher (2012) names several forms of limited color reception, or color deficiency, the most extreme and most rare being monochromatism. Monochromatic people only possess one kind of cone, which means they can only make out shades of gray. Dichromatic color deficiency is much more prevalent, especially in men. Here, the person only has two types of cones, leading to them having difficulty telling apart opponent colors like red and green or blue and yellow. Other origins of vision loss or loss of color receptions are diabetes, vitamin B12 deficiency as well as old age (Bleicher, 201).

2.1.2 Primary Colors

As mentioned above, Newton's experiment revealed that white light can be broken down into 7 colors (Mollica, 2013). In fact, the human eye is able to differentiate between more than 18,000 colors (Yang et al., 2005). The leading theory is that all colors perceived by the human eye are combinations of the three so called primary additive colors, red, green and blue (RGB) (Wegman & Said, 2011). Blending these primary colors together produces the additive secondaries or subtractive primaries. Yellow appears when red and green are blended evenly, while cyan appears when blue and green are blended equally, and magenta is the result of red and blue blended together. Finally, white is produced by evenly blending all three hues. The majority of colors can be created by carefully combining red, green, and blue of varied strengths (Wegman & Said, 2011).

2.1.3 Color in Psychology

There has been surprisingly little theoretical research conducted on color in the context of psychology to date, considering that with every visual stimulus we process color information (Elliot et al., 2007). However, there are some researchers who have dedicated themselves to studying the psychological effects colors have on human beings.

Hill and Barton (2005) posit that for both human and non-human animals, the reddening of skin correlates with male dominance and testosterone. In humans, higher blood flow and the consequent red coloration of the skin is associated with anger and can therefore be linked to dominance and aggression. Hill and Barton (2005) go on to theorize that the use of synthetic red, for example wearing a red t-shirt during a sporting match, can be construed as a symbol of dominance and result in a competitive advantage (Elliot, 2015; Hill & Barton, 2005).

M. Changizi (2009) and M. Changizi and collaborators (2006) presented similar results, showing that trichromatic vision allows primates, including humans, to recognize minute variations in the blood flow beneath the skin that contain crucial information about the emotional state of other members of their species.

Elliot and collaborators (2007) put forth a theory based on the premises that color does not just carry aesthetic meaning but also specific information and that color meanings come from learned associations as well as biological inclinations. This color-in-context theory states that human animals have the ability to apply color associations not only to bodily processes as the above-mentioned blood flow, but also external objects such as clothes on the body (Elliot et al., 2007), making each person's psychological interpretation completely individual.

2.1.4 Color in Marketing

As mentioned in the previous section, colors are interpreted individually, making it difficult to apply one strategy of color use to the whole population (Elliot et al., 2007; Singh, 2006). An important concept when trying to understand the importance of colors in marketing is associative learning. Associative learning means that consumers' color preferences are based on associations developed through experiences (Grossman & Wisenblit, 1999). This concept is in accordance with Elliot and collaborators' (2007) color-in-context theory in that it posits that colors can have distinctive meanings to people depending on the situational context and the experiences they have made with the respective color (Grossman & Wisenblit, 1999).

With associative learning as a background, there are some theories as to the physiological responses some colors may trigger (Grossman & Wisenblit, 1999). A consensus shared by many researchers is that cool colors like blue and green are considered to have a calming effect, whereas warm colors like red tend to be exciting (Grossman & Wisenblit, 1999). In retail, blue and green colors are often associated with outdoor or sporting goods, whereas red may not be perceived as an appropriate color in this area (Grossman & Wisenblit, 1999). These examples show that there are a lot of different interpretations of color depending on the context.

2.1.5 Logo Color

Companies have been using logos for decades to distinguish their products or services from those of their competitors (Foroudi et al., 2017). Logos are considered to be a key part of corporate identity and the best-organized management tool for communicating desired characteristics of firms to stakeholders (Foroudi et al., 2017). (Foroudi et al., 2017) define four dimensions that make up a corporate logo: typeface, color, design, and name. As this thesis researches the impact of logo color, this is the dimension in focus for this section.

Aslam (2006) states that, incorporated into corporate and commercial communications, color serves as a communication tool that elicits emotions and moods, affects consumer perceptions and behavior, and positions or distinguishes businesses from their rivals.

There have been several studies conducted to test the impact of logo color on various marketing situations. (Hynes, 2009) studied the relationship between logo color and corporate identity and concluded that certain colors were strongly associated with certain attributes (i.e. red was associated with stability, blue with security, and green with fun). In a study conducted by (van Grinsven & Das, 2016) it was shown that logos with a higher color exposure (i.e. stronger color) led to higher brand recognition. Sundar and Kellaris' (2017) work posits that logo color has an impact on consumers' ethical judgement of retailers. The authors derive that the colors blue and green evoke feelings of eco-friendliness and that retailers using these colors were rated more ethical than retailers using different colors, even though both retailers showed ethically ambiguous behavior.

2.2 Value and consumer perceived value

2.2.1 Value definitions

The concept and term of value is not easy to define (Perry, 1914). Perry (1914) has described value as indefinable but offered some relational descriptions of the term: 1) In relation of harmony and fitness, meaning something is of value if it is good or fit for something; 2) In relation to goodness, meaning that the value of something is reliant on its being perceived as "good".

In a more concrete sense, the value of a product has been defined as "the owner(s)/buyer(s)' desire to retain or obtain a product" (Neap & Celik, 1999, p.181). Along this line of thought, another definition of the term value is the relation between function and cost of a product, giving way to the popular concept of value for money (Neap & Celik, 1999b). Applying the concept to the fields of marketing and management, Bowman and Ambrosini,

(2000) relate value to a firm's given resources and thereby assuming the resources to be the source of a firm's value.

2.2.2 Axiology

Axiology, derived from the Greek words *axía*, meaning worth, and *logos*, meaning reason, (Hart, 1971) is the study of value(s) or value theory (Hirose & Olson, 2015). It is a relatively new philosophical discipline, the term being first introduced in the beginning of the 20th century (Hart, 1971). It overlaps with several other philosophical studies such as metaethics and normative ethics and is closely associated with consequentialist theories of moral rightness or wrongness (Hart, 1971). Axiology also finds importance in economics, as the two fields share several points of interest (Hirose & Olson, 2015).

2.2.3 Consumer perceived value (CPV)

2.2.3.1 Definitions

Consumer Perceived Value (CPV) is a concept that has been increasingly studied in the past twenty years (Chi & Kilduff, 2011b). Like value itself, CPV has been proven difficult to define as it is an abstract concept (Morar & Dumitrelea, 2013). However, several researchers have taken it upon themselves to give clarity to the term. This section will name those definitions deemed most important for the purpose of this thesis.

Zeithaml (1988) defined consumer perceived value as “the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (p. 14). Another definition of CPV is the perception of what will be received for a certain financial investment by the consumer (Kainth & Verma, 2011), a more pragmatic, “value for money” description of the concept. However, Kainth and Verma stress that CMV in this context does not only concern the physical product that was purchased. There are more factors that weigh into CPV than just the monetary sacrifice made by the consumer. While price remains one of the most important measures for CPV (Morar & Dumitrelea, 2013), Monroe (1990) for instance, views CPV as the benefits or quality received by the customer when purchasing a product or service in relation to the perceived sacrifices made by paying for it.

2.2.3.2 Theoretical Approaches to CPV

Sánchez-Fernández and Iniesta-Bonillo (2007) name two research streams on consumer perceived value: unidimensional and multidimensional. The former represents research that

views CPV as a one-dimensional concept, measured by “a self-reported item (or set of items) that evaluates the consumer’s perception of value” (Sánchez-Fernández & Iniesta-Bonillo, 2007, p.430). Researchers of the latter stream see CPV as a multidimensional construct consisting of many interrelated attributes, forming a more holistic view of the concept (Sánchez-Fernández & Iniesta-Bonillo, 2007).

2.2.3.3 Background of Sweeney and Soutar

The study conducted in this thesis is based upon Sweeney and Soutar’s (2001) multiple-item scale. The authors created their model by adapting the framework proposed by Sheth and collaborators (1991) which posited that there were five consumption values impacting consumer choice: functional, social, emotional, epistemic, and conditional value. Sheth and collaborators’ (1991) work is based on three propositions: 1) Consumer choice is a function of multiple consumption values (as mentioned above). 2) The consumption values make differential contributions in any given choice situation. This means that choices (brand, product type, product class) are influenced by completely different consumption values. 3) The consumption values are independent, meaning that the individual consumption values may positively or negatively impact a choice. The authors defined the value dimensions in the following ways. The functional value is “the perceived utility acquired from an alternative’s capacity for functional, utilitarian, or physical performance“ (p.160). The social value is „the perceived utility acquired from an alternative’s association with one or more specific social groups“ (p.161). The emotional value is „the perceived utility acquired from an alternative’s capacity to arouse feelings or affective states“ (p.161).The epistemic value is “the perceived utility acquired from an alternative’s capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge“ (p.162). Finally, the conditional value is defined as “the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker“ (p.162).

2.2.3.4 Sweeney and Soutar’s CPV scale

Sweeney and Soutar viewed Sheth and collaborator’s (1991) work to be the strongest foundation for their consumer perceived value scale, arguing however, that the functional value dimension (which in Sheth and collaborators’ 1991 work consisted of both the price and the quality component) should be split into a price and a quality dimension, as previous research had shown that these two factors had different effects.

Consequently, Sweeney and Soutar (2001) went on to develop their own model, starting by creating focus groups to gain insight into what consumers thought about consumption value, in order to come up with an initial set of items. As a result of this initial exploration, the authors were left with a large sample of items, which were then further evaluated by academic judges to reduce the number of items to only those who fit the dimensions proposed by Sheth and collaborators (1991). Finally, the initial set of items consisted of 34 functional items (17 quality, 15 price), 29 social, and 22 emotional. None of the identified items related to the epistemic or the conditional value dimension.

The authors went on to conduct two stages of data collection in order to reduce the number of items even further and create a final scale. With the collected data, they were able to propose the following four value dimensions:

- i. Emotional value: utility derived from the feelings or affective states that a product generates.
- ii. Social value: the utility derived from the product's ability to enhance social self-concept.
- iii. Functional value (price/value for money): the utility derived from the product due to the reduction of its perceived short term and longer-term costs.
- iv. Functional value (performance/quality): meaning the utility derived from the perceived quality and expected performance of the product.

This final scale consisted of 19 items and was tested for its reliability and validity in an additional data collection. Here, the scale was tested in an after-purchase context. The tests of validity and reliability showed that consumers evaluated products not just in a matter of value for money, but also in a sense of enjoyment and pleasure as well as social implications.

2.3 Hypothesis development

As previously stated, associative learning leads to different color connotations and preferences for different people (Grossman & Wisenblit, 1999). The hypothesis development for this thesis was based upon marketing research connecting the respective colors to associations and interpretations shared by a large sample of people, leading to the conclusion that these connotations are prevalent in the population.

The color red has been linked to feelings of arousal, dominance, and aggression (Hill & Barton, 2005). As Sweeney and Soutar's (2001) emotional dimension of value includes terms like relax and pleasure, one could posit that the color red might have a negative impact on this dimension. It could also negatively affect the social value dimension, as this part of the scale

involves items such as acceptance, social approval, and good impression on other people. The negative impact on these value dimensions can lead to a decline of the consumer's perceived value of the product. It is for these reasons that I derived the following hypothesis:

H1: Consumer perceived value is negatively impacted by the presence of the color red in a logo.

The color blue has been shown to have a calming effect on people. (Mehta & Zhu, 2009) found that blue also has a positive effect on creativity. Using blue in stores and on websites has been proven to draw more customers, as they are perceived as more relaxing and trustworthy (Elliot & Maier, 2014). These affiliations may have a positive effect on the quality as well as the emotional value dimensions, which could possibly lead to an overall positive effect on consumer perceived value. This led to the development of the following hypothesis:

H2: Consumer perceived value is positively impacted by the presence of the color blue in a logo.

The color green has been found to have a motivational impact on people, as concluded by Akers and collaborators (2012). It is also universally linked to environmentally conscious consumption (Labrecque, 2020) as it is associated with nature (Kaya et al., 2004). It is probable that such connotations lead to a significant positive impact on the social value dimension, which in turn would positively affect the overall consumer perceived value. Therefore, I proposed the following and final hypothesis:

H3: Consumer perceived value is positively impacted by the presence of the color green.

3. Methodology

3.1 Research Strategy and Design

The data used in this quantitative study was derived from an online survey created with Qualtrics. The survey was distributed via social media (Facebook, Instagram, and Reddit) as well as Pollpool, an online community dedicated to sharing and filling out surveys in order to get a large sample of participants. These means were used to reach a large part of the general population. The goal of the study is to gain data that supports a causal relationship between the independent variable (logo color) and the dependent variable (consumer perceived value).

3.2 Participants

As the goal of the study is to gain insight into the general population, no participants were excluded from the study because of their demographic background. The only reason for exclusion was the failure to correctly fill out the attention check built into the survey. The survey was distributed via several social media platforms with the goal of reaching a total of $N > 90$ participants, as Wilson Van Voorhis and Morgan (2007) recommend a sample size of 30 participants per cell for analyses measuring group differences. Their recommendation applies to this study, although each participant answered question for each group of questions (blue, green, red) as the results would be compared with each other. There was a total of 177 answers to the survey. From the original 177 participants, 41 were excluded because they did not finish the survey. A further 35 were excluded because they did not correctly fill out the attendance check. This left a valid sample of 101 participants. Of those participants, 42.6% were female, 52.5% were male, 2% stated “other” and a further 4% preferred not to say. The average age of the sample was 32.42 ($SD = 11.39$) and 99% stated that they were not colorblind or red-green blind. In terms of nationalities, 42% of participants were from Germany, 9.9% from Portugal and 6.9% from the USA. The rest of the sample was made up of 23 different countries. Finally, 74.3% of the participants stated that they had worked in the fields of marketing or psychology and the favorite colors were ranked in the following order: blue (1.78), red (1.96), green (2.26).

3.3 Materials and Procedure

The survey used in this study collected data by randomly showing participants one out of three logos. The logos were shown in a random color (one out of three colors) and shape (one out of three shapes) combination to control for biases when it comes to certain shapes. In accordance with the literature review, the choice of colors fell to the three additive primary colors, red, blue, and green. A study using more secondary colors such as violet, orange, and yellow within the limited realm of this thesis would be ill-advised, as the survey would have become too large and it would have been difficult to find enough participants to fill it out.

The logos used in the survey were taken from Henderson and Cote’s (1998) paper, providing guidelines for selecting or modifying logos as well as some sample logos. The three logos used were low-investment logos, meaning they invoke false recognition (people falsely believing they have seen the logo before) as well as positive affect (positive emotional reaction). These logos were chosen because they seemed realistic without making participants associate them to existing brand logos. To ensure that participants did not link the logos to any existing

brands, they were asked three questions in accordance with Kent and Allen's (1994) brand familiarity scale. I manipulated only the color of the logos using image editing software while not changing the shape (view table 2 in the appendix)

Participants were first asked to imagine and write down a product, any product, that they would like to buy. They then answered a series of questions pertaining to each item of each value type defined by Sweeney and Soutar (2001) on a 7-point Likert scale. Furthermore, participants were asked to list their three favorite colors in order to control for color biases, as well as stating their age, gender, city of origin, whether they were colorblind, and whether they had ever worked in the fields of marketing or psychology. The full survey can be found in Appendix 2

4. Results

4.1 Scale Reliability

As this thesis relies on Sweeney and Soutar's (2001) consumer perceived value scale, it was deemed appropriate to test the reliability of the scale. This was done by analyzing Cronbach's alpha. Cronbach's alpha for all items together was $\alpha = 0.96$, which can be considered excellent. I also calculated Cronbach's alpha for the four individual dimensions, the value for the 6 items of the quality dimension being $\alpha = 0.83$, for the 5 items of the emotional dimension $\alpha = 0.97$, for the 4 items of the price dimension $\alpha = 0.87$, and for the 4 items of the social dimension $\alpha = 0.95$.

4.2 Descriptive Statistics

Most of the demographic information of the sample was already provided in the participants section (see Section 3.2). Further notable descriptive statistics were conducted to get insight on other control variables.

First, I looked into the items that participants had in mind when filling out the survey. I manipulated the data in order to rank the items in the following way: 1) All items that were written in lower case were changed to start with a capital letter (e.g., "shoes" → "Shoes"), 2) All items that clearly belonged to a certain product group were changed to fit said group (e.g., "Boning knives" → "Knives"). A list of the original and the changed items can be found in Appendix 3. The top items participants had in mind were "Shoes" (8.9%), "Car" (6.9%) and "Purse" (5.9%).

Furthermore, I ran descriptive statistics in order to view how familiar, knowledgeable, and experienced the participants were with the logos they were shown (the favorable outcome here would be as unfamiliar/not knowledgeable and inexperienced as possible, as this would mean that the logos were realistic according to (Henderson & Cote, 1998), however not linked to specific brands known by the participants). The mean of participants being familiar, knowledgeable, and experienced (1 meaning yes, 2 meaning no) was in all three cases 1.94. The standard deviation for the items familiar and knowledgeable were 0.20 and the standard deviation for experienced was 0.21.

The mean result (regardless of color) of the questions pertaining to Sweeney and Soutar's (2001) quality dimension of value was 4.49 ($SD = 0.643$). The emotional dimension presented a mean of 3.90 ($SD = 1.16$), the price dimension had a mean of 4.06 ($SD = 0.88$), and the social dimension one of 3.83 ($SD = 1.41$). The overall mean of all items on the scale was 4.07 ($SD = 0.91$).

4.3 Hypothesis Testing

As the goal for this analysis was to compare the impacts of the three different colors on consumer perceived value according to Sweeney and Soutar's (2001) scale, it was determined that a one-way repeated measures ANOVA would be an appropriate testing measure. Using ANOVA on repeated measures data is a way to compare different means that were produced by the same participants (e.g., 101 participants answer questions about consumer perceived value in three different color scenarios) (Field, 2009). The following tests were executed and reported as suggested by Field (2009).

The one-way repeated measures ANOVA was performed five times, once with the dependent variable being consumer perceived value overall and the independent variables being consumer perceived value of each color (blue, green, red) and once for each value dimension being the dependent variable (quality, emotional, price, social) and the color options (blue, green, red) being the independent variables .

I first ran a one-way repeated Measures ANOVA with three levels, using CPVBlue, CPVGreen and CPVRed as within-subject factors. The results indicated that consumer perceived value was significantly impacted by the type of color, $F(1.79, 178.60) = 4.39, p = 0.014$ Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(5) = 12.64, p = 0.002$, therefore multivariate tests are reported ($\epsilon = .98$). The results also showed

that the consumer perceived value was significantly affected by the color shown, $V = 0.073$, $F(2, 99) = 3.91, p < .05, \omega^2 = .073$.

Pairwise comparisons revealed that the color red significantly lowered the CPV mean by 0.24, $p = 0.018$ in comparison to the color blue. However, the mean difference between blue and green as well as red and green was not statistically significant. A subsequent one-way repeated measures ANCOVA, using the same three levels and adding the covariates country, marketing or psychology experience, colorblindness status, age, gender, ranking of each of the favorite colors revealed that none of the control variables had any statistically significant effect.

The second analysis conducted was once again a one-way repeated measures ANOVA, this time using QualityBlue, QualityGreen and QualityRed as within-subject factors. The results indicated that the quality dimension was significantly impacted by the type of color, $F(2, 200) = 3.26, p = 0.041$. Pairwise comparisons revealed that the color red significantly lowered the Quality mean by 0.241, $p = 0.041$, in comparison to the color blue. However, the mean difference between blue and green as well as red and green was not statistically significant.

A third one-way repeated measures ANOVA, conducted using EmotionalBlue, EmotionalGreen and EmotionalRed as within-subject factors, revealed that color did not have a statistically significant effect on the emotional dimension, $F(2, 196) = 0.99, p = 0.372$. The same conclusion could be drawn for the price dimension from a fourth one-way repeated measures ANOVA, this time using PriceBlue, PriceGreen and PriceRed as within-subject factors, $F(2, 198) = 3.05, p = .05$. The p in this case was right at the significance level, however further examination of the pairwise comparisons showed that no mean-difference was statistically significant, all $ps > .05$. Lastly, the effect of color on the Social dimension (again measured by running a one-way repeated measures ANOVA with SocialBlue, SocialGreen and SocialRed as within-subject factors) also proved to not be statistically significant, $F(1, 97) = 3.35, p = 0.07$.

All one-way repeated measures ANCOVAs run for these analyses by using the above mentioned covariates produced no significant effects of the control variables.

It can therefore be concluded that, for the first hypothesis (i.e., consumer perceived value is negatively impacted by the presence of the color red in a logo), H1 was supported, as the data shows that the color red negatively impacts the mean of overall consumer perceived value as well as the mean of the Quality dimension of consumer perceived value in a statistically significant way. H2 (i.e., consumer perceived value is positively impacted by the presence of the color blue in a logo) is supported as well, as the data indicates that the consumer perceived value mean is significantly higher when the logo is blue, both in the Quality dimension as well

as in the overall consumer perceived value. H3 (i.e., consumer perceived value is positively impacted by the presence of the color green in a logo) is not supported, as there are no statistically significant effects shown to support it.

5. Final Discussion

5.1 Summary of study results

The aim of this thesis was to determine whether color has a significant impact on consumer perceived value. The literature review discussed several ways in which the impact of color had been studied in marketing, however there was a lack of research concerning color in combination with consumer perceived value, especially in accordance with Sweeney and Soutar's (2001) consumer perceived value scale. I selected the three additive prime colors red, blue, and green (Wegman & Said, 2011) to use in an experimental study. The study was conducted with data collected in a survey where participants answered questions pertaining to Sweeney and Soutar's (2001) framework on perceived consumer value three times, each time viewing a logo in one of the three prime colors.

There were three hypotheses tested with the data collected in the survey. It is important to note that while the stated hypotheses are written in absolute terms, the analysis of the data shows a relational impact (i.e. one color has a positive impact in relation to the other colors). H1 proposed that the presence of the color red in a logo would have a negative impact on consumer perceived value. This hypothesis was accepted, as statistical tests on the data collected in the survey revealed that the color red did lead to lower overall consumer perceived value in comparison with the color blue. Analysis at the dimension level found it negatively impacted the Quality dimension of consumer perceived value defined by Sweeney Soutar (2001), again in comparison with the color blue. This hypothesis was largely based on the assumption that the color red can evoke feelings of anger and aggression (Hill & Barton, 2005) and, therefore, negatively impact the Social as well as the Emotional dimension of consumer perceived value. The data analyses could not prove a statistically significant impact on the Social as well as the Emotional dimension. However, they showed an unexpectedly significant negative impact on the quality dimension. As red can be linked to evoking excitement and anger (Grossman & Wisenblit, 1999), a reason for the negative impact on the Quality dimension might be that consumers do not perceive a red logo as calming and trust evoking, leading to a decline in consumer perceived value.

H2 posited that the presence of the color blue would have a positive impact on consumer perceived value, as its connotation to calmness as well as creativity (Mehta & Zhu, 2009) might positively impact the Quality as well as Emotional value dimensions. After conducting statistical tests on the collected sample data, H2 was accepted, because while the analysis did not show a significant impact on the Emotional value dimension, it did show that the Quality dimension of consumer perceived value defined by Sweeney and Soutar (2001) as well as the overall consumer perceived value was positively affected by the color blue in a statistically significant way, in comparison with the color red. A reason for this outcome might be that blue is a color that has been shown to evoke feelings of trust and quality (Elliot & Maier, 2014). This could mean that a large part of the general population sees blue as a color that is associated with quality. Logos in this color might therefore be associated with quality products and brands that consumers can trust, leading to a generally higher perception of perceived consumer value.

H3 assumed that the presence of the color green in a logo positively impacted consumer perceived value. It was based on research proving that green can have a motivational impact on people (Akers et al., 2012), as well as its association with nature and environmental consciousness (Labrecque, 2020), leading to the hypothesis that a green logo might significantly impact the Social dimension of value. This hypothesis was not supported, as no statistically significant impact of the color green on any of the value dimensions and, in consequence, overall consumer perceived value could be shown, in comparison with both red and blue. Reasons for this lack of effect might be explained when considering the limitations of this study, as further discussed in Section 5.3.

The hypotheses were proposed and tested in order to answer three research questions:

RQ1: Does the color red in a logo impact consumer perceived value?

RQ2: Does the color blue in a logo impact consumer perceived value?

RQ3: Does the color green impact in a logo consumer perceived value?

Both RQ1 and RQ2 can be affirmed, as the results have shown that both the color red and the color blue impact consumer perceived value when used in a logo. RQ3 cannot be conclusively answered, as the results have not shown any significant effect of the color green on consumer perceived value. However, this does not mean that no effect exists – further studies might produce different results (see Section 5.3). As two out of three research questions could be positively answered, I conclude that logo color does have an impact on perceived consumer value, answering my original overall research question.

5.2 Implications

Although not all hypotheses could be accepted, this study shows that color does have a significant effect on consumer perceived value, which can be seen as a contribution both to the study of color in marketing as well as the study of perceived consumer value. As the effect of logo color had not yet been studied in relation to Sweeney and Soutar's (2001) framework on consumer perceived value, it presents a new field of research and a valuable addition both to the fields of psychology as well as marketing. It can also be derived that the study can be of use to academics wanting to use Sweeney and Soutar's (2001) scale for their research, as the scale has been shown to be statistically fit to be use as base for comparative studies.

Even though this study did not produce conclusive results on all three prime colors, it did show that consumer perceived value is affected by color. Managers should stay updated on current research concerning the topic of this study, as new results might reveal even more information on different color effects. This study also suggests implications for firms struggling with consumer satisfaction and wanting to analyze how they can improve the consumer's perceived value of the firm. Knowing that logo color does in fact affect consumer perceived value could lead to important information being collected on how consumers perceive the brand and whether the value that they assign to the firm and its products might be increased by a potential change in logo color. As the impact of color on consumer perceived value might be due to associative learning, it might be advised for managers to keep informed about the associations their consumers have to specific colors as well as specific logo shapes. This might be achieved by regular customer surveys.

2.3 Limitations and Future Research

As most research comes with certain limitations, this study, too, is limited by certain factors. These will be discussed in order to make recommendations on further research. Although the sample derived from the participants who answered the survey was large enough to produce statistically significant results (Wilson Van Voorhis & Morgan, 2007), it is still considered to be a smaller sample which can impact the results of the study, especially since it was supposed to be a representation of the general population. The demographics of the survey are also considered to be a limitation, as participants were not excluded based on their heritage or country of residence, which means that cultural biases were not controlled for. As the impact of color on consumer perceived value might be at least partially due to associative learning, cultural background might be an important aspect to consider, since people from one culture may have distinct color associations that differ from other cultures. Also, while an experimental

study was deemed most appropriate to gain data for this thesis, it might be worth stating that there is no guarantee that each participant filled out the survey correctly and attentively until the end. Having participants write down what they remembered from the survey after completion as well as implementing an attention check in the second half of the study might help remedying this limitation.

A large limitation to be mentioned here is the fact that only the three additive prime colors red, blue and green were used in this study. Important information might be derived from comparisons between more color combinations. Also, this study only tested the effect of hue, not considering saturation or brightness, which might also be significant factors in determining the effect on consumer perceived value. Future studies might use more than one study to determine the effects of hue as well as saturation and brightness of color on consumer perceived value. I recommend further studies researching the effect of multicolored logos, as this could give insight into the impact of different color combinations on consumer perceived value, while also being a more realistic representation of corporate logos (corporate logos are not always monochrome).

Furthermore, as discussed in the literature review, a large part in the field of color research in marketing is associative learning (Grossman & Wisenblit, 1999), which means that color preferences and associations are not only due to natural inclinations but also due to personal experience. This means that each person's psychological perception of color is likely to be individual, making general conclusions about the preferences and connotations of a large group very difficult. Studies measuring individual association might be conducted by having participants choose between different words they connect to the shown color.

Another limitation was the analysis of the attention check, which proved to be somewhat complicated, as it quickly became apparent that there were a lot of missing values, even for participants who filled out the rest of the survey accurately. A conclusion could be drawn that because of the phrasing of the attendance check ("Answer 1 if you are still paying attention to the survey") participants assumed they could just skip the question, since the default answer was 1. They then moved on without clicking on the answer '1', which led to it being coded as a missing value. In consequence, I coded the missing valued for the attention check as completed. This limitation could be avoided by creating an attention check that does not require participants to check the default answer. Additionally, and as mentioned in the Results Section, the factor analysis for the consumer perceived value scale by Sweeney and Soutar (2001) produced a determinant that was lower than the recommended value.

6. Conclusion

When companies decide on the design of their logo, choosing the right color is an important part of the process (Foroudi et al., 2017). The experiment conducted in this thesis showed that one of the reasons for the importance of logo color is its impact on consumer perceived value. This thesis has contributed to research of color in the fields of marketing and psychology by proving that logo color has a significant impact on consumer perceived value. The results of this study may serve as inspiration to other academics interested in the connection between logo color and consumer perceived value, as well as other similar research topics.

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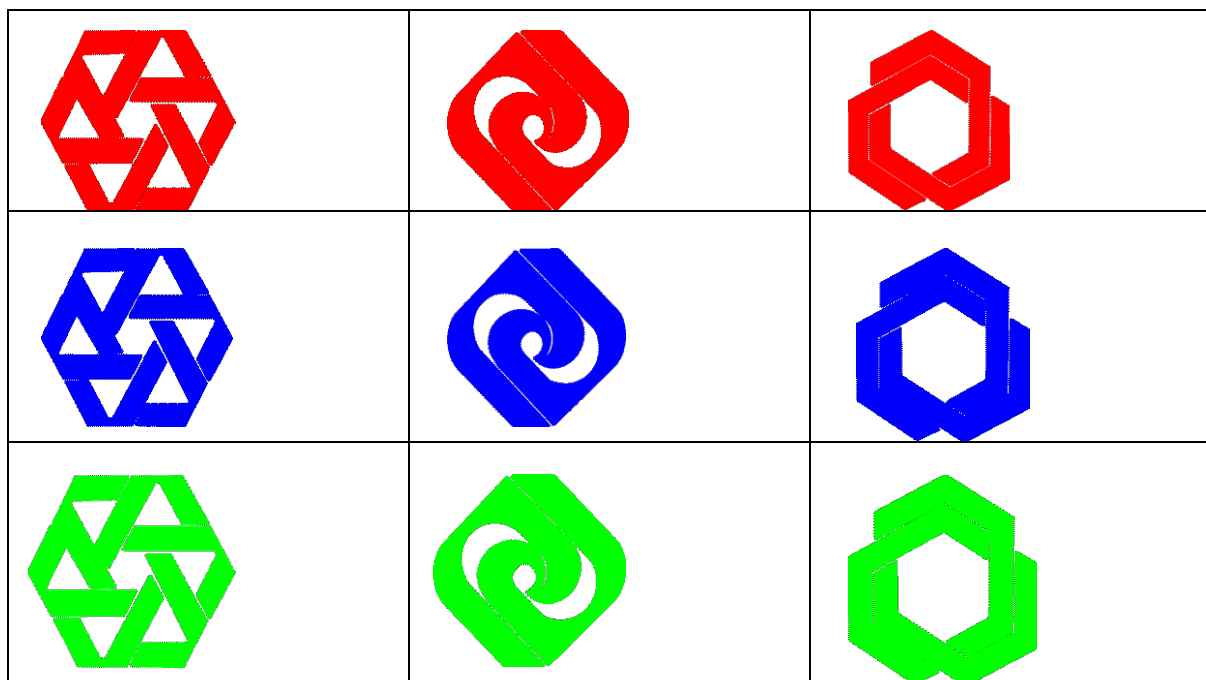
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Appendix

Appendix 1 - Logos

Table 2



Appendix 2 – Survey

- Survey Flow

Standard: Introduction 1 (1 Question) Standard: Introduction 2 (2 Questions)
BlockRandomizer: 1 - Evenly Present Elements
EmbeddedData Order = 1 EmbeddedData Order = 2 EmbeddedData Order = 3
Standard: Value Questions blue 1 (6 Questions) Standard: Value Questions blue 2 (4 Questions) Standard: Value Questions blue 3 (4 Questions) Standard: Value Questions blue 4 (4 Questions) Standard: Value Questions blue 5 (4 Questions) Standard: Value Questions green 1 (6 Questions) Standard: Value Questions green 2 (4 Questions) Standard: Value Questions Green 2 (4 Questions) Standard: Value Questions green 4 (4 Questions) Standard: Value Questions green 5 (4 Questions) Standard: Value Questions red 1 (6 Questions) Standard: Value Questions red 2 (4 Questions) Standard: Value Questions red 3 (4 Questions) Standard: Value Questions red 4 (4 Questions) Standard: Value Questions red 5 (4 Questions) Standard: Control Questions (6 Questions)

Page Break

- Survey Questions

Start of Block: Introduction 1

Introduction

Welcome and thank you for participating in this experiment. I, Helena von Kempis, am conducting this experiment as part of my Master Thesis at Católica Lisbon School of Business and Economics, under the supervision of Cristina Mendonça.

The study consists of answering to an open question and then answering some follow-up questions. The purpose is to collect data for marketing research. It will take about 10 minutes to complete. Please answer as honestly as possible. All answers will be kept strictly confidential and are anonymous. This means that there will be no way to link your responses to your identity. The data collected will be used for research purposes only. Your participation will contribute to marketing research. There are no expected side effects of participating in this study. You may drop out at any point. If you have any questions about this study, please email Helena von Kempis (s-hkempis@ucp.pt).

By continuing you agree to participate.
Thank you!

P.S.: This survey contains credits to get free survey responses at SurveySwap.io

End of Block: Introduction 1

Start of Block: Introduction 2

Imagine a Product Please imagine and write down a product you would like to. It could be something you have bought before or something you have always wanted to purchase.

Introduction2

You will now be shown a series of logos. Please imagine that the firms behind these logos are launching a new product which is the one you just imagined.

It would be great if you could answer the following questions with the first thing that springs to mind without thinking about it too much.

End of Block: Introduction 2

Start of Block: Value Questions blue 1

Display This Question:

If Order = 1

LogoBlue1

Display This Question:

If Order = 2

LogoBlue2

Display This Question:

If Order = 3

LogoBlue3

FamiliarB Regarding this logo, are you familiar/unfamiliar with the brand behind it?

Familiar (1)

Unfamiliar (2)

KnowledgeableB Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?

Knowledgeable (1)

Not Knowledgeable (2)

ExperiencedB Regarding this logo, are you experienced/inexperienced with the brand behind it?

Experienced (1)

Inexperienced (2)

End of Block: Value Questions blue 1

Start of Block: Value Questions blue 2

Display This Question:

If Order = 1

LogoBlue1

Display This Question:

If Order = 2

LogoBlue2

Display This Question:

If Order = 3







LogoBlue3

QualityB

On a scale from 1 to 7

Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Have consistent quality? ()	
Are well made? ()	
Have an acceptable standard of quality? ()	
Have poor workmanship? ()	
Would not last a long time? ()	
Would perform consistently? ()	

End of Block: Value Questions blue 2

Start of Block: Value Questions blue 3

Display This Question:

if Order = 1

LogoBlue1

Display This Question:

if Order = 2

LogoBlue2

Display This Question:







if Order = 3

LogoBlue3

EmotionalB

Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

You would enjoy? ()	
Would make you want to use them? ()	
You would feel relaxed about using? ()	
Would make you feel good? ()	
Would give you pleasure? ()	
Please answer 1 if you are still paying attention to the survey. ()	

End of Block: Value Questions blue 3

Start of Block: Value Questions blue 4

Display This Question:

if Order = 1

LogoBlue1

Display This Question:

if Order = 2

LogoBlue2

Display This Question:

if Order = 3

LogoBlue3

PriceB Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Are reasonably priced? ()	
Offer value for money? ()	
Are good products for the price? ()	
Would be economical? ()	

End of Block: Value Questions blue 4

Start of Block: Value Questions blue 5

Display This Question:
If Order = 1

LogoBlue1

Display This Question:
If Order = 2

LogoBlue2

Display This Question:
If Order = 3

LogoBlue3

SocialB Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Would help you feel acceptable? ()	
Would improve the way you are perceived? ()	
Would make a good impression on other people? ()	
Would give their owner social approval? ()	

End of Block: Value Questions blue 5

Start of Block: Value Questions green 1

Display This Question:
If Order = 2

LogoGreen1

Display This Question:

If Order = 3

LogoGreen2

Display This Question:

If Order = 1

LogoGreen3

FamiliarG

Regarding this logo, are you familiar/unfamiliar with the brand behind it?

Familiar (1)

Unfamiliar (2)

KnowledgeableG Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?

Knowledgeable (1)

Not Knowledgeable (2)

ExperiencedG Regarding this logo, are you experienced/inexperienced with the brand behind it?

Experienced (1)

Inexperienced (2)

End of Block: Value Questions green 1

Start of Block: Value Questions green 2

Display This Question:

If Order = 2

LogoGreen1

Display This Question:

If Order = 3

LogoGreen2

Display This Question:

If Order = 1







LogoGreen3

QualityG

On a scale from 1 to 7

Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Have consistent quality? ()	
Are well made? ()	
Have an acceptable standard of quality? ()	
Have poor workmanship? ()	
Would not last a long time? ()	
Would perform consistently? ()	

End of Block: Value Questions green 2

Start of Block: Value Questions Green 2

Display This Question:

If Order = 2

LogoGreen1

Display This Question:

If Order = 3

LogoGreen2

Display This Question:

If Order = 1

LogoGreen3

EmotionalG Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

You would enjoy? ()	
Would make you want to use them? ()	
You would feel relaxed about using? ()	
Would make you feel good? ()	
Would give you pleasure? ()	

End of Block: Value Questions Green 2

Start of Block: Value Questions green 4

Display This Question:
If Order = 2

LogoGreen1

Display This Question:
If Order = 3

LogoGreen2

Display This Question:
If Order = 1

LogoGreen3

PriceG Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Are reasonably priced? ()	
Offer value for money? ()	
Are good products for the price? ()	
Would be economical? ()	

End of Block: Value Questions green 4

Start of Block: Value Questions green 5

Display This Question:
If Order = 2

LogoGreen1

Display This Question:

If Order = 3

LogoGreen2





Display This Question:

If Order = 1

LogoGreen3

SocialG Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Would help you feel acceptable? ()	
Would improve the way you are perceived? ()	
Would make a good impression on other people? ()	
Would give their owner social approval? ()	

End of Block: Value Questions green 5

Start of Block: Value Questions red 1

Display This Question:

If Order = 3

LogoRed1

Display This Question:

If Order = 1

LogoRed2

Display This Question:

If Order = 2

LogoRed3

FamiliarR

Regarding this logo, are you familiar/unfamiliar with the brand behind it?

Familiar (1)

Unfamiliar (2)

KnowledgeableR Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?

Knowledgeable (1)

Not Knowledgeable (2)

ExperiencedR Regarding this logo, are you experienced/inexperienced with the brand behind it?

Experienced (1)

Inexperienced (2)

End of Block: Value Questions red 1

Start of Block: Value Questions red 2

Display This Question:

if Order = 3

LogoRed1

Display This Question:

if Order = 1

LogoRed2

Display This Question:

if Order = 2







LogoRed3

QualityR

On a scale from 1 to 7

Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Have consistent quality? ()	
Are well made? ()	
Have an acceptable standard of quality? ()	
Have poor workmanship? ()	
Would not last a long time? ()	
Would perform consistently? ()	

End of Block: Value Questions red 2

Start of Block: Value Questions red 3

Display This Question:

If Order = 3

LogoRed1

Display This Question:

If Order = 1

LogoRed2






Display This Question:

If Order = 2

LogoRed3

EmotionalR Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

You would enjoy? ()	
Would make you want to use them? ()	
You would feel relaxed about using? ()	
Would make you feel good? ()	
Would give you pleasure? ()	

End of Block: Value Questions red 3

Start of Block: Value Questions red 4

Display This Question:

if Order = 3

LogoRed1

Display This Question:

if Order = 1

LogoRed2





Display This Question:

if Order = 2

LogoRed3

PriceR Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Are reasonably priced? ()	
Offer value for money? ()	
Are good products for the price? ()	
Would be economical? ()	

End of Block: Value Questions red 4

Start of Block: Value Questions red 5

Display This Question:

if Order = 3

LogoRed1

Display This Question:

if Order = 1

LogoRed2

Display This Question:

if Order = 2

LogoRed3

SocialR Looking at this logo, do you think that this brand produces products that...

1 2 3 4 5 6 7

Would help you feel acceptable? ()	
Would improve the way you are perceived? ()	
Would make a good impression on other people? ()	
Would give their owner social approval? ()	

End of Block: Value Questions red 5

Start of Block: Control Questions

FavoriteColor Please rank the following colors from your favorite (top) to least favorite (bottom) by dragging and dropping the colors' names.

- _____ Red (1)
- _____ Blue (2)
- _____ Green (3)

Gender Please state your gender.

- Male (1)
- Female (2)
- Other (3)
- Prefer not to say (4)

Age Please state your age.

Country Please state your country of origin.

Colorblind Please state whether you are color blind / red-green blind.

Marketing/Psychology Do you or have you ever worked in the fields or marketing or psychology?

Yes (1)

No (2)

End of Block: Control Questions

Appendix 3 – Data Analysis

- Scale reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.955	19

Reliability Statistics

Cronbach's Alpha	N of Items
.827	6

Reliability Statistics

Cronbach's Alpha	N of Items
.966	5

Reliability Statistics

Cronbach's Alpha	N of Items
.868	4

Reliability Statistics

Cronbach's Alpha	N of Items
.953	4

- Descriptive statistics
 - Items chosen

Please imagine and write down a product you would like to. It could be something you have bought before or something you have always wanted to purchase.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	4.0	4.0	4.0
I LIKE A CHOCOLATE. ALL BRAND CHOCOLATE I ATE.	1	1.0	1.0	5.0
3D printer	1	1.0	1.0	5.9
A couch	1	1.0	1.0	6.9
a scarf	1	1.0	1.0	7.9
Airpods	1	1.0	1.0	8.9
Airwrap	1	1.0	1.0	9.9
alcohol	1	1.0	1.0	10.9
art	1	1.0	1.0	11.9
bag	1	1.0	1.0	12.9
bicycle	1	1.0	1.0	13.9
boning knives	1	1.0	1.0	14.9
Books	1	1.0	1.0	15.8
bus	1	1.0	1.0	16.8
Camera	1	1.0	1.0	17.8
car	2	2.0	2.0	19.8
Car	3	3.0	3.0	22.8
Ceramic plates	1	1.0	1.0	23.8
Chainsaw	1	1.0	1.0	24.8
chocolate	1	1.0	1.0	25.7
Cleats	1	1.0	1.0	26.7
Clothes	1	1.0	1.0	27.7
coffee machine	1	1.0	1.0	28.7
cosmetics	1	1.0	1.0	29.7
cufflinks	1	1.0	1.0	30.7
Curling iron	1	1.0	1.0	31.7
Dog Halloween costume	1	1.0	1.0	32.7
Dyson air wrap	1	1.0	1.0	33.7
Dyson airwrap	1	1.0	1.0	34.7
earphones	1	1.0	1.0	35.6
eCar	1	1.0	1.0	36.6
Electronics	1	1.0	1.0	37.6
Face cream	2	2.0	2.0	39.6
furniture	2	2.0	2.0	41.6
Gaming joystick	1	1.0	1.0	42.6
glasses	1	1.0	1.0	43.6
Glasses	1	1.0	1.0	44.6
Golf driver	1	1.0	1.0	45.5
Hand bag	1	1.0	1.0	46.5
Handbag	1	1.0	1.0	47.5
Headphones	1	1.0	1.0	48.5
hyaluronic acid dermal filler	1	1.0	1.0	49.5
iPad	1	1.0	1.0	50.5
lpad	1	1.0	1.0	51.5
jacket	2	2.0	2.0	53.5
jewellery	1	1.0	1.0	54.5
Jewellery	1	1.0	1.0	55.4
Joggers	1	1.0	1.0	56.4
knives	1	1.0	1.0	57.4
laptop	1	1.0	1.0	58.4
lipbalm	1	1.0	1.0	59.4
New shoes	1	1.0	1.0	60.4
Nintendo switch	1	1.0	1.0	61.4
phone	2	2.0	2.0	63.4
Plants	1	1.0	1.0	64.4
Playstation	1	1.0	1.0	65.3
Porsche GT3 RS	1	1.0	1.0	66.3
Prada bag	1	1.0	1.0	67.3
Pullover	1	1.0	1.0	68.3
Purse	2	2.0	2.0	70.3
rain jacket	1	1.0	1.0	71.3
Shampoo	1	1.0	1.0	72.3
Shirt	1	1.0	1.0	73.3
SHIRT	1	1.0	1.0	74.3
shoes	3	3.0	3.0	77.2
Shoes	3	3.0	3.0	80.2
Ski jacket	1	1.0	1.0	81.2
Sound bar	1	1.0	1.0	82.2
speaker	1	1.0	1.0	83.2
Sports bra	1	1.0	1.0	84.2
Steam straightener	1	1.0	1.0	85.1
Suit	1	1.0	1.0	86.1
suitcase	1	1.0	1.0	87.1
sunglasses	1	1.0	1.0	88.1
table	1	1.0	1.0	89.1
Table	3	3.0	3.0	92.1
thermomix	1	1.0	1.0	93.1
TV	2	2.0	2.0	95.0
tv set	1	1.0	1.0	96.0
Uggs	1	1.0	1.0	97.0
Watch	1	1.0	1.0	98.0
Waterrower	1	1.0	1.0	99.0
Winter coat	1	1.0	1.0	100.0
Total	101	100.0	100.0	

Please imagine and write down a product you would like to. It could be something you have bought before or something you

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12	11.9	11.9	11.9
3D print	1	1.0	1.0	12.9
Alcohol	1	1.0	1.0	13.9
Art	1	1.0	1.0	14.9
Bicycle	1	1.0	1.0	15.8
Books	1	1.0	1.0	16.8
Bus	1	1.0	1.0	17.8
Camera	1	1.0	1.0	18.8
Car	7	6.9	6.9	25.7
Chainsaw	1	1.0	1.0	26.7
Chocolat	1	1.0	1.0	27.7
Clothes	1	1.0	1.0	28.7
Coffee m	1	1.0	1.0	29.7
Cosmetic	3	3.0	3.0	32.7
Couch	1	1.0	1.0	33.7
Cufflink	1	1.0	1.0	34.7
Dog Hall	1	1.0	1.0	35.6
Dyson Ai	2	2.0	2.0	37.6
Electron	1	1.0	1.0	38.6
Furnitur	2	2.0	2.0	40.6
Gaming j	1	1.0	1.0	41.6
Glasses	1	1.0	1.0	42.6
Golf Dri	1	1.0	1.0	43.6
Headphon	2	2.0	2.0	45.5
iPad	2	2.0	2.0	47.5
Jacket	4	4.0	4.0	51.5
Jeweller	2	2.0	2.0	53.5
Joggers	1	1.0	1.0	54.5
Knives	2	2.0	2.0	56.4
Laptop	1	1.0	1.0	57.4
Nintendo	1	1.0	1.0	58.4
Phone	2	2.0	2.0	60.4
Plants	1	1.0	1.0	61.4
Playstat	1	1.0	1.0	62.4
Pullover	1	1.0	1.0	63.4
Purse	6	5.9	5.9	69.3
Scarf	1	1.0	1.0	70.3
Shampoo	1	1.0	1.0	71.3
Shirt	2	2.0	2.0	73.3
Shoes	9	8.9	8.9	82.2
Ski jack	1	1.0	1.0	83.2
Speaker	2	2.0	2.0	85.1
Sports b	1	1.0	1.0	86.1
Steam st	1	1.0	1.0	87.1
Suit	1	1.0	1.0	88.1
Suitcase	1	1.0	1.0	89.1
Sunglass	1	1.0	1.0	90.1
Table	4	4.0	4.0	94.1
Thermomi	1	1.0	1.0	95.0
TV	3	3.0	3.0	98.0
Watch	1	1.0	1.0	99.0
Waterrow	1	1.0	1.0	100.0
Total	101	100.0	100.0	

- Brand Familiarity

Descriptive Statistics

	N	Mean	Std. Deviation
Familiar	101	1.9406	.19662
Knowledgeable	101	1.9406	.19662
Experienced	101	1.9406	.20761
Valid N (listwise)	101		

- Value Dimensions

Descriptive Statistics

	N	Mean	Std. Deviation
Quality	101	4.4943	.63539
Emotional	101	3.9010	1.16235
Price	101	4.0600	.88423
Social	100	3.8267	1.41083
Valid N (listwise)	100		

- Favorite Colors

Descriptive Statistics

	N	Mean
Please rank the following colors from your favorite (top) to least favorite (bottom) by dragging and dropping the colors' names. - Red	92	1.96
Valid N (listwise)	92	

Descriptive Statistics

	N	Mean
Please rank the following colors from your favorite (top) to least favorite (bottom) by dragging and dropping the colors' names. - Blue	92	1.78
Valid N (listwise)	92	

Descriptive Statistics

	N	Mean
Please rank the following colors from your favorite (top) to least favorite (bottom) by dragging and dropping the colors' names. - Blue	92	1.78
Valid N (listwise)	92	

- Demographics

- Countries of Origin

Please state your country of origin.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Germany	43	42.6	42.6	42.6
	Portugal	10	9.9	9.9	52.5
	USA	7	6.9	6.9	59.4
	Austria	6	5.9	5.9	65.3
	Switzerland	6	5.9	5.9	71.3
	Spain	5	5.0	5.0	76.2
	Netherlands	3	3.0	3.0	79.2
	Sweden	2	2.0	2.0	81.2
	asi	1	1.0	1.0	82.2
	Australia	1	1.0	1.0	83.2
	Belgium	1	1.0	1.0	84.2
	CA	1	1.0	1.0	85.1
	China	1	1.0	1.0	86.1
	Denmark	1	1.0	1.0	87.1
	Egypt	1	1.0	1.0	88.1
	Finland	1	1.0	1.0	89.1
	GB	1	1.0	1.0	90.1
	Greece	1	1.0	1.0	91.1
	Italy	1	1.0	1.0	92.1
	Lithuania	1	1.0	1.0	93.1
	Malaysia	1	1.0	1.0	94.1
	Nicaragua	1	1.0	1.0	95.0
	Norway	1	1.0	1.0	96.0
	Poland	1	1.0	1.0	97.0
Romania	1	1.0	1.0	98.0	
Slovakia	1	1.0	1.0	99.0	
Taiwan	1	1.0	1.0	100.0	
Total		101	100.0	100.0	

■ **Colorblind**

Please state whether you are color blind / red-green blind.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	88	87.1	87.1	87.1
		12	11.9	11.9	99.0
	RED	1	1.0	1.0	100.0
	Total	101	100.0	100.0	

■ **Marketing/Psychology**

Do you or have you ever worked in the fields or marketing or psychology?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	75	74.3	75.0	75.0
	Yes	25	24.8	25.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

■ **Age**

Descriptive Statistics

	N	Mean	Std. Deviation
Please state your age.	101	32.42	11.399
Valid N (listwise)	101		

- Correlations of value dimensions and control variables

Correlations

		Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Regarding this logo, are you experienced/inexperienced with the brand behind it?	Please state your gender.	Please state your age.	Please state whether you are color blind / red-green blind.	Do you or have you ever worked in the fields of marketing or psychology?	QualityBlueMean	EmotionalBlueMean	PriceBlueMean	SocialBlueMean
Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Pearson Correlation	1	.646**	.593**	.066	-.076	-.398**	.243*	.161	.018	.036	.088
	Sig. (2-tailed)		<.001	<.001	.515	.452	<.001	.015	.108	.862	.719	.387
	N	101	101	101	101	101	101	100	101	100	100	99
Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Pearson Correlation	.646**	1	.379**	-.173	-.231*	-.398**	.243*	.066	-.004	.162	.002
	Sig. (2-tailed)	<.001		<.001	.084	.020	<.001	.015	.510	.966	.108	.988
	N	101	101	101	101	101	101	100	101	100	100	99
Regarding this logo, are you experienced/inexperienced with the brand behind it?	Pearson Correlation	.593**	.379**	1	-.019	.003	-.492**	.118	.044	.032	.072	.044
	Sig. (2-tailed)	<.001	<.001		.848	.976	<.001	.243	.662	.752	.475	.668
	N	101	101	101	101	101	101	100	101	100	100	99
Please state your gender.	Pearson Correlation	.066	-.173	-.019	1	.010	-.097	-.156	-.016	-.069	-.156	-.041
	Sig. (2-tailed)	.515	.084	.848		.918	.333	.121	.877	.494	.121	.685
	N	101	101	101	101	101	101	100	101	100	100	99
Please state your age.	Pearson Correlation	-.076	-.231*	.003	.010	1	.049	.142	.217*	.258**	-.007	.214*
	Sig. (2-tailed)	.452	.020	.976	.918	.625	.159	.029	.010	.944	.034	.034
	N	101	101	101	101	101	101	100	101	100	100	99
Please state whether you are color blind / red-green blind.	Pearson Correlation	-.398**	-.398**	-.492**	-.097	.049	1	-.174	-.073	-.003	.028	.016
	Sig. (2-tailed)	<.001	<.001	<.001	.333	.625		.083	.465	.979	.785	.874
	N	101	101	101	101	101	101	100	101	100	100	99
Do you or have you ever worked in the fields of marketing or psychology?	Pearson Correlation	.243*	.243*	.118	-.156	.142	-.174	1	.071	.045	.022	.097
	Sig. (2-tailed)	.015	.015	.243	.121	.159	.083		.485	.662	.830	.344
	N	100	100	100	100	100	100	100	100	99	99	98
QualityBlueMean	Pearson Correlation	.161	.066	.044	-.016	.217*	-.073	.071	1	.695**	.457**	.734**
	Sig. (2-tailed)	.108	.510	.662	.877	.029	.465	.485		<.001	<.001	<.001
	N	101	101	101	101	101	101	100	101	100	100	99
EmotionalBlueMean	Pearson Correlation	.018	-.004	.032	-.069	.258**	-.003	.045	.695**	1	.465**	.799**
	Sig. (2-tailed)	.862	.966	.752	.494	.010	.979	.662	<.001		<.001	<.001
	N	100	100	100	100	100	100	99	100	100	99	99
PriceBlueMean	Pearson Correlation	.036	.162	.072	-.156	-.007	.028	.022	.457**	.465**	1	.550**
	Sig. (2-tailed)	.719	.108	.475	.121	.944	.785	.830	<.001	<.001		<.001
	N	100	100	100	100	100	100	99	100	100	100	98
SocialBlueMean	Pearson Correlation	.088	.002	.044	-.041	.214*	.016	.097	.734**	.799**	.550**	1
	Sig. (2-tailed)	.387	.988	.668	.685	.034	.874	.344	<.001	<.001	<.001	
	N	99	99	99	99	99	99	98	99	99	98	99

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Correlations

		Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Regarding this logo, are you experienced/inexperienced with the brand behind it?	Please state your gender.	Please state your age.	Please state whether you are color blind / red-green blind.	Do you or have you ever worked in the fields of marketing or psychology?	QualityGreenMean	EmotionalGreenMean	PriceGreenMean	SocialGreenMean
Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Pearson Correlation	1	.656**	.657**	-.103	.065	-.438**	.291**	-.097	.037	-.005	-.085
	Sig. (2-tailed)		<.001	<.001	.306	.520	<.001	.003	.334	.710	.957	.403
	N	101	101	101	101	101	101	100	101	101	101	99
Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Pearson Correlation	.656**	1	.744**	-.164	-.042	-.492**	.236*	.019	.045	.027	-.015
	Sig. (2-tailed)	<.001		<.001	.102	.678	<.001	.018	.849	.654	.786	.884
	N	101	101	101	101	101	101	100	101	101	101	99
Regarding this logo, are you experienced/inexperienced with the brand behind it?	Pearson Correlation	.657**	.744**	1	-.290**	-.066	-.366**	.294**	.066	.107	.010	.045
	Sig. (2-tailed)	<.001	<.001		.003	.515	<.001	.003	.510	.286	.921	.661
	N	101	101	101	101	101	101	100	101	101	101	99
Please state your gender.	Pearson Correlation	-.103	-.164	-.290**	1	.010	-.097	-.156	-.039	-.143	-.057	.005
	Sig. (2-tailed)	.306	.102	.003		.918	.333	.121	.699	.153	.569	.962
	N	101	101	101	101	101	101	100	101	101	101	99
Please state your age.	Pearson Correlation	.065	-.042	-.066	.010	1	.049	.142	.014	.016	.012	-.008
	Sig. (2-tailed)	.520	.678	.515	.918	.625	.159	.888	.872	.909	.940	.940
	N	101	101	101	101	101	101	100	101	101	101	99
Please state whether you are color blind / red-green blind.	Pearson Correlation	-.438**	-.492**	-.366**	-.097	.049	1	-.174	.008	.020	.045	.047
	Sig. (2-tailed)	<.001	<.001	<.001	.333	.625		.083	.938	.845	.657	.647
	N	101	101	101	101	101	101	100	101	101	101	99
Do you or have you ever worked in the fields of marketing or psychology?	Pearson Correlation	.291**	.236*	.294**	-.156	.142	-.174	1	.056	-.006	-.078	-.090
	Sig. (2-tailed)	.003	.018	.003	.121	.159	.083		.581	.952	.440	.376
	N	100	100	100	100	100	100	100	100	100	100	98
QualityGreenMean	Pearson Correlation	-.097	.019	.066	-.039	.010	.008	.056	1	.849**	.596**	.847**
	Sig. (2-tailed)	.334	.849	.510	.699	.888	.938	.581		<.001	<.001	<.001
	N	101	101	101	101	101	101	100	101	101	101	99
EmotionalGreenMean	Pearson Correlation	.037	.045	.107	-.143	.016	.020	-.006	.849**	1	.668**	.881**
	Sig. (2-tailed)	.710	.654	.286	.153	.872	.845	.952	<.001		<.001	<.001
	N	101	101	101	101	101	101	100	101	101	101	99
PriceGreenMean	Pearson Correlation	-.005	.027	.010	-.057	.012	.045	-.078	.596**	.668**	1	.640**
	Sig. (2-tailed)	.957	.786	.921	.569	.909	.657	.440	<.001	<.001		<.001
	N	101	101	101	101	101	101	100	101	101	101	99
SocialGreenMean	Pearson Correlation	-.085	-.015	.045	.005	-.008	.047	-.090	.847**	.881**	.640**	1
	Sig. (2-tailed)	.403	.884	.661	.962	.940	.647	.376	<.001	<.001	<.001	
	N	99	99	99	99	99	99	98	99	99	99	99

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Correlations

		Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Regarding this logo, are you experienced/inexperienced with the brand behind it?	Please state your gender.	Please state your age.	Please state whether you are color blind/red-green blind.	Do you or have you ever worked in the fields of marketing or psychology?	QualityRedMean	EmotionalRedMean	PriceRedMean	SocialRedMean
Regarding this logo, are you familiar/unfamiliar with the brand behind it?	Pearson Correlation	1	.786**	.847**	-.123	-.035	-.366**	.385**	-.115	-.138	.079	-.005
	Sig. (2-tailed)		<.001	<.001	.220	.731	<.001	<.001	.252	.172	.434	.964
	N	101	101	101	101	101	100	101	100	101	101	99
Regarding this logo, are you knowledgeable/not knowledgeable about the brand behind it?	Pearson Correlation	.786**	1	.642**	.024	-.031	-.341**	.341**	-.113	-.097	.007	-.050
	Sig. (2-tailed)	<.001		<.001	.810	.756	<.001	<.001	.263	.338	.943	.621
	N	101	101	101	101	101	100	101	100	101	101	99
Regarding this logo, are you experienced/inexperienced with the brand behind it?	Pearson Correlation	.847**	.642**	1	-.123	-.048	-.366**	.294**	-.098	-.087	.008	-.017
	Sig. (2-tailed)	<.001	<.001		.220	.631	<.001	.003	.327	.390	.937	.869
	N	101	101	101	101	101	100	101	100	101	101	99
Please state your gender.	Pearson Correlation	-.123	.024	-.123	1	.010	-.097	-.156	-.115	-.204*	-.077	.005
	Sig. (2-tailed)	.220	.810	.220		.918	.333	.121	.254	.042	.447	.962
	N	101	101	101	101	101	100	100	101	100	101	99
Please state your age.	Pearson Correlation	-.035	-.031	-.048	.010	1	.049	.142	.244*	.184	.111	-.008
	Sig. (2-tailed)	.731	.756	.631	.918		.625	.159	.014	.068	.268	.940
	N	101	101	101	101	101	100	100	100	100	101	99
Please state whether you are color blind/red-green blind.	Pearson Correlation	-.366**	-.341**	-.366**	-.097	.049	1	-.174	.033	.063	.027	.047
	Sig. (2-tailed)	<.001	<.001	<.001	.333	.625		.083	.743	.534	.791	.647
	N	101	101	101	101	101	100	100	101	100	101	99
Do you or have you ever worked in the fields of marketing or psychology?	Pearson Correlation	.385**	.341**	.294**	-.156	.142	-.174	1	.052	-.033	.094	-.090
	Sig. (2-tailed)	<.001	<.001	.003	.121	.159	.083		.608	.743	.351	.376
	N	100	100	100	100	100	100	100	100	99	100	98
QualityRedMean	Pearson Correlation	-.115	-.113	-.098	-.115	.244*	.033	.052	1	.655**	.518**	-.001
	Sig. (2-tailed)	.252	.263	.327	.254	.014	.743	.608		<.001	<.001	.995
	N	101	101	101	101	101	100	101	100	101	100	99
EmotionalRedMean	Pearson Correlation	-.138	-.097	-.087	-.204*	.184	.063	-.033	.655**	1	.659**	.273**
	Sig. (2-tailed)	.172	.338	.390	.042	.068	.534	.743	<.001		<.001	.007
	N	100	100	100	100	100	100	99	100	100	100	98
PriceRedMean	Pearson Correlation	.079	.007	.008	-.077	-.111	.027	.094	.518**	.659**	1	.414**
	Sig. (2-tailed)	.434	.943	.937	.447	.268	.791	.351	<.001	<.001		<.001
	N	101	101	101	101	101	100	100	100	100	101	99
SocialRedMean	Pearson Correlation	-.005	-.050	-.017	.005	-.008	.047	-.090	-.001	.273**	.414**	1
	Sig. (2-tailed)	.964	.621	.869	.962	.940	.647	.376	.995	.007	<.001	
	N	99	99	99	99	99	99	98	99	98	99	99

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

- One-Way Multiple Measures ANOVA
 - Color on CPV

Within-Subjects Factors

Measure: CPV1

color	Dependent Variable
1	CPVBlueMean
2	CPVGreenMean
3	CPVRedMean

Descriptive Statistics

	Mean	Std. Deviation	N
CPVBlueMean	4.2199	1.07537	101
CPVGreenMean	4.0078	1.20497	101
CPVRedMean	3.9774	.84419	101

Multivariate Tests^a

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.073	3.908 ^b	2.000	99.000	.023
	Wilks' Lambda	.927	3.908 ^b	2.000	99.000	.023
	Hotelling's Trace	.079	3.908 ^b	2.000	99.000	.023
	Roy's Largest Root	.079	3.908 ^b	2.000	99.000	.023

- a. Design: Intercept
Within Subjects Design: color
b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: CPV1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Epsilon ^b Huynh-Feldt	Lower-bound
color	.880	12.637	2	.002	.893	.908	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

- a. Design: Intercept
Within Subjects Design: color
b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: CPV1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
color	Sphericity Assumed	3.525	2	1.762	4.392	.014	.042
	Greenhouse-Geisser	3.525	1.786	1.974	4.392	.017	.042
	Huynh-Feldt	3.525	1.816	1.941	4.392	.016	.042
	Lower-bound	3.525	1.000	3.525	4.392	.039	.042
Error(color)	Sphericity Assumed	80.257	200	.401			
	Greenhouse-Geisser	80.257	178.598	.449			
	Huynh-Feldt	80.257	181.628	.442			
	Lower-bound	80.257	100.000	.803			

Pairwise Comparisons

Measure: CPV1

(I) color	(J) color	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.212	.103	.124	-.038	.462
	3	.243*	.087	.018	.032	.453
2	1	-.212	.103	.124	-.462	.038
	3	.030	.076	1.000	-.155	.216
3	1	-.243*	.087	.018	-.453	-.032
	2	-.030	.076	1.000	-.216	.155

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

■ Color on Quality

Within-Subjects Factors

Measure: Quality1

color	Dependent Variable
1	QualityBlueMean
2	QualityGreenMean
3	QualityRedMean

Descriptive Statistics

	Mean	Std. Deviation	N
QualityBlueMean	4.6497	.88833	101
QualityGreenMean	4.4241	.96646	101
QualityRedMean	4.4091	.78383	101

Multivariate Tests^a

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	
color	Pillai's Trace	.073	3.896 ^b	2.000	99.000	.024	.073
	Wilks' Lambda	.927	3.896 ^b	2.000	99.000	.024	.073
	Hotelling's Trace	.079	3.896 ^b	2.000	99.000	.024	.073
	Roy's Largest Root	.079	3.896 ^b	2.000	99.000	.024	.073

a. Design: Intercept
Within Subjects Design: color

b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: Quality1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Epsilon ^b Huynh-Feldt	Lower-bound
color	.963	3.692	2	.158	.965	.983	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: color

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Quality1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
color	Sphericity Assumed	3.670	2	1.835	3.258	.041	.032
	Greenhouse-Geisser	3.670	1.929	1.902	3.258	.042	.032
	Huynh-Feldt	3.670	1.967	1.866	3.258	.041	.032
	Lower-bound	3.670	1.000	3.670	3.258	.074	.032
Error(color)	Sphericity Assumed	112.642	200	.563			
	Greenhouse-Geisser	112.642	192.938	.584			
	Huynh-Feldt	112.642	196.662	.573			
	Lower-bound	112.642	100.000	1.126			

Pairwise Comparisons

Measure: Quality1

(I) color	(J) color	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.226	.107	.112	-.035	.486
	3	.241*	.096	.041	.007	.474
2	1	-.226	.107	.112	-.486	.035
	3	.015	.113	1.000	-.261	.291
3	1	-.241*	.096	.041	-.474	-.007
	2	-.015	.113	1.000	-.291	.261

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

■ Color on Emotional

Within-Subjects Factors

Measure: Emotional1

color	Dependent Variable
1	EmotionalBlueMean
2	EmotionalGreenMean
3	EmotionalRedMean

Descriptive Statistics

	Mean	Std. Deviation	N
EmotionalBlueMean	4.0108	1.52451	99
EmotionalGreenMean	3.9205	1.55220	99
EmotionalRedMean	3.8022	1.13898	99

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.021	1.034 ^b	2.000	97.000	.359	.021
	Wilks' Lambda	.979	1.034 ^b	2.000	97.000	.359	.021
	Hotelling's Trace	.021	1.034 ^b	2.000	97.000	.359	.021
	Roy's Largest Root	.021	1.034 ^b	2.000	97.000	.359	.021

a. Design: Intercept
Within Subjects Design: color

b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: Emotional1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
color	.978	2.126	2	.345	.979	.999	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: color

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Emotional1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
color	Sphericity Assumed	2.167	2	1.083	.993	.372	.010
	Greenhouse-Geisser	2.167	1.958	1.107	.993	.371	.010
	Huynh-Feldt	2.167	1.997	1.085	.993	.372	.010
	Lower-bound	2.167	1.000	2.167	.993	.321	.010
Error(color)	Sphericity Assumed	213.824	196	1.091			
	Greenhouse-Geisser	213.824	191.842	1.115			
	Huynh-Feldt	213.824	195.709	1.093			
	Lower-bound	213.824	98.000	2.182			

Pairwise Comparisons

Measure: Emotional1

(I) color	(J) color	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.090	.141	1.000	-.254	.434
	3	.209	.145	.457	-.144	.561
2	1	-.090	.141	1.000	-.434	.254
	3	.118	.159	1.000	-.269	.505
3	1	-.209	.145	.457	-.561	.144
	2	-.118	.159	1.000	-.505	.269

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

■ Color on Price

Within-Subjects Factors

Measure: Price1

color	Dependent Variable
1	PriceBlueMean
2	PriceGreenMean
3	PriceRedMean

Descriptive Statistics

	Mean	Std. Deviation	N
PriceBlueMean	4.1992	1.09770	100
PriceGreenMean	3.9650	1.19237	100
PriceRedMean	3.9625	.92579	100

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.058	3.025 ^b	2.000	98.000	.053	.058
	Wilks' Lambda	.942	3.025 ^b	2.000	98.000	.053	.058
	Hotelling's Trace	.062	3.025 ^b	2.000	98.000	.053	.058
	Roy's Largest Root	.062	3.025 ^b	2.000	98.000	.053	.058

a. Design: Intercept
Within Subjects Design: color

b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: Price1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
color	.976	2.383	2	.304	.977	.996	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: color

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Price1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
color	Sphericity Assumed	3.695	2	1.848	3.052	.050	.030
	Greenhouse-Geisser	3.695	1.953	1.892	3.052	.051	.030
	Huynh-Feldt	3.695	1.992	1.855	3.052	.050	.030
	Lower-bound	3.695	1.000	3.695	3.052	.084	.030
Error(color)	Sphericity Assumed	119.865	198	.605			
	Greenhouse-Geisser	119.865	193.354	.620			
	Huynh-Feldt	119.865	197.198	.608			
	Lower-bound	119.865	99.000	1.211			

Pairwise Comparisons

Measure: Price1

(I) color	(J) color	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.234	.118	.149	-.053	.521
	3	.237	.103	.072	-.015	.488
2	1	-.234	.118	.149	-.521	.053
	3	.003	.109	1.000	-.262	.267
3	1	-.237	.103	.072	-.488	.015
	2	-.003	.109	1.000	-.267	.262

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

■ Color on Social

Within-Subjects Factors

Measure: Social1

color	Dependent Variable
1	SocialBlueMean
2	SocialGreenMean
3	SocialRedMean

Descriptive Statistics

	Mean	Std. Deviation	N
SocialBlueMean	4.0400	1.49494	98
SocialGreenMean	3.7491	1.61769	98
SocialRedMean	3.7491	1.61769	98

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.033	3.351 ^b	1.000	97.000	.070	.033
	Wilks' Lambda	.967	3.351 ^b	1.000	97.000	.070	.033
	Hotelling's Trace	.035	3.351 ^b	1.000	97.000	.070	.033
	Roy's Largest Root	.035	3.351 ^b	1.000	97.000	.070	.033

a. Design: Intercept
Within Subjects Design: color

b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: Social1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Epsilon ^b Huynh-Feldt	Lower-bound
color	.000	.	2	.	.500	.500	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: color

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Social1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
color	Sphericity Assumed	5.526	2	2.763	3.351	.037	.033
	Greenhouse-Geisser	5.526	1.000	5.526	3.351	.070	.033
	Huynh-Feldt	5.526	1.000	5.526	3.351	.070	.033
	Lower-bound	5.526	1.000	5.526	3.351	.070	.033
Error(color)	Sphericity Assumed	159.937	194	.824			
	Greenhouse-Geisser	159.937	97.000	1.649			
	Huynh-Feldt	159.937	97.000	1.649			
	Lower-bound	159.937	97.000	1.649			

Pairwise Comparisons

Measure: Social1

(I) color	(J) color	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.291	.159	.211	-.096	.678
	3	.291	.159	.211	-.096	.678
2	1	-.291	.159	.211	-.678	.096
	3	.000	.000	.	.000	.000
3	1	-.291	.159	.211	-.678	.096
	2	.000	.000	.	.000	.000

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

- One-Way Multiple Measures ANCOVA
 - Color on CPV

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * CountryNumeric	Pillai's Trace	.011	.471 ^b	2.000	82.000	.626	.011
	Wilks' Lambda	.989	.471 ^b	2.000	82.000	.626	.011
	Hotelling's Trace	.011	.471 ^b	2.000	82.000	.626	.011
	Roy's Largest Root	.011	.471 ^b	2.000	82.000	.626	.011
color * Marketing_Psychology	Pillai's Trace	.025	1.060 ^b	2.000	82.000	.351	.025
	Wilks' Lambda	.975	1.060 ^b	2.000	82.000	.351	.025
	Hotelling's Trace	.026	1.060 ^b	2.000	82.000	.351	.025
	Roy's Largest Root	.026	1.060 ^b	2.000	82.000	.351	.025
color * Colorblind_Dummy	Pillai's Trace	.011	.459 ^b	2.000	82.000	.633	.011
	Wilks' Lambda	.989	.459 ^b	2.000	82.000	.633	.011
	Hotelling's Trace	.011	.459 ^b	2.000	82.000	.633	.011
	Roy's Largest Root	.011	.459 ^b	2.000	82.000	.633	.011
color * Age	Pillai's Trace	.020	.823 ^b	2.000	82.000	.443	.020
	Wilks' Lambda	.980	.823 ^b	2.000	82.000	.443	.020
	Hotelling's Trace	.020	.823 ^b	2.000	82.000	.443	.020
	Roy's Largest Root	.020	.823 ^b	2.000	82.000	.443	.020
color * Gender	Pillai's Trace	.014	.587 ^b	2.000	82.000	.558	.014
	Wilks' Lambda	.986	.587 ^b	2.000	82.000	.558	.014
	Hotelling's Trace	.014	.587 ^b	2.000	82.000	.558	.014
	Roy's Largest Root	.014	.587 ^b	2.000	82.000	.558	.014
color * FavoriteColor_Red	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Blue	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Green	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000

a. Design: Intercept + CountryNumeric + Marketing_Psychology + Colorblind_Dummy + Age + Gender + FavoriteColor_Red + FavoriteColor_Blue + FavoriteColor_Green
Within Subjects Design: color

b. Exact statistic

■ Color on Quality

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Red	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Blue	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Green	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * Gender	Pillai's Trace	.022	.929 ^b	2.000	82.000	.399	.022
	Wilks' Lambda	.978	.929 ^b	2.000	82.000	.399	.022
	Hotelling's Trace	.023	.929 ^b	2.000	82.000	.399	.022
	Roy's Largest Root	.023	.929 ^b	2.000	82.000	.399	.022
color * Age	Pillai's Trace	.020	.848 ^b	2.000	82.000	.432	.020
	Wilks' Lambda	.980	.848 ^b	2.000	82.000	.432	.020
	Hotelling's Trace	.021	.848 ^b	2.000	82.000	.432	.020
	Roy's Largest Root	.021	.848 ^b	2.000	82.000	.432	.020
color * Colorblind_Dummy	Pillai's Trace	.018	.764 ^b	2.000	82.000	.469	.018
	Wilks' Lambda	.982	.764 ^b	2.000	82.000	.469	.018
	Hotelling's Trace	.019	.764 ^b	2.000	82.000	.469	.018
	Roy's Largest Root	.019	.764 ^b	2.000	82.000	.469	.018
color * Marketing_Psychology	Pillai's Trace	.000	.005 ^b	2.000	82.000	.995	.000
	Wilks' Lambda	1.000	.005 ^b	2.000	82.000	.995	.000
	Hotelling's Trace	.000	.005 ^b	2.000	82.000	.995	.000
	Roy's Largest Root	.000	.005 ^b	2.000	82.000	.995	.000
color * CountryNumeric	Pillai's Trace	.041	1.755 ^b	2.000	82.000	.179	.041
	Wilks' Lambda	.959	1.755 ^b	2.000	82.000	.179	.041
	Hotelling's Trace	.043	1.755 ^b	2.000	82.000	.179	.041
	Roy's Largest Root	.043	1.755 ^b	2.000	82.000	.179	.041

a. Design: Intercept + FavoriteColor_Red + FavoriteColor_Blue + FavoriteColor_Green + Gender + Age + Colorblind_Dummy + Marketing_Psychology + CountryNumeric
 Within Subjects Design: color

b. Exact statistic

■ Color on Emotional

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	79.000	1.000	.000
color * FavoriteColor_Red	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	79.000	1.000	.000
color * FavoriteColor_Blue	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	79.000	1.000	.000
color * FavoriteColor_Green	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	79.000	1.000	.000
color * Gender	Pillai's Trace	.042	1.737 ^b	2.000	80.000	.183	.042
	Wilks' Lambda	.958	1.737 ^b	2.000	80.000	.183	.042
	Hotelling's Trace	.043	1.737 ^b	2.000	80.000	.183	.042
	Roy's Largest Root	.043	1.737 ^b	2.000	80.000	.183	.042
color * Age	Pillai's Trace	.036	1.511 ^b	2.000	80.000	.227	.036
	Wilks' Lambda	.964	1.511 ^b	2.000	80.000	.227	.036
	Hotelling's Trace	.038	1.511 ^b	2.000	80.000	.227	.036
	Roy's Largest Root	.038	1.511 ^b	2.000	80.000	.227	.036
color * Colorblind_Dummy	Pillai's Trace	.006	.248 ^b	2.000	80.000	.781	.006
	Wilks' Lambda	.994	.248 ^b	2.000	80.000	.781	.006
	Hotelling's Trace	.006	.248 ^b	2.000	80.000	.781	.006
	Roy's Largest Root	.006	.248 ^b	2.000	80.000	.781	.006
color * Marketing_Psychology	Pillai's Trace	.001	.052 ^b	2.000	80.000	.950	.001
	Wilks' Lambda	.999	.052 ^b	2.000	80.000	.950	.001
	Hotelling's Trace	.001	.052 ^b	2.000	80.000	.950	.001
	Roy's Largest Root	.001	.052 ^b	2.000	80.000	.950	.001
color * CountryNumeric	Pillai's Trace	.055	2.327 ^b	2.000	80.000	.104	.055
	Wilks' Lambda	.945	2.327 ^b	2.000	80.000	.104	.055
	Hotelling's Trace	.058	2.327 ^b	2.000	80.000	.104	.055
	Roy's Largest Root	.058	2.327 ^b	2.000	80.000	.104	.055

a. Design: Intercept + FavoriteColor_Red + FavoriteColor_Blue + FavoriteColor_Green + Gender + Age + Colorblind_Dummy + Marketing_Psychology + CountryNumeric
Within Subjects Design: color

b. Exact statistic

■ Color on Price

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Red	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Blue	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * FavoriteColor_Green	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	82.500	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	2.000	81.000	1.000	.000
color * Gender	Pillai's Trace	.005	.191 ^b	2.000	82.000	.826	.005
	Wilks' Lambda	.995	.191 ^b	2.000	82.000	.826	.005
	Hotelling's Trace	.005	.191 ^b	2.000	82.000	.826	.005
	Roy's Largest Root	.005	.191 ^b	2.000	82.000	.826	.005
color * Age	Pillai's Trace	.004	.163 ^b	2.000	82.000	.850	.004
	Wilks' Lambda	.996	.163 ^b	2.000	82.000	.850	.004
	Hotelling's Trace	.004	.163 ^b	2.000	82.000	.850	.004
	Roy's Largest Root	.004	.163 ^b	2.000	82.000	.850	.004
color * Colorblind_Dummy	Pillai's Trace	.003	.113 ^b	2.000	82.000	.893	.003
	Wilks' Lambda	.997	.113 ^b	2.000	82.000	.893	.003
	Hotelling's Trace	.003	.113 ^b	2.000	82.000	.893	.003
	Roy's Largest Root	.003	.113 ^b	2.000	82.000	.893	.003
color * Marketing_Psychology	Pillai's Trace	.021	.867 ^b	2.000	82.000	.424	.021
	Wilks' Lambda	.979	.867 ^b	2.000	82.000	.424	.021
	Hotelling's Trace	.021	.867 ^b	2.000	82.000	.424	.021
	Roy's Largest Root	.021	.867 ^b	2.000	82.000	.424	.021
color * CountryNumeric	Pillai's Trace	.027	1.147 ^b	2.000	82.000	.323	.027
	Wilks' Lambda	.973	1.147 ^b	2.000	82.000	.323	.027
	Hotelling's Trace	.028	1.147 ^b	2.000	82.000	.323	.027
	Roy's Largest Root	.028	1.147 ^b	2.000	82.000	.323	.027

a. Design: Intercept + FavoriteColor_Red + FavoriteColor_Blue + FavoriteColor_Green + Gender + Age + Colorblind_Dummy + Marketing_Psychology + CountryNumeric
 Within Subjects Design: color

b. Exact statistic

■ Color on Social

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
color	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.000	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	1.000	79.000	1.000	.000
color * FavoriteColor_Red	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.000	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	1.000	79.000	1.000	.000
color * FavoriteColor_Blue	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.000	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	1.000	79.000	1.000	.000
color * FavoriteColor_Green	Pillai's Trace	.000	. ^b	.000	.000	.	.
	Wilks' Lambda	1.000	. ^b	.000	80.000	.	.
	Hotelling's Trace	.000	. ^b	.000	2.000	.	.
	Roy's Largest Root	.000	.000 ^b	1.000	79.000	1.000	.000
color * Gender	Pillai's Trace	.000	.031 ^b	1.000	80.000	.861	.000
	Wilks' Lambda	1.000	.031 ^b	1.000	80.000	.861	.000
	Hotelling's Trace	.000	.031 ^b	1.000	80.000	.861	.000
	Roy's Largest Root	.000	.031 ^b	1.000	80.000	.861	.000
color * Age	Pillai's Trace	.041	3.444 ^b	1.000	80.000	.067	.041
	Wilks' Lambda	.959	3.444 ^b	1.000	80.000	.067	.041
	Hotelling's Trace	.043	3.444 ^b	1.000	80.000	.067	.041
	Roy's Largest Root	.043	3.444 ^b	1.000	80.000	.067	.041
color * Colorblind_Dummy	Pillai's Trace	.000	.028 ^b	1.000	80.000	.869	.000
	Wilks' Lambda	1.000	.028 ^b	1.000	80.000	.869	.000
	Hotelling's Trace	.000	.028 ^b	1.000	80.000	.869	.000
	Roy's Largest Root	.000	.028 ^b	1.000	80.000	.869	.000
color * Marketing_Psychology	Pillai's Trace	.061	5.228 ^b	1.000	80.000	.025	.061
	Wilks' Lambda	.939	5.228 ^b	1.000	80.000	.025	.061
	Hotelling's Trace	.065	5.228 ^b	1.000	80.000	.025	.061
	Roy's Largest Root	.065	5.228 ^b	1.000	80.000	.025	.061
color * CountryNumeric	Pillai's Trace	.013	1.042 ^b	1.000	80.000	.310	.013
	Wilks' Lambda	.987	1.042 ^b	1.000	80.000	.310	.013
	Hotelling's Trace	.013	1.042 ^b	1.000	80.000	.310	.013
	Roy's Largest Root	.013	1.042 ^b	1.000	80.000	.310	.013

a. Design: Intercept + FavoriteColor_Red + FavoriteColor_Blue + FavoriteColor_Green + Gender + Age + Colorblind_Dummy + Marketing_Psychology + CountryNumeric
Within Subjects Design: color

b. Exact statistic