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The Psychological Effect of Color in Brand Communication: The
Impact of Color on Consumer Perception

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“Dedicated to my beloved and always supportive mother”

Abstract

Do colors really influence the way a consumer views a brand? Is there a reason why some brands have selected red, while others have chosen yellow, blue, or green for their logo? This thesis investigates whether there is a connection between the colors different brands use and their effect on the consumer's perception. It aims to investigate how different colors affect responses to branding, as well as what characteristics and values, like trust or power, people associate with a brand based on its logo's color.

This research was inspired by well-known brands associated with a specific color, such as Nivea (blue), McDonald's (yellow), and Coca-Cola (red). A questionnaire distributed to a diverse audience has been used as a tool to assess how consumers perceive brands in relation to the color the brands have selected for their identity.

The collected data were statistically analyzed to determine with certainty whether color really enhances brand recognition, builds connections with consumers, or "radiates" specific values and characteristics.

The findings of this study aim to provide trustworthy data in the fields of marketing and brand and consumer psychology, highlighting the strategic importance of color when it comes to shaping brand perception and consumer behavior.

Keywords

Color Psychology, Marketing, Brand Communication, Consumer Brand Perception

Περίληψη

Επηρεάζουν πραγματικά τα χρώματα τον τρόπο με τον οποίο ο καταναλωτής αντιλαμβάνεται ένα brand (μάρκα); Υπάρχει λόγος που ορισμένες μάρκες έχουν επιλέξει το κόκκινο, ενώ άλλες το κίτρινο, το μπλε ή το πράσινο για το λογότυπό τους; Η παρούσα διατριβή διερευνά αν υπάρχει σχέση μεταξύ των χρωμάτων που χρησιμοποιούν οι διάφορες μάρκες και της επίδρασής τους στην αντίληψη του καταναλωτή. Στόχος της είναι να διερευνήσει πως τα διαφορετικά χρώματα επηρεάζουν τις αντιδράσεις στο branding, καθώς και ποια χαρακτηριστικά ή αξίες, όπως η εμπιστοσύνη ή η δύναμη, συνδέουν οι άνθρωποι με μία μάρκα με βάση το χρώμα του λογοτύπου της.

Η παρούσα έρευνα έχει εμπνευστεί από ευρέως γνωστές μάρκες που έχουν συνδεθεί με ένα συγκεκριμένο χρώμα, όπως η Nivea (μπλε), η McDonald's (κίτρινο) και η Coca-Cola (κόκκινο). Ένα ερωτηματολόγιο που έχει διανεμηθεί σε ένα ευρύ κοινό χρησιμοποιήθηκε ως εργαλείο για την αξιολόγηση του τρόπου με τον οποίο οι καταναλωτές αντιλαμβάνονται μάρκες σε σχέση με το χρώμα που έχουν εκείνες επιλέξει για την ταυτότητά τους.

Τα δεδομένα που συλλέχθηκαν αναλύθηκαν στατιστικά προκειμένου να διαπιστωθεί με βεβαιότητα εάν το χρώμα πράγματι ενισχύει την αναγνωρισιμότητα της μάρκας, διαμορφώνει δεσμούς με τον καταναλωτή και εκπέμπει συγκεκριμένες αξίες και χαρακτηριστικά.

Τα ευρήματα της έρευνας αποσκοπούν στο να παράσχουν αξιόπιστα στοιχεία στον τομέα του μάρκετινγκ και της ψυχολογίας των εμπορικών σημάτων και των καταναλωτών, υπογραμμίζοντας τη στρατηγική σημασία του χρώματος όσον αφορά τη διαμόρφωση της αντίληψης για το logo και της συμπεριφοράς των καταναλωτών.

Λέξεις – Κλειδιά

Ψυχολογία χρωμάτων, Μάρκετινγκ, Επικοινωνία μάρκας, Αντίληψη του καταναλωτή για τις μάρκες.

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1. Introduction

Color is one of the initial and most decisive elements through which a consumer comes into contact with a brand. Even before reading the name or understanding the product, consumers have already formed a first, emotional impression based on the color they see.

International literature in the fields of branding and consumer marketing has recognized the importance of this phenomenon for many years, systematically linking specific colors to specific psychological associations. Among the most well-known are the association of blue with trust, the association of red with energy, the association of green with nature and the association of yellow with liveliness. Despite the widespread recognition of the practical significance of color among branding and advertising professionals, the mechanism through which color translates into a specific perception of a brand remains under-researched at the empirical and academic levels. In particular, there are two questions sparking interest, yet remaining open. First, to what extent does the effect of color on brand perception actually occur through the emotional response it elicits. Second, to what extent does this effect vary depending on the consumer's generation. The latter is a particularly relevant question in today's business environment, where brands are called upon to effectively communicate simultaneously with multigenerational audiences, who appear to develop a different aesthetic preference and different color associations.

The purpose of this dissertation is to answer these two questions through an empirical, quantitative study aimed at investigating the psychological impact of color on brand communication, examining both the direct effect of color on consumers' emotional responses and perceptions, as well as the role of generation as a moderating factor in these relationships. To this end, a structured questionnaire was designed and distributed online to a sample of 75 consumers. The participants were asked to evaluate four colors applied to non-existent logos, in terms of the emotional response they elicit and the brand perception they shape.

The present study is structured around five research hypotheses, which examine, in sequence: the effect of color on consumers' emotional response (H1), the effect of color on consumers' brand perception (H2), the mediating mechanism through which emotional

response connects color to brand perception (H3) and the moderating role of generation in the first two relationships (H4 and H5, respectively). The statistical analysis is based on established methods selected to document both “whether” and “how” color influences consumer perception.

The contribution of this study lies in the integration of the existing literature on color psychology and marketing into a unified empirical paper, offering not only theoretical insights, but also practically applicable findings for branding and marketing professionals.

2. Understanding Colors

The study of color dates back thousands of years. The prominent ancient Greek philosopher Aristotle (384 BCE-322 BCE) was the first to document a well-developed theory in his text “On Colors” (“Περὶ Χρωμάτων”), proposing that all colors derive from varying mixtures of white and black along a scale running from light to dark (Ball, 2002). This framework remained influential for nearly two millennia. Meanwhile, the work of Arab scholar Al-Hasan Ibn al-Haytham (965 CE - 1040 CE), who many consider the “father of modern optics”, was crucial in Sir Isaak Newton’s study of light and color composition (Sabra, 1983). In his “Book of Optics”, Ibn al-Haytham stated that theories of vision should be tested through controlled experimentation rather than philosophical argument alone. This methodological approach influenced later European scholars and ultimately shaped Newton’s own prism experiments, which demonstrated that white light comprised a spectrum of different, distinct colors.

2.1 Definition of color and its components

Color can be defined in multiple ways, as some explanations focus on its physical nature, while others focus on the sensation of the stimulus.

The International Commission of Illumination defines color as “a characteristic of visual perception that can be described by attributes of hue, brightness (or lightness), and colorfulness (or saturation or chroma)” (CIE, 2011). In addition, Camgoz et al. (2004) state that these three elements are the most crucial attributes for color perception and influence humans’ psychological functioning. Another interesting definition was given by cognitive scientist Stephen E. Palmer in 1999, stating that color is not a physical property of the objects or lights humans see, but a psychological property of humans’ visual experiences when they look at objects and lights.

Most people, when they think of color, think of hue (Elliot & Maier, 2014). Hue refers to segments of wavelengths in the visible spectrum. Alternatively, as Fairchild (2013) wrote, hue is a perceptual attribute, according to which an area appears similar to one (or a combination of) the perceived colors. Hue is the color quality of light, corresponding to the names we use, like green, orange, cyan, etc.

Saturation, according to Labrecque et al. (2013), is the intensity (or vividness) of a color; an alternative definition is the amount of pigment in a color. A synonym of saturation is chroma. The more saturated the stimulus, the stronger the color experience.

Lastly, brightness (also known as lightness, luminance and value) indicates the amount of lightness or darkness relative to a scale ranging from black to white. However, it is worth noting that, even though the terms are commonly used interchangeably, brightness usually applies to colors, while lightness refers to the continuum of white, grey, and black.

2.2 Chromatology theories

Chromatology, or chromatics, as defined by the Collins English Dictionary, is the science of color. The most renowned color mixing typologies include the RGB, the RYB, the CMYK and Goethe's color scheme, each approaching the basic colors and their combinations differently.

The RGB theory got its name from the first letters of the words Red, Green, and Blue. According to this model, these three colors can't be derived from the combinations of other colors; however, when combined with one another, they create the secondary colors yellow, cyan and magenta. Respectively, the RYB theory was named after the first letters of Red, Yellow and Blue. These are the three basic colors, and, when combined, they create the secondary colors orange, green, and purple. The RYB model is used in painting.

The CMYK theory is the acronym for Cyan, Magenta, Yellow, and Black. According to this model, these are the main (key) colors. By mixing these colors, one can create red (magenta plus yellow), green (yellow plus blue), and blue (cyan plus magenta). This model is used in printing.

Last but not least is Goethe's color scheme, a paint system created by the celebrated German polymath Johann Wolfgang von Goethe. After studying and questioning Newton's analysis of light and color, Goethe intended to investigate the psychological effects of color on humans. He initially planned a color wheel, which was later replaced by a triangle divided into smaller triangles. The vertices of the triangle are occupied by the three primary colors (red, blue, yellow). The rest of the triangle's subdivisions are the secondary and tertiary triangles, the first being the combinations of two primary colors, and the latter representing the mixes of primary with secondary colors.

As Goethe focused on perception, he also connected colors with aesthetic qualities. For example, red is associated with beauty and yellow with goodness. His work can be characterized as the beginning of the field now called “color psychology”, which will be further discussed later in this paper.

2.3 Color theory

The concept of color theory was founded on Johann Wolfgang von Goethe’s work, as presented in his notable *Theory of Colours* (1810), and French chemist Michel Eugène Chevreul's book *The Law of Simultaneous Color Contrast* (1839). Color theory constitutes the study of the visual effects of how people perceive colors and how colors mix, match, or contrast with each other. It is also about why some colors harmonize aesthetically while others don’t. The three tools on which color theory is based include color harmony, color context and the color wheel, the latter being initially designed by Newton in 1706. According to Song (2022), the purpose of color theory is to understand how color affects the psyche when linked to real-world items.

Undoubtedly, this theory is a valuable tool for businesses, as it aids in facilitating the creation and utilization of color palettes, allowing brands to come up with alluring graphics, empowering both visual appeal and emotional response.

3. The Effect of Color on Human Behavior and Mood

Even though color theory is a well-established term, it is crucial to differentiate between color theory and color psychology, as the two terms are sometimes used interchangeably. Indeed, they can work synergistically, and by implementing that, one can achieve the best of both worlds. However, color theory focuses on visual effects and harmony, while color psychology focuses on the emotional impact colors have on humans.

By understanding the psychological and neurological mechanisms through which colors influence human behavior, marketers are able to structure more effective strategies that resonate emotionally with their target audience(s).

3.1 How the human brain reacts to colors

The explanation for how humans react to color is quite interesting and lies in evolutionary biology. According to Mollon (1989), color associations are a result of genetically rooted responses to color stimuli relevant to humans' fitness in their environment. An example Changizi et al. (2006) have shared is the color red, which has been intertwined with danger, as it is the color of blood and fire. Moreover, skin redness is a sign of anger (Archer, 2006). Such default evolutionary processes have probably caused people to associate red with alertness and avoidance. Interestingly, a study by Khan et al. (2011) concluded that even rhesus monkeys appear to be genetically coded to avoid red. Since monkeys are primates and hence one of humans' closest relatives, this strengthens the idea that red is associated with avoidance in terms of evolution.

Even though color stimuli trigger automatic evaluation processes in the human visual system, different color calculations are already made at an earlier stage of the visual system; that is a key evolutionary process found in many animals (Schneirla, 1959). What that means is that the colors we see are processed and trigger certain responses in the brain, which influence behavior, without the person being consciously aware of these effects.

Furthermore, as Mahnke (1996) highlights, colors stimulate the neural pathways in the pituitary gland, the hypothalamus and the pineal gland, structures responsible for controlling the endocrine system.

According to Grossman and Wisenblit (1999), humans first associated cool colors (e.g., variants of blue) with the night sky; therefore, inactivity, as most organisms sleep during the night. Nevertheless, warm colors like red, orange and yellow are associated with awakening and sun warmth; therefore, they usually signify energy.

When a person views colors, these activate neural pathways in the brain, which instantaneously trigger psychological and emotional responses, often preceding rational thought processes.

Our brain processes color information via the retina, which transmits signals to our hypothalamus, a region responsible for the production of hormones and the regulation of emotions. This direct connection between visual perception and emotional processing explains why certain colors evoke specific psychological states across various populations (Palmer and Schloss, 2023).

3.2. Association theory

It is scientifically proven that color and behavior associations are a fact. Nevertheless, physiological results can not reflect the whole domain of the association between color and behavior.

The psychological functioning and color model created by Elliot and Maier (2007) outlines the following principles: 1. Colors represent certain significance; 2. Color significance is derived from biology and learned associations; 3. Color triggers the evaluation of stimuli, which in turn motivates behavior; 4. The process from recognizing significance to the motivational behavior is non-conscious; 5. Color evokes different feelings depending on the circumstances.

Emotion plays a crucial role in one's behavior, and subjective feelings and interpersonal expressions can also represent emotions.

As mentioned before, Goethe was the first to associate colors with traits. The circle featured in his book correlates red with beauty, orange with nobility, yellow with goodness, green with usefulness, blue with commonness, and purple with superfluity.

As Ou (2015) states, the impact of color can be linked to several associations. Color is either used to give specific information in visual communication or to symbolize tangible goods or experiences. Yellow, for instance, is used in road signs as a warning signal, but is also a symbol of prosperity in China.

Below are the associations between the most common colors and concepts-emotions, as derived from an extensive study of the available literature:

Color	Association	Bibliography
RED	Activity, Aggression, Anger, Arousal, Attraction, Dynamic, Dominance, Excitement, Intensity, Liveliness, Love, Lust, Passion, Stimulation, Strength, Vitality, Warmth	Wexner (1954); Wilson (1996); Adams & Osgood (1973); Mandel & Johnson, Walters et al. (1982); Bellizzi & Hite (1992); Crowley (1993); Gorn et al. (1997); Aslam (2006); Elliot & Maier (2014)
BLUE	Coldness, Comfort, Competence, Dependability, Efficiency, High Quality, Intelligence, Logic,	Wexner (1954); Murray & Deabler (1957); Wright (1988); Jacobs et al. (1991); Bellizzi &

	Protection, Relaxation, Security, Stability, Trust, Wisdom	Hite (1992); Mahnke (1996); Clarke & Costall (2008); Labrecque et al. (2013); Elliot & Maier (2014)
YELLOW	Arousal, Cheerfulness, Excitement, Joy, Friendliness, Happiness, Optimism, Pleasure	Odbert et al. (1942); Wexner (1954); Murray & Deabler (1957); Cimbalo et al. (1978); Levy (1984); Jacobs et al. (1991); Collier (1996); Clarke & Costall (2008)
GREEN	Calmness, Environment, Happiness, Health, Nature, Relaxation, Refreshment	Kaya & Epps (2004); Aslam (2006); Clarke & Costall (2008); Elliot & Mayer (2014)
PURPLE	Anger, Authenticity, Authority, Dignity, Elegance, Expensiveness, Femininity, Luxury, Power, Stateliness	Wright (1988); Jacobs et al. (1991); Mahnke (1996); Fraser & Banks (2004); Aslam (2006); Mehta & Zhu (2009); Labrecque & Milne (2012)
ORANGE	Arousal, Cheapness, Disturbance, Energy, Excitement, Extroversion, Liveliness, Sociability	Wexner (1954); Lane (1991); Mahnke (1996)
BROWN	Earth, Nature, Protection, Reliability, Seriousness, Support	Wright (1988); Mahnke (1996); Madden et al. (2000); Fraser & Banks (2004); Clarke & Costall (2008)
PINK	Calmness, Care, Femininity, Innocence, Romance, Sensibility, Softness, Warmth	Mahnke (1996); Fraser & Banks (2004); Clarke & Costall (2007)
GRAY	Dependability, Exclusiveness, Loneliness, Luxury, Strength, Success	Jacobs et al. (1991); Lane (1991); Labrecque et al. (2013)
BLACK	Dignity, Glamour, Masterfulness, Power, Sadness, Sophistication, Stateliness, Strength	Odbert et al. (1942); Wexner (1954); Cimbalo et al. (1978); Jacobs et al. (1991); Mahnke (1996); Madden et al. (2000); Fraser & Banks (2004)
WHITE	Cleanliness, Easiness, Happiness, Hygiene, Peacefulness, Purity, Simplicity	Wright (1988); Mahnke (1996); Fraser & Banks (2004)

3.3. Color perception

The idea that experience and memory influence how people perceive the colors of objects in their environment is quite old; more specifically, it was German physicist and physician Hermann von Helmholtz who first suggested it in 1867. Helmholtz claimed that a big part of our perceptual image may be because of factors of memory and experience. A well-known mechanism related to color perception is the color memory effect. A memory color is the typical color of an object that people memorize through their experience with the respective object. An object with a memory color, like a ripe banana, is called a color diagnostic, since its color gives information regarding the identity of the object and vice versa. For example, the color yellow is characteristic of a ripe banana. On the other hand, objects that are not associated with a typical color, a car, for instance, can be called color-neutral, i.e., not color diagnostic. Memory modulates color appearance (Hansen et al., 2006) and there is neurobiological evidence today that can support the idea that memory colors affect color appearance directly.

The finding that pictures are remembered better than words -all other factors being equal- is called the picture superiority effect (PSE) (Paivio and Csapo, 1973).

Paivio's (1971, 1976) dual-coding theory is one of the first explanations of this effect. According to his theory, pictures are more likely than words to be encoded in both image and verbal representations, a fact that increases the probability of later retrieval. The dual-coding theory is endorsed by Snodgrass et al. (1974), who found that participants are more likely to spontaneously name pictures than image verbal stimuli. Nelson (1979), with his sensory-semantic model, proposed that words and pictures share the same semantic codes, yet pictures are more memorable. That is because they are more likely to be uniquely encoded in our memory because they have more distinctive visual features. Many researchers suggest that pictures receive more extensive semantic processing than words do, including Intraub and Nicklos (1985) and Weldon, Roediger and Challis (1989). Besides the different explanations of PSE, they all share the same fundamental assumption: the memorial representation of pictures is more distinctive, elaborate, or meaningful than that of words.

4. Branding and Brand Communication

A brand is, in reality, far more than a name or a logo. This chapter examines the core building blocks of branding that, together, shape how a brand is presented, communicated to and, ultimately, perceived by the consumer.

4.1. Definition of branding

“Brand” is a multi-dimensional term that combines important functional and symbolic values, which make it a strong competitive power and vital corporate resource.

According to de Chernatory and Dall’Olmo Riley (1998), the definition of “brand” can fall into 12 conceptual or thematic categories: “Added value”, “Company”, “Evolving entity”, “Identity System”, “Image in the consumers’ mind”, “Legal Instrument”, “Logo”, “Personality” “Relationship”, “Risk reducer”, “Shorthand” and “Value system”. They themselves proposed that a brand is “an identifiable product, service, person or place augmented in such a way that the buyer or user perceives relevant unique added values which match their needs more closely (1994).

The American Marketing Association officially defines a brand as “any distinctive feature like a name, term, design, or symbol that identifies goods and services”. Similarly, Kotler and Armstrong (2010) propose that a brand is “a name, term, sign, symbol, or design, or a combination of them which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors”.

4.2. Key Elements of a Brand

The concept and practice of branding have been widely utilised worldwide in the field of marketing. Yet, defining what a brand is is not quite straightforward. According to Fahy and Jobber (2015), the term “brand” refers to the value, position and image of a name, symbol, design, product and service that keeps it apart from the rest thanks to its uniqueness in the target market. Sammut-Bonnici (2014) describes a brand as a set of tangible and intangible attributes of a person, product, service, place, or business aiming to create awareness in its target market, avail a unique identity, reputation and a set of activities implemented from product innovation/invention to final marketing communication.

The key components of a brand will be briefly described and discussed below.

4.2.1 Brand identity

Brand identity refers to the distinct characteristics and attributes that a manufacturer wants consumers to associate with a product. In other words, it can be described as the expression of a product's character to the world. It encompasses both abstract qualities, like comfort or speed, and tangible assets, such as visual symbols and trademarks.

Historically, brand identity acquired importance during the Industrial Revolution, as then, mass production led to the creation of products that were indistinguishable from one another and, in order to stand out, manufacturers developed unique brand identities. However, in the modern context, consumer feedback and interaction, particularly via social media, have changed the landscape, challenging companies to be more authentic and flexible. Visual (brand) identity plays a crucial role because recognizable designs and symbols convey the brand's values.

According to Törmälä and Gyrd-Jones (2017), brand identity is, to a large extent, an application of a natural human tendency to the world of commerce. More specifically, humans tend to create or recognize symbols that can be used to unite a group whose members share a common attitude or purpose. This tendency is evident in the inspiration conveyed by religious symbols throughout history or in the camaraderie of fans who support a specific team and its mascot.

A famous model breaking down brand identity is the Brand Identity Prism, a hexagon created by Jean-Noël Kapferer in 1986, the man who first presented the concept. According to Kapferer, brand identity comprises six key aspects.

First is the physique, i.e., the sum of the brand's physical features evoked in people's minds when the brand is mentioned. Physique is considered the branding basis, with Kapferer stating that no brand can succeed without drawing attention to its material benefits. Even strong brands -in terms of image- should show what they are selling, yet in a recognizable and differentiating way.

Second is the personality (or character). A brand that communicates with consumers in a specific way gives them the impression that any communication with the brand is actually a person with specific characteristics talking to them. Endorsements in the form of people

recommending a brand can bring the character to life, which is why the selection of George Clooney to promote Nespresso has been so successful.

The third aspect is culture. Culture is defined as the system of values and principles on which a brand grounds its behavior and is the direct link between the brand and the organization, according to Kapferer. The culture should resonate with as many customer contacts as possible. In many cases, associations are related to the brand's country of origin. Well-known examples include Coca-Cola (appealing to American values) and Mercedes-Benz (appealing to German values).

Relationship is another element of identity, indicating that a brand may symbolize a certain relationship between people. This aspect is especially crucial for service brands since services are, de facto, relationships.

The fifth aspect of brand identity is the consumer's reflection. Reflection refers to the stereotypical user of the brand's product(s). It is important to note, though, that stereotypical users are not necessarily the brand's only target group; the target group can be much broader. Last but not least is self-image, meaning the customers' attitude toward the brand when they purchase a product from it. In other words, how the customer wants to be seen after acquiring something from the brand. A common example is BMW cars, the drivers of which want others to view them as rich because they drive a luxury car.

4.2.2 Brand equity

Brand equity emerged as a concept in 1988 and is linked to the consumer mindset.

The most well-known approaches concerning the idea of brand equity belong to Aaker (1991) and Keller (1993). Aaker defined it as a set of brand assets (and liabilities) linked to the brand, its name and symbol that add (or subtract) from the value provided by a product or service to a firm and/or to the firm's customers. His customer-based brand equity model suggests that five specific dimensions can act as sources of brand equity: brand loyalty, associations, brand awareness, perceived quality, and other proprietary assets (e.g., patents). Keller, on the other hand, defined brand equity as the differential effect of brand knowledge on customers' responses to the brand's marketing. Yet, he recognized brand awareness and associations as important underpinnings of consumer-based brand equity.

Other definitions include the one proposed by Yoo and Donthu (2001), which states that brand equity is the consumer's different response between a focal brand and an unbranded

product when they have the same level of product attributes and marketing stimuli, and the one proposed by Srinivasan et al., according to which brand equity is the incremental contribution (\$/year) obtained by the brand when compared to the underlying product lacking brand-building efforts.

4.2.3 Brand value

Brand equity, as a driver of the brand's value, should not be confused with the brand's financial value (Raggio & Leone, 2009). Instead, brand value should be considered from the company's perspective and can be regarded as the sale or replacement price of a brand. That value is dependent on the strategic decisions applied and the ability to capture its potential value (Brondoni, 2001; Changeur, 2004; Keller & Lehmann, 2009; Raggio & Leone, 2009; Tiwari, 2010). Brand equity represents the meaning of the brand in the mind of the stakeholder, especially consumers, while brand value is what the brand means to its owner (Raggio & Leone, 2007). For Godfarb (2009), brand equity refers to the additional utility consumers derive from the product due to its brand identity, whereas brand value refers to the net present value of cash flows accruing to a company due to its brand equity.

As per Kapferer (2008), brand value is “the ability of a brand to deliver profits to its owners and is measured in monetary currency”. Brand value is a projection into the future. The brand financial valuation intends to measure the worth of the brand, i.e., the profit it is capable of creating in the future (Johansson, Dimofte & Mazvancheryl, 2012; Kapferer, 2008). The globalness of a brand reinforces the perception of quality and prestige, adding brand value (Steenkamp, Batra & Alden, 2003). In addition to its economic value, brand value also contains a social value (Narayan, 2012), as it results from combining financial and non-financial assets and operations and can be estimated by considering both financial and non-financial elements and returns (Kayali, Saygili & Demirlioglu, 2017).

4.2.4 Brand personality

A pioneer in the study of brand personality, Jennifer Aaker (1997) refers to it as the set of human characteristics associated with a brand. She claims that consumers tend to project human personality traits to brands via a process called animism, which allows the symbolic use of brands. Earlier research proved that it is easy for consumers to envision brands as historical figures or celebrities (Rook, 1985), while Fournier (1994) believed that consumers

can relate to themselves as well. The latter may be caused to some extent by the strategies used in advertising to imbue a brand with personality traits, such as the creation of user imagery, anthropomorphization and personification.

Based on research on human behavior and the Big Five personality traits (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism), Aaker developed a brand personality framework in order to explore the meaning of each dimension in consumer behavior. She determined five dimensions of brand personality: sincerity, excitement, competence, ruggedness and sophistication. Each dimension describes brands sharing some core personality traits.

Brand Personality Dimension	Brand Personality Traits	Example
Sincere	• Down-to-earth • Wholesome • Honest • Cheerful	Hallmark's Cards
Excitement	• Up-to-date • Daring • Imaginative • Spiritive	MTV Channel
Competence	• Intelligent • Reliable • Successful	The Wall Street Journal
Ruggedness	• Outdoorsy	Harley-Davidson

	• Tough	
Sophistication	• Upper-class • Charming	Mercedes

More recent studies examine digital brand personality as well, demonstrating that it is highly effective in shaping consumers' responses towards brands. Indicatively, perceptions of a digital brand personality increase electronic word-of-mouth (Torres & Augusto, 2019), social media engagement (Bernritter et al., 2016) and purchase intentions (Jin & Sung, 2010; Lee & Cho, 2017).

4.2.5 Brand image

Brand image is a multidimensional concept that Biel (1992) views as a core driver of brand equity. Several definitions have been proposed throughout the years, one of the earliest given by Gardner and Levy (1995), who defined brand image as the set of ideas, feelings and attitudes consumers have about a brand. For Aaker (1991), brand image creates value in various ways, helping consumers to process information, differentiating the brand from competitors, generating reasons to buy, offering positive feelings and providing a basis for extension. A more recent attempt was made by Lee et al. (2014), who define brand image as the way customers see a brand, including aspects such as reputation, impression, emotion, and others, as well as by Zhang (2015), who suggests that brand image refers to consumers' general feeling and perception about a brand and influences consumer behavior.

Brand image indicates how customers think about the brand and suggests how they perceive it, an idea reflected in the associations held in their minds. Especially in competitive environments, reputation plays a crucial role in the minds of customers and a good image is, actually, the organization's success, as, due to the large number of brands, consumers are exposed to several promotional actions, yet are affected by the strongest. In fact, brand image is an element that all brands aim to achieve at the maximum positive level possible.

It is important to note that a company can choose only some ideas from the sum of impressions surrounding it when creating its brand image. Hence, each brand must carefully select the style it should adopt.

4.2.6 Brand recognition

Brand recognition is one of the major goals of a brand's management. The term refers to how quickly a consumer recognizes and distinguishes the brand whenever any of its elements appear, like its logo or slogan (Mehreen, Faisal and Muhammad, 2018). It relates to consumers' ability to confirm prior exposure to the brand when the brand is presented to them as a stimulus. In other words, brand recognition requires consumers to correctly identify a brand as something they have heard or seen before (Keller, 1993).

According to the recognition heuristic (Goldstein and Gigerenzer, 2002), when asked to choose an answer in a situation where the correct answer is unknown, individuals will choose the option they recognize from prior experience rather than the unknown option (Barrend, Bilgihan, Nusair and Okumus, 2015).

Since people believe that the recognized option is more secure, brand recognition becomes a powerful instrument in consumers' decision-making process, giving managers more opportunities to develop their brands.

To understand the importance of recognition in business, it is useful to examine a case. A modern tendency of brands is to extend the product line to create premium products in order to achieve higher margins within the exceptional package design concept. However, this, if not done strategically, may signal the failure of the project, as there are some diagnostic parameters, including color, which play a major role in brand recognition and, if changed, the impact will be rather negative.

Tropicana relaunched its orange juice in 2009, with the relaunch including the modification of its packaging design (images, logo, lid), and promoted it through a huge campaign. The product (orange juice) had not changed, and neither had the brand name and key brand messages. Just two months after the relaunch campaign, Tropicana faced sales losses equal to 30 million euros!

Coca-Cola's red, Vanish's pink and Milka's purple, on the other hand, are excellent examples of color being a crucial parameter in brand recognition.

4.3. Brand communication

Brand communication, according to Kotler and Keller (2012), serves as an essential link between consumers and companies, promoting consumer trust and loyalty. A similar but a bit longer definition has been shared by Rahmadhani et al. (2022), stating that brand communication is an important communication strategy in order to build brands in the eyes of the people and functions as a link between companies and consumers, for the former to develop consumer trust and loyalty.

Keller (2013) has stated that competent brand communication management, including delivering corporate value to the target market, is crucial to having an advantage over competitors. Risanti et al. (2021) believe that special attention must be paid to delivering messages that fit the brand's target audience, so brand communication management should take into account audience analysis, message selection and the media used.

In other words, brand communication is an effort by marketers to create positive perceptions of their brand, build reputation, and increase consumer awareness and memory (Chinomona, 2016; Moradi et al., 2020). Good brand communication actions should form good memories and create brand opportunities to become market leaders, increase consumer confidence and provide the brand with power (Zehir et al., 2011).

Research has proved that good brand communication, not alone but with other components like brand identity and brand experience (i.e., the consumer cognitions, sensations, feelings, and responses influenced by a brand's identity, design, imagination, communication and environment (Brakus and Zarantonello, 2009), can indeed function as a driver for trust and loyalty. A study by Schivinski and Badrowksi (2015) showed that brand communication via advertisements and social media develops consumer trust and leads to positive behavior for consumers to stay loyal to the brand. Agung (2019) showed that brand communication can, among others, contribute to the formation of brand trust, while a study by Arenggoasih (2017) confirmed that the higher the level of brand communication, the higher the level of brand trust.

The way a brand communicates with its customers is able to shape the perception of its personality as well. For instance, a brand using playful or humorous messaging in its advertisements may be perceived as more fun-loving and lighthearted compared to a brand using more serious and straightforward messages. (Heleta Švrakić and Arslanagić-

Kalajdžić, 2023). The challenge that brand communication should overcome is to find a way to harmonize brand personality as perceived by the customers as much as possible with the intended brand personality as the company defines it (Ivens and Valta, 2012).

Research shows that color is a vital element for the communication process to both brands and consumers, as it can trigger an emotional response, carry intrinsic and associated meaning, and influence consumers' perception of what a brand communicates (Cunningham,

M.K., 2017).

5. Color in Branding and Marketing

Beyond its historical and scientific roots, color carries powerful symbolic weight that varies across genders, cultures and age groups. The same hue can evoke different associations depending on the context. Marketers who overlook these factors risk undermining the brand associations they themselves aim to build. This chapter examines how color functions as a strategic tool within branding and marketing associations related to these three widely-used demographic factors, the practical application of color in brand identity and advertising, well-known brands associated with specific colors, and the wider influence of color on consumer decision-making.

5.1. Color associations

Associations are crucial for a brand's success, as mentioned in the former chapter. Aaker (1992) believes that associations make it easier for a customer to process and retrieve information. Kotler and Keller (2006) have included color as a brand attribute related to brand association.

5.1.1 Sex

An interesting finding highlighted in a paper by Girard (2018) suggests that color preferences may have evolutionary origins. According to this perspective, these color biases developed during human evolution, when males were hunters and females were gatherers. Women are believed to have developed a heightened ability to distinguish shades of red and yellow from green, enabling them to locate berries, fruit and other vital food sources. Their

innate roles as gatherers and resourcers may also explain women's preference for redder shades, as red signified something good and would lead them to food (Alexander, 2003).

Westland (2015) found that men preferred cooler colors like purple and green, while women liked red and orange more.

Colors are more important for women than for men (Akçay, 2013; Khouw, 2002).

Both genders focus more on color when it comes to products related to self-expression, like clothes and shoes, while for technological products, like computers and cellphones, colors are not that stressed upon.

The association of blue for men and pink for women has been established since the mid-twentieth century and remains widespread, with the use of blue and pink or similar colors to represent men and women, respectively, being highly prevalent to this day.

The Gender Schema Theory, introduced by Sandra Bem in 1981, suggests that as gender awareness develops, children tend to show greater interest in information that is relevant to their sex. The information they have gathered can shape their preferences, leading them to favor things that are commonly associated with their gender. Due to stereotypes passed on from one generation to the next, according to which blue items are meant for boys and pink ones for girls, children assimilate this information and can distinguish "males'" objects from "females'" objects. As a consequence, boys are more drawn to blue items while girls prefer the pink items. A study conducted by LoBue and DeLoache (2011) on the preferences of children between 7 months and 5 years old for pink items over time found that male children are, indeed, more detached from pink colored things.

Research has identified gender-based variations in color preferences. In general, women prefer purple, blue, and green, while men prefer orange, blue, and green.

Blue appears as a favorite among both sexes; literature suggests that blue's association with professionalism and reliability resonates with male consumers. Green's association with health and natural/environmental associations is presented in both sexes as well. The association of purple with luxury and creativity strongly appeals to women, while orange's associations with activity and energy appeal to male consumers.

5.1.2 Sex

A color may evoke different feelings in different cultural groups. An article by Jiang et al. (2014) mentions a generally greater positive perception of red in mainland China compared to Hong Kong, which is a more “Westernized” eastern culture, while according to Jonauskaitė et al. (2019, 2020) and Wang (2013), white seems to carry mostly positive connotations in Western cultures, yet, in China, negative associations (sadness) are related to the color.

When it comes to what a color symbolizes, associations can vary greatly depending on culture.

Starting with red, it may have a negative meaning in some European cultures, like aggression and defiance, but in Indian culture, red is considered the most powerful color, associated with traits such as warmth, strength, excitement and stimulation. In Thailand, red is the color of Surya, the god of solar energy, while in China, it is believed to bring prosperity, happiness and a long life and represents celebration. Finally, the red color in South Africa’s flag symbolizes violence and the sacrifices of people during the struggle for independence, as the color is associated with mourning.

Yellow may be related to positive meanings in some European cultures, such as friendliness, optimism and confidence, yet in Germany and France it can signify jealousy and betrayal. In China, it is associated with pornography, while in the adjacent nation of Japan, yellow represents bravery, refinement and wealth. In Africa, due to its resemblance to gold, yellow is reserved for the highly ranked.

Blue has both positive and negative meanings in Western culture. Positives include intelligence, efficiency, trust, calmness and logic and negatives include coldness, unfriendliness and aloofness. It is generally considered a symbol for masculinity across the world, except for China, where it is related to femininity. In the sphere of religion, Catholics often depict the Virgin Mary wearing a blue robe, as the color signals health and hope, while in Judaism, blue is associated with divinity and holiness. Lastly, blue is the color of Krishna, a major deity in Hinduism. It represents love and joy, but may also diminish sin and pain.

Green is rarely considered a negative color in Western civilizations, yet its negative associations include blandness, boredom and enervation. Its positive meanings are harmony, refreshment, rest, and environmental awareness. It is often associated with nature and peace,

despite being a color reminiscent of the military. Most Eastern and Asian cultures associate green with new beginnings, fertility, health, prosperity and youth. The Mexican flag features green to represent the nation's independence after gaining freedom from the Spanish, whereas green symbolizes death in Spanish-speaking South American countries.

Another color perceived differently across cultures is orange. Orange may be associated with positive meanings like creativity and innovation in many Western cultures, but is related with mourning in Egypt. In China and Japan, it signals love, happiness, courage and good health.

Lastly, purple is usually related to royalty, power and wealth. Yet, among Catholics and in Brazil, Thailand, India and many European countries it symbolizes death.

5.1.3 Age

Associations and meanings of colors differ across various age groups. According to Casas and Chinoperekweyi (2019), children and adults react differently to specific colors.

Dittmar (2001), in her comparative study of younger and older native Germans aged between 19 and 90, found that color preferences change significantly during the course of adult life. The popularity of green and red increased in both sexes, while the preference for blue decreased steadily. At the same time, red has been found to be the favorite color among children under 6 years old, whereas a shift towards blue has been observed in school-aged children (Choungourian, 1968).

Singh (2024) suggests that consumers aged 18-25 demonstrate higher openness to unconventional colors in conservative sectors, such as finance and health, while Palmer and Schloss (2023) highlight that older consumers maintain more traditional color associations aligned with historical conventions.

Yet, the literature seems to be limited in regard to the correlation between the age and the generation of consumers compared to other demographic factors, like sex and culture.

5.2. Application of color in branding

An array of studies (Allison, 1999; Argent, 2007; Singh, 2006) have proved that consumers' assessment of a product is based on color from 62% to 90% of the time, and

this assessment is usually completed in under 90 seconds. Mofarah (2013) believes that people tend to select a product color based on their sensuous desire, as they pay more attention to it.

Mofarah, Tahmtan, Dadashi and Banihashemian (2013) found that colored advertisements are 100% more memorable than black and white ones.

The research in the field of color marketing is divided into four main categories: packaging color, product color, color in atmospherics and color in advertising (Lee and Rao, 2010).

According to Kolenda (2016), the interpretation of colors plays a role in the way people perceive both the product and the brand. A color that may generally be perceived negatively can take on a positive meaning when its context and application are changed. For example, red can symbolize danger, yet it also evokes hunger and signals desire and power.

5.3. Well-known brand logos per color

Note: The photos of all logos presented have been derived from Wikipedia or Wikimedia Commons.

- Red

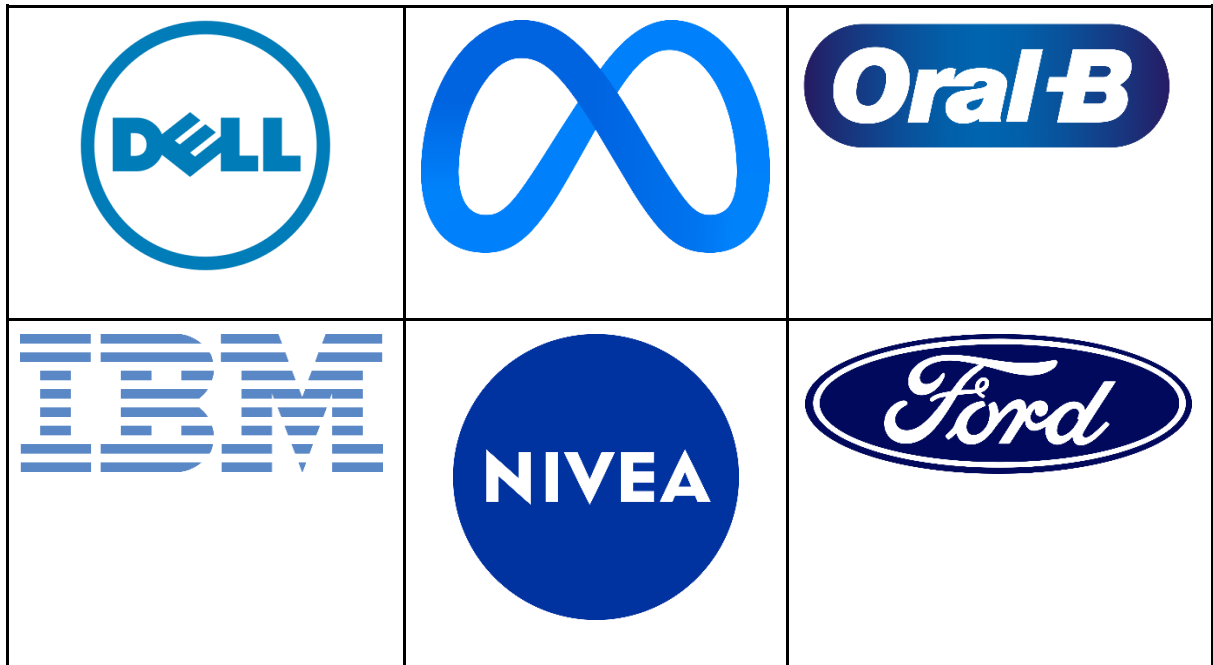


From left to right:

Top row: Coca-Cola (soft drink), Vodafone (technology communications), YouTube (online video sharing platform)

Bottom row: Marvel Comics (media franchise and shared universe of films and TV series), Red Bull (energy drinks), Levi Strauss & Co (clothing)

- Blue



From left to right:

Top row: Dell Inc. (technology), Meta Platforms (technology/social media), Oral-B (oral hygiene)

Bottom row: IBM (technology), Nivea (personal care), Ford (automaker)

- Yellow





From left to right:

Top row: McDonald's (fast food), Chupa Chups (confectionery), Nikon (optics and photographic equipment)

Bottom row: Lipton (tea and herbal drinks), Cheetos (snack), Snapchat (technology/social media)

- Green



From left to right:

Top row: Heineken (brewer), Whole Foods Market (supermarket), Nvidia (technology)

Bottom row: Starbucks (coffeehouse), Spotify (music streaming), Razer Inc. (technology)

- Orange



From left to right:

Top row: Harley-Davidson (motorcycle manufacturer), Nickelodeon (children's television channel)

Bottom row: SoundCloud (streaming service), easyJet (airline), Popeyes (fast food)

- Pink



From left to right:

Top row: Barbie (fashion doll), Trolli (confectionery), Lyft (ride-hailing)

Bottom row: T-Mobile (wireless network operator), Cosmopolitan (women's magazine), The Pink Panther (media franchise)

- Purple

From left to right:

Top row: Hallmark Cards (greeting cards/gift shop), Premier League (association football league)

Bottom row: Yahoo (web portal), Curves International (fitness), FedEx (transportation/e-commerce/business services)

5.4. Application of color in marketing and advertising

Kotler and Armstrong, in their book *Principles of Marketing* (2018), define marketing as the activity of creating a product to fulfill a customer need in a global or a particular market, and selling it to earn a profit. They also mention that the way the product is presented plays a major role in capturing customers' attention and interest, inciting them to act and buy the product.

Several studies in the 1980s show that the relationship between consumers and brands entails financial value. The concept of brand image was then incorporated into mainstream marketing theories and major brands were urged to invest in the science of color and what color meant to consumers (Grimes and Doole, 1998).

In fact, color psychology is so crucial to marketing that it has forced some businesses to invest millions in order to distinguish themselves against their competitors, while others

take legal action against those who threaten their brands' trademark colors (Cunningham, 2017). Aslam (2006) suggests that people tend to choose the color of their homes, cars, and even sports shoes based on how they want to present themselves to others, and, by using this piece of information, brands can utilize a color to target an audience and communicate with it.

A great example and one of the most costly campaigns, in which a company placed significant financial value on color, was the Pepsi vs Coca-Cola case in 1996. More specifically, the first launched the \$500 million color rebranding initiative "Project Blue", in order to distinguish itself and its "electric blue" color from its rival's bold red. Part of this project's marketing was painting an Air France Concorde jet blue.

A study by Gupta et al. (2025) on how visual elements affect consumer perception suggests some practical guidelines for marketing practitioners. Firstly, color selection should start with understanding category conventions, in particular for established product categories with strong color associations, and deviations from these norms shouldn't be arbitrary but strategic. Secondly, age, gender and cultural background influence consumers' reactions to color, so color palettes used should be appropriate for the specific target audience. Additionally, color should align with the overall brand positioning. Established brands emphasizing reliability may benefit from selecting/using conventional and trust-evoking colors, while groundbreaking brands can leverage unexpected ones to signal innovation. Finally, colors used by brands should be consciously aligned between desired brand associations and color-triggered emotions.

Gates (2013) believes that Color is fundamental for design and visual storytelling.

In 2014, the 200 largest advertisers in the US collectively spent nearly \$138 billion on advertising, with each of the top five advertisers investing at least \$2.5 billion (O'Reilly, 2015).

If a brand doesn't incorporate its established brand colors into an advertisement, it has the flexibility to select a color based on color psychology. Fad colors may serve some advertisers, yet certain industries may choose to adopt a more timeless color palette. According to Gimba (1998), car manufacturers usually avoid introducing fad colors, as it will be hard to sell those cars after a few years, when the color is no longer part of a fad.

A study by Gorn, Chattopadhyay, Yi and Dahl (1997) suggests that by focusing on hue alone and not paying much attention to color depth and brightness, brands are missing out on sales opportunities.

Regarding the modern aspect of marketing called digital marketing, color selection is crucial. That is because, in physical environments, consumer behavior is influenced by a handful of sensory inputs. In digital environments, however, the interface relies almost entirely on visual elements for communication. A website's background colors, for example, significantly influence engagement duration and user experience. Research shows that a warm-colored background can stimulate engagement but may also cause fatigue faster if overused, while a white or blue background promotes extended browsing and reduces eye strain, which is why these two colors are considered ideal for content-heavy websites. Concerning social media platforms, another major means of today's digital marketing strategies, studies show that brands that maintain a consistent color palette across their social media profiles achieve higher engagement and recognition (Lindstrom, 2023). Singh (2024) suggests that using consistent brand colors on social media receives 24% higher engagement.

5.5. Consumer decision-making

Neuroscience research has successfully identified mechanisms through which colors influence consumers' behavior.

- Colors activate emotional centers in the brain (hippocampus, amygdala) before the occurrence of conscious processing. This is called emotional triggering and explains why color responses and preferences sometimes feel more instinctive than rational.
- Colored branding elements and advertisements are remembered better than black and white alternatives. In fact, according to Labreque and Milne (2024), color increases learning by 78% and comprehension by 73%. This is due to memory enhancement.
- Repeated exposure to color-brand combinations forms neural pathways triggers instant (brand) recall. Association formation, as this process is called, explains why consumers can identify a brand by color alone, even when its name or logo is not visible.
- A mechanism called attention regulation explains why some colors capture attention more effectively than others. Warm colors draw attention more readily than cool colors, making them valuable for CTA (call-to-action) elements and promotional displays.

As stated by Hoeffler and Keller (2003), the decisions of consumers as well as their evolving preferences are crucial in shaping the market.

Page (2012) states that consumers choose to buy a product based on its brand, color and price, while a study conducted by Akcay (2013) found that almost 68% of respondents gave color high importance when it comes to purchasing a good.

Kotler suggests that a product has five levels, each influencing consumer buying behavior based on emotional and/or intellectual effects.

1. Core Product: The benefit a customer gets when using the product. In other words, the main purpose or function of the product. For example, a T-shirt.
2. Generic Product: The overall (or physical) qualities and characteristics of the product, such as color, material and design. This refers to the product's aesthetics. For example, a white, cotton T-shirt.
3. Expected Product: What a customer assumes the product does post-purchase. For example, a white cotton T-shirt is expected to be cool on the skin and not absorb heat easily. Hence, it is suitable for summer outfits.
4. Augmented Product: The extra features that help customers differentiate a product from those offered by competitors. Price differences, warranties, after-sales services and customer care are some factors that can serve as such characteristics. In the example of the white cotton T-shirt, the store offers a discount on Bermuda shorts for people who buy the T-shirt.
5. Potential Product: The versatility of the product and how it can extend its function by transforming into a different example. In the white cotton T-shirt scenario, it can be used as a cleaning cloth if, for some reason (rip, decline, indelible stains), it cannot be worn anymore.

In their paper concerning color psychology and its influence on consumer buying behavior in the case of apparel products, Casas and Chinoperekweyi (2019) share that consumers are influenced by two factors: emotional dominance and intellectual dominance. Emotional dominance refers to consumer buying behavior that is primarily driven by emotional attachment or associations with the color of the garment, personal sense of style and individual perception. On the other hand, intellectual dominance is more influenced by rational thinking and cultural norms, taking into account the factors of functionality, appropriateness and adherence to social expectations in clothing color choices.

Packaging design is a fundamental aspect of branding and significantly impacts the purchasing process, especially in time-restricted situations. According to Reimann et. al (2010), an effective packaging design must be functional, aesthetically appealing and informative at the same time, and color serves a pivotal role in capturing attention and shaping consumer emotions and decision-making. Purwati (2011) states that in the digital age, when online catalogues sometimes are the first point of contact with a product, color stands out as one of the most influential visual elements capable of captivating a user's interest and encouraging further exploration.

Statistical evidence:

- > 93% of consumers report that visual appearance and primarily color is the number-one factor in their purchasing decisions
- > 85% of purchasing decisions are influenced by color
- > Consistent color usage increases brand recognition by 80%
- > 71% of shoppers identify store color and design as key factors during their shopping experience
- > 68% of consumers confirm that packaging color influences their purchasing behavior
- > 62%-92% of consumers form a judgment about retail environments based on color within the first 1.5 minutes of viewing
- > Strategic color cues on retail shelves increase impulse purchases by 42%
- > Coordinated point-of-sale color schemes provoke 38% higher purchase intent

Research shows that brand image plays a crucial role in shaping customer product selection, as a strong brand image builds trust and encourages purchases (Soegihono et al., 2022). Brand awareness and price also play significant roles, contributing to increased interest and repeat purchases (Ikhsani, 2020).

6. Research Methodology

6.1. Hypotheses Formulation

The research questions are, in fact, three. The first research question is how brand color affects consumers' emotional response. The second research question is how brand color influences consumers' perception of the brand. The third question is whether different generations of Greeks (Gen X, Millennials, Gen Z) perceive brand colors in the same way.

Therefore, five hypotheses were formed:

1. H0(1): Different colors do not influence consumers' emotional responses.

H1: Different colors do influence consumers' emotional responses.

2. H0(2): Color does not influence consumers' perception of the brand.

H2: Color influences consumers' perception of the brand.

3. H0(3): Emotional response does not play a role in the relationship between color and brand perception.

H3a: Emotional response plays a role in the relationship between blue and brand perception.

H3b: Emotional response plays a role in the relationship between red and brand perception.

H3c: Emotional response plays a role in the relationship between green and brand perception.

H3d: Emotional response plays a role in the relationship between yellow and brand perception.

4. H0(4): The generation to which the consumer belongs does not influence the relationship between color and emotional response.

H4: The generation to which the consumer belongs influences the relationship between color and emotional response.

5. H0(5): The generation to which the consumer belongs does not influence the relationship between color and brand perception.

H5: The generation to which the consumer belongs influences the relationship between color and brand perception.

6.2. Instruments

The research instrument employed in this study was a structured online questionnaire developed and distributed via Google Forms. A questionnaire distributed online was

selected because it has no cost, increased reach and a high likelihood of being seen and completed. At the same time, the platform secures the standardized administration of the survey to all potential participants, efficient data collection and real-time, up-to-date results.

The questionnaire consisted of four sections. The first section covered the basic demographic information (gender, generation). The second section involved evaluating colors through the presentation of non-existent logos in the four popular colors that we wished to study (i.e., red, blue, green and yellow). The third section focused on perceptions of real brands using the colors selected for the questionnaire. Lastly, the fourth section was about the general perceptions of colors. Sections 1 and 4 comprised closed-ended, single-response items in which participants selected one of the provided predefined answers, while sections 2 and 3 employed Likert-scale response formats.

After the questionnaire was administered on a trial basis (prior to its publication) to two individuals who answered all of its questions conscientiously, spontaneously and honestly, it was found that the average time of completion is approximately 7 minutes.

In order to test the defined hypotheses, the gathered data were analyzed using the IBM SPSS Statistics software and the Python programming language.

H1: Mean for each participant in each color, followed by an ANOVA test with a $p\text{-value} < 0,05$.

H2: Mean for each participant in each color, followed by 3 ANOVA tests with a $p\text{-value} < 0,05$.

H3: Hayes PROCESS where X: Color, Y: Brand perception, M: Emotion, to check if X has an effect on M, if M has an effect on Y, if X has an effect on Y, and if there is a significant indirect effect.

H4: Two-way ANOVA where Factor 1: 4 colors used, Factor 2: Generations, and Dependent Variable: emotion score, with a $p\text{-value} < 0,05$.

H5: Two-way ANOVA where Factor 1: 4 colors used, Factor 2: Generations, and Dependent Variable: Brand perception score, with a $p\text{-value} < 0,05$.

6.3. Participants

The minimum number of participants required for the survey to be considered valid and the results reliable was 70.

The questionnaire was distributed online and was accessible to any participant willing to fill it out. Hence, the sampling method was a non-probability and convenient one. Since the number of participants from each generation was unequal, quota sampling is not valid.

7. Results

This section presents the descriptive statistics, the results of the statistical test and their interpretation in relation to the research question for each of the hypotheses stated. The statistical analysis was performed using the SPSS software for statistical tests (repeated-measures ANOVA, paired t-tests, Pearson correlation). The level of statistical significance was set at $\alpha=0.05$ for all tests, with a Bonferroni correction applied to multiple pairwise comparisons (post-hoc tests).

The final number of participants (sample size) was 75 participants, of whom 54 (72%) were females and 21 (28%) were males. Concerning age, 38 participants (50.7%) belong to Gen Z (14-29 years old), 21 participants (28%) belong to Millennials (30-45 years old), 12 participants (16%) belong to Generation X (46-61 years old). Lastly, 4 participants (5.3%) reported an exact age over 62 (65, 68, 69 and 80). Since there was no provided generation to select and merging them with Generation X would be erroneous, a separate category needed to be created (“62+ years”).

7.1. Results for H1

The first research hypothesis examined whether a brand’s color influences consumers’ emotional responses. To this end, each participant rated 16 emotional items (joy, intensity, trust, renewal, security, enthusiasm, optimism, indifference, calmness, well-being, passion, anxiety, connection with nature, fatigue, energy and absence of any particular emotion) for each of the four colors under examination, i.e. blue, red, green and yellow, on a Likert scale ranging from 1 (“Not at all”) to 5 (“Very much”). For each participant and each color, a composite emotional response score (Emotion Score) was calculated as the arithmetic means of these 16 items.

Descriptive statistics showed that yellow has the highest mean emotional response ($M=2.9$, $SD=0.59$). Green comes second ($M=2.87$, $SD=0.62$), blue comes third ($M=2.68$, $SD=0.47$), and red comes last third ($M=2.67$, $SD=0.5$).

Since all participants rated all four colors (within-subjects design), the comparison of means was performed using a repeated-measures ANOVA test. The analysis revealed a statistically significant main effect of color on the Emotion Score, $F(3, 222)=4.82$, $p=0.003$. Mauchly's sphericity test indicated a violation of the sphericity assumption, $W=0.797$, $p=0.006$. For that reason, the Greenhouse-Geisser correction ($\epsilon=0.861$) was applied, with the corrected result remaining statistically significant, $p=0.005$. The effect size was $\eta^2p=0.071$, indicating a moderate effect size according to Cohen's conventional criteria.

In order to identify the specific differences between color pairs hidden behind the significant main effect, 6 post-hoc pairwise comparisons (paired-samples t-tests) were performed, applying a Bonferroni correction. Out of the 6 comparisons, 3 were statistically significant: the blue versus yellow comparison ($t(74)=-2.81$, $p=0.038$ with a Hedges' g effect size of -0.4), the green versus red comparison ($t(74)=2.88$, $p=0.031$, with a Hedges' g effect size of 0.35) and the red versus yellow comparison ($t(74)=-2.87$, $p=0.032$, with a Hedges' g effect size of -0.42). In contrast, the comparisons between blue and red, green and yellow, and blue and green were found to not be significant.

Overall, the findings of H1 confirm the hypothesis that a brand's color significantly influences the consumer's emotional response and, more precisely, show that yellow and green elicit a statistically significantly stronger overall emotional response compared to blue and red.

7.2. Results for H2

The second hypothesis examined the extent to which color influences consumers' perception of the brand itself, beyond the emotion evoked by the color itself. In the questionnaire, participants were asked to think of a real brand that uses the color in question and then rate 11 statements regarding their perception of that brand on a Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The 11 items were grouped into 4 conceptually distinct subscales: Trust ("seems reliable", "inspires trust in me", "I would trust this brand"), quality ("looks well-crafted", "seems high-quality", "conveys professionalism"), arousal ("seems dynamic", "draws attention", "stimulates someone when seen") and emotional connection ("evokes positive emotions in me", "I find it likeable"). Additionally, an overall brand perception score (Brand Overall) was calculated as the average of the 11 items.

A separate repeated-measures ANOVA was conducted for each of the 4 subscales, as well as for the total score with color as the factor. The test was followed by post-hoc paired t-tests with Bonferroni correction, where the main effect was found to be significant.

- **Trust Subscale**

The analysis revealed a statistically significant effect of color, $F(3, 222)=5.43$, $p=0.01$. A Greenhouse-Geisser correction was not required, as the sphericity assumption was not violated. The mean (M) of the color blue was 3.54 with a $SD=0.83$. For red, $M=3.05$ with a $SD=0.89$. For Green, $M=3.51$ with a $SD=0.9$, and for yellow, $M=3.47$ with a $SD=0.83$.

Post-hoc test revealed 3 significant differences. The first is that blue is significantly superior to red ($t(74)=3.71$, $p=0.002$ with a Hedges' g effect size equal to 0.56). The second is that green is significantly superior to red ($t(74)=3.46$, $p=0.005$, with a Hedges' g effect size equal to 0.5). The third is that yellow significantly outperforms red ($t(74)=-2.99$, $p=0.023$, with a Hedges' g effect size equal to -0.44). In other words, red consistently emerges as the color that inspires the least trust compared to the other colors.

- **Quality Subscale**

A similar pattern was observed on this subscale. The analysis revealed a statistically significant effect of color, $F(3, 222)=4.37$, $p=0.005$. The mean (M) of the color blue was 3.65 with a $SD=0.87$. For red, $M=3.17$ with a $SD=0.89$. For Green, $M=3.45$ with a $SD=0.88$, and for yellow, $M=3.42$ with a $SD=1.04$. After the application of the Bonferroni correction, there is only one statistically significant comparison and that is between blue and red ($t(74)=4.08$, $p=0.001$, with a Hedges' g effect size equal to 0.54). This indicates that blue is perceived as a significantly "higher-quality" brand color compared to red, though it does not differ significantly from yellow and green.

- **Arousal Subscale**

In the arousal subscale, the strongest effect of color was seen across the entire analysis for the H2 hypothesis, with $F(3, 222)=20.87$, $p<0.001$, with an effect size many times greater than that of the rest of the subscales. Blue has a mean (M) equal to 3.25 with SD being 0.91, red has $M=4.13$ with SD being 0.84, green has $M=3.2$ with SD being 0.9 and yellow has $M=3.44$ with SD being 1.02. Red appears to have a remarkable consistency as the color that creates the greatest perceived arousal. Red significantly outperforms blue ($t(74)=-6.19$,

$p < 0.001$ with Hedges' g effect size being -1), while also significantly outperforming green ($t(74) = -7.6$, $p < 0.001$ with Hedges' g effect size being -1.07), as well as yellow ($t(74) = 4.78$, $p < 0.001$ with Hedges' g effect size being 0.74). The effect sizes of the three comparisons mentioned are among the largest identified throughout the study, suggesting that the association of red with the perceived stimulation of a brand is indisputable.

- **Emotional Connection Subscale**

In this subscale, the statistical analysis also conducted proved a statistically significant effect of color, with $F(3, 222) = 4.03$ and $p = 0.008$. The means and standard deviations for each color were: Blue ($M = 3.53$, $SD = 0.89$), Red ($M = 3.23$, $SD = 1$), Green ($M = 3.66$, $SD = 0.94$), Yellow ($M = 3.7$, $SD = 1.01$).

In regard to emotional connection, two comparisons were found to be significant. Green was significantly higher than red ($t(74) = 3.16$, $p = 0.014$, $g = 0.44$) and yellow was significantly higher than red ($t(74) = -2.82$, $p = 0.037$, $g = -0.47$).

Hence, red appears to be the color perceived to have the lowest ability to create a positive emotional bond with a brand; this is consistent with the results derived from the Trust subscale and the Quality subscale.

- **Brand Overall Subscale**

In contrast to the four individual subscales, the analysis of the overall brand perception score failed to reveal a statistically significant effect of color, with $F(3, 222) = 0.22$ and $p = 0.885$. The means are very close to one another, with blue having a mean equal to 3.49 ($SD = 0.76$), red having a mean equal to 3.41 ($SD = 0.78$), green having a mean equal to 3.44 ($SD = 0.81$) and yellow having a mean equal to 3.49 ($SD = 0.93$).

This result may seem to contradict the findings of the individual scales. However, as each color excels in a different dimension of brand perception (blue in trust and quality, red in arousal, yellow and green in emotional connection), it is possible that individual differences cancel each other when aggregated into an undifferentiated score. This is quite an interesting and practical finding, because it suggests that a brand's color choice should be evaluated based on the specific perception dimension the brand wishes to reinforce, not an abstract overall perception.

7.3. Results for H3

The third hypothesis examined the “how”, i.e., whether a consumer’s emotional response acts as a mediator in the relationship between a brand’s color and his/her perception of it. Two steps were needed in order to conduct the analysis: correlation between emotion and brand perception and full mediation analysis.

- **Correlation between emotion and brand perception**

The relationship between the Emotion Score and the Brand Overall score was examined separately for each of the four colors using the Pearson correlation coefficient (r) and simple linear regression. A statistically significant, positive correlation was observed for all colors. In particular:

Blue: $r=0.426$, $r^2=0.181$, $p<0.00$

Red: $r=0.420$, $r^2=0.177$, $p<0.001$

Green: $r=0.476$, $r^2=0.227$, $p<0.001$

Yellow: $r=0.528$, $r^2=0.278$, $p<0.001$

These findings indicate that the more intense the emotional response a color triggers, the more positive the consumer’s perception of the brand using the color. This relationship explains between 17.7% and 27.8% of the variation in the brand overall score. The strongest relationship is seen with yellow, indicating that emotion appears to play the most decisive role in shaping the brand’s image when this color is used.

Simple correlation only substantiates the path from emotion to perception, without statistically proving (or not) if the actual channel through which color influences brand perception. For that reason, further analysis is needed.

- **Full mediation analysis**

A full Hayes-type mediation analysis ($X \rightarrow M \rightarrow Y$ model) was conducted, where X =Color, M =Emotion score and Y =Brand Overall. At this point, it is important to note that the mediation analysis needed for testing this hypothesis was not performed in SPSS but via Python programming language. The reason is that the only option available in SPSS is the PROCESS macro add-on by A. F. Hayes, which is limited to a continuous/dichotomous

independent variable X. For this reason, it was safer to develop custom code in Python and feature dummy coding, as described below.

For each of the four colors, a separate dichotomous variable X was created, where X=1 corresponds to the measurement of the given color and X=0 corresponds to the average of the other three colors for the same individual. This led to the construction of 4 separate mediation models, each with 150 observations (2 conditions multiplied by the 75 participants). In each model, the paths a ($X \rightarrow M$), b ($M \rightarrow Y$, controlling for X), c (total effect $X \rightarrow Y$, without controlling for M) and d (direct effect $X \rightarrow Y$, controlling for M) were estimated using the least squares method. The indirect effect, corresponding to the product $a \times b$, and the 95% confidence interval were estimated using cluster bootstrap with 5,000 random resampling iterations at the participant level, in order to account for the repeated-measurements structure of the study design.

The results of the mediation analysis differed significantly among the four colors.

For blue, path a was negative, indicating that blue elicits lower emotion relative to the average of the other three colors. Path b, however, was positive and significant. The indirect effect was found to be negative and statistically significant, while the direct effect (path d) was not.

For red, a similar pattern was observed.

In the case of green, although path a was positive, the corresponding 95% confidence interval included zero and the indirect effect was not statistically significant.

Lastly, for yellow, path a was positive and significant, path b was strong and significant, and the indirect effect was positive and statistically significant, with a non-significant direct effect.

Color	a ($X \rightarrow M$) [95% CI]	b ($M \rightarrow Y X$) [95% CI]	c Indirect ($a \times b$) [95% CI]	d Direct [95% CI]	Mediation
Blue	-0.130 [-0.239, -0.021]	0.602 [0.228, 1.007]	-0.078 [-0.183, -0.009]	- [-0.036, 0.281]	Significant
Red	-0.149 [-0.258, -0.038]	0.563 [0.281, 0.870]	-0.084 [-0.176, -0.016]	- [-0.138, 0.182]	Significant

Green	0.118 [-0.013, 0.244]	-	0.071 [-.008, 0.171]	- -	Not significant
Yellow	0.161 [0.014, 0.306]	0.723 [0.436, 1.02]	0.116 [0.009, 0.262]	- [-0.247, 0.104]	Significant

Table 1: Mediation Analysis Results. Mediation is considered statistically significant when the 95% CI of the indirect effect does not include zero.

The interpretation of these findings is interesting. The fact that the direct effect (d) is not statistically significant while the indirect effect is significant in the case of three out of the four colors (blue, red, yellow) represents the classic model of full mediation. What that means is that the effect of color on brand perception appears to be mediated almost exclusively through the emotional response and not via another mechanism. The clearest full mediation example is yellow, the color that evokes a stronger emotion which, in turn, enhances brand perception. On the other hand, the direction is negative for blue and red. Blue and red evoke comparatively weaker emotions relative to the average, which means lower brand perception through the same mechanism. In contrast, the absence of a statistically significant indirect effect in the case of green suggests that its relationship with brand perception is not fully mediated by the unified emotional score used, despite being found quite positive in a specific dimension in H2. An explanation for that may be that green triggers more specific associations, with nature, for example, that are not captured fully by the 16-item emotional score used for this research.

7.4. Results for H4

The fourth study examined whether the generation to which a consumer belongs acts as a moderator in the relationship between color and emotional response. That is, whether the effect documented in H1 is consistent across all generations or varies. In order to test this hypothesis, a mixed ANOVA was used, with color as a within-subjects factor and generation as a between-subjects factor, and Emotion Score being the dependent variable.

The first finding revealed after the analysis is that the main effect of generation (controlling for color) was not statistically significant ($F(3, 71)=0.98, p=0.406$). This indicates that there

is no significant difference present in the level of emotional response between generations, overall and on average across all colors.

The second finding is that the main effect of color was reconfirmed within this larger model ($F(3, 213)=5.52$, $p=0.001$ – Greenhouse-Geisser corrected $p=0.005$ due to the violation of sphericity). This is consistent with the findings of H1.

The third and possibly most significant finding is the interaction between color and generation. The color $\times$ generation interaction emerged as particularly statistically significant ($F(9, 213)=4.57$, $p<0.001$), with a $\eta^2p = 0.162$, the largest effect size in the entire study.

This significant interaction indicates that the effect of color on emotion is not universal, but varies significantly depending on the generation the customer belongs to. The specific pattern of this interaction is revealed after the examination of the means per cell for color $\times$ generation.

- Generation Z exhibits the highest emotional response to yellow ($M=3.15$) of all generations across all colors and the lowest response to green ($M=2.77$) compared to the other generations.
- Millennials present a relatively more balanced picture, with averages ranging from 2.58 (blue) to 2.86 (green). No single color stands out significantly.
- Generation X shows the highest response to red ($M=3.06$) compared to the other generations, a noteworthy contrast to Generation Z.
- The 62+ age group shows the highest response to green ($M=3.34$) and the lowest response across the survey to yellow ($M=2.38$), exactly the opposite of the trend of Generation Z.

The contrasting pattern between Generation Z and the 62+ age group regarding yellow is interesting because it suggests that a color that works particularly well for the younger generation may have the opposite emotional effect for older customers. Yet, it is crucial to emphasize that this finding must be interpreted with great caution, given that the sample of the oldest group is of a size too small to allow for generalizations with statistical accuracy.

In a few words, H4 confirmed that generation does, indeed, function as a moderator in the relationship between color and emotional response and that different colors do suit different consumer generations better.

7.5. Results for H5

The fifth hypothesis examined whether the same moderating role of generation, which was documented in H4 for emotional response, applies to the relationship between color and overall brand perception as well. The analysis was conducted via a mixed ANOVA test, with color as a within-subjects factor and generation as a between-subjects factor, and Brand Overall being the dependent variable.

The main effect of generation was not found to be statistically significant ($F(3, 71)=0.58$, $p=0.631$). The main effect of color was also not significant ($F(3, 213)=0.22$, $p=0.879$). The most interesting result concerns the color $\times$ generation interaction, which was found to be marginally significant ($F(9, 213)=1.91$, $p=0.052$ – right on the threshold of the conventional level of statistical significance).

The contrast between the very strong interaction effect on Y4 ($p<0.001$, $\eta^2p = 0.162$) and the marginal effect on Y5 ($p=0.052$, $\eta^2p = 0.075$) suggests that, while different generations of consumers experience distinctly different emotions towards the same colors, the way in which these emotions translate into an overall perception of the brand appears to be relatively more stable and consistent across generations.

The cell-wise means (color $\times$ generation) for the brand perception score provide indications of the direction of this marginal interaction. More specifically, the 62+ age group exhibits the highest brand perception for green ($M=3.77$) and the lowest brand perception for yellow ($M=2.55$). At some extent, that reflects the corresponding pattern observed in emotion in H4. In contrast, Generation Z exhibits the highest brand perception for yellow ($M=3.77$) and a relatively lower brand perception for green ($M=3.34$).

All in all, H5 is not supported by concrete statistical criteria, although its marginal nature leaves open the possibility that, with a larger and more balanced sample across generations, this interaction could emerge as statistically significant. However, in its current form, the study provides weak evidence of generational differentiation in the color-brand perception relationship, in contrast to the strong generational differentiation identified in the color-emotion relationship.

7.6. Additional findings: Forced-choice questions

Beyond the five main research hypotheses, the questionnaire included four forced-choice questions, in which participants were asked to select the one they associate with trust, the one they find most stimulating, the one they find most refreshing and the one that most evokes a feeling of optimism among the four colors. These questions complement Likert scales by providing a more intuitive and direct measure of color associations and serve as an additional validity check for hypotheses H1 and H2.

For all four questions, the distribution of responses deviates significantly from a random distribution, which would correspond to 25% per color, confirmed by the chi square goodness-of-fit test.

In response to the question about trust, blue was chosen by 50.7% of the sample (38 participants), followed by green (25.3%, 19 participants), yellow (18.7%, 14 participants) and red (5.3%, 4 participants). Chi-square was calculated to be $\chi^2(3) = 32.57$, $p < 0.001$. This finding is fully consistent with the results of the subscale about trust in H2, where blue had the highest mean.

Regarding the question about arousal, the consistency with previous findings was also apparent. Red was chosen by 76% of the sample (57 participants), followed by yellow (14.7%, 11 participants), green (5.3%, 4 participants), and blue (4%, 3 participants). Chi-square was calculated to be $\chi^2(3) = 106.07$, $p < 0.001$. This finding categorically confirms the corresponding finding from the arousal subscale in H1, where red outperformed the other colors.

Concerning the feeling of refreshment, green was selected by 52% of the sample (39 participants), followed by blue (22.7%, 17 participants), yellow (20%, 15 participants) and red (5.3%, 4 participants). Chi-square was calculated to be $\chi^2(3) = 20.84$, $p < 0.001$.

Finally, as for the question about optimism, yellow was chosen by 40% of the sample (30 participants), followed by green (33.3%, 25 participants), blue (21.3%, 16 participants) and red (5.3%, 4 participants). Chi-square was found to be $\chi^2(3) = 20.84$, $p < 0.001$.

It is worth noting that red consistently has the lowest selection rate in all other three subscales except for arousal, where it is completely dominant. This is aligned with the findings of hypotheses H1 and H2, since red repeatedly emerged as the color with the lowest perceived trust, quality and emotional connection.

The alignment between the findings from the Likert scales and the findings from the simple direct-choice questions significantly strengthens the validity of the overall study, as the same patterns emerge independently from two different measurement methods.

7.7. Limitations

Before proceeding to the discussion of the findings and the final thoughts regarding the present study, it is important to highlight the methodological limitations that directly affect the interpretation of the results.

The first limitation concerns the significant imbalance in the size of the generational subgroups that make up the sample. As reported earlier, half of the participants ($n=38$) belong to Generation Z, whereas the group of consumers older than 62 years is represented by only four participants. This degree of imbalance induced consequences for the statistical power of every test that involves generation as a between-subjects factor, namely the mixed ANOVA models used to examine hypothesis H4 as well as hypothesis H5. Statistical power depends on the number of observations available within each group being compared; therefore, such an unequal allocation across these groups lowers the power of the corresponding tests relative to a more balanced design. For this reason, any finding that concerns the 62+ age group exclusively should be treated as a preliminary, descriptive indication of a possible pattern and not as a statistically robust finding.

The second limitation concerns the data collection method itself. All responses were gathered through a self-administered questionnaire, distributed online and completed without the presence of the researcher. This method is widely used in consumer behavior research because it is cost-effective, allows respondents to answer at their own pace and grants a level of anonymity that may attract more candid responses. At the same time, though, this method comes with a noticeable drawback: since the researcher is not present to clarify the meaning of a question in real time, respondents are entirely dependent on the wording of the instrument itself to understand what is being asked. This type of error is particularly difficult to detect after data collection has been completed, due to the fact that a randomly selected response is indistinguishable from a deliberate and considered answer. While the structured, closed-ended format of the Likert-scale items featured in the

questionnaire was designed to minimize this risk, the possibility that some responses reflect guesswork rather than genuine evaluation cannot be entirely excluded.

The third limitation concerns the measurement of emotional responses itself. In the present study, emotional responses were analyzed as an overall construct and were not divided to positive and negative emotional aspects. Even though this approach provided an overall assessment of the emotional reaction of each participant to each color, it may not capture the complexity of the individuals' responses fully. It is possible for a color to evoke positive and negative emotions at the same time and, when such responses are aggregated into a uniform measurement, opposing emotional responses may offset one another at some extent and may obscure the detection of more specific patterns in the data. Therefore, while the present approach can be characterized as appropriate due to the exploratory nature of the study, in a larger-scale study, it should be important to distinguish positive from negative emotional factors.

Final Thoughts - Discussion

Taken together, the results of this study provide empirical support for the core of the proposed theoretical framework: a brand's color elicits a differentiated emotional response in consumers (H1), which in turn is statistically significant related to the consumers' perceptions of the brand itself, at the level of individual perception dimensions (H2) and through a documented mediation mechanism for three of the four colors examined (H3). At the same time, the generation of the consumer emerges as a moderating factor in the first link of the chain, while its role is more limited in the second link.

From a practical standpoint, the findings of this study offer specific guidance to branding and marketing professionals. When a brand decides to pick its color, it should not make its decision based on an abstract notion of "positive" (or "negative") colors; in contrast, the brand color should be intertwined with the brand's specific strategic goal, as well as the dominant generational profile of its target audience. Especially in an era where the competition for consumers' attention plays out in a matter of seconds, especially in digital environments and on social media where first impressions are essentially instantaneous, a conscious and strategic choice of brand color is more than necessary.

This study can be considered as a contribution to the academic field of consumer marketing as, despite the volume of existing literature on the role of color in branding and marketing, the number of studies examining not only “if” but also “how” color influences brand behavior is limited. Additionally, the findings contribute to the discussion on generational marketing, providing empirical evidence debating whether the long-standing principles of color psychology need to be revised in light of generation-specific aesthetic preferences.

Lastly, based on the findings of this study as well as the gaps identified in international literature, future research could focus on a handful of topics in order to enrich the available data in the business and consumer psychology fields. Cross-cultural comparisons can enhance the generalizability of the findings, taking into account the cultural differences significantly influencing color associations. Also, psychophysiological and neuromarketing methods like eye-tracking or EEG would allow us to verify whether reported emotional responses coincide with subconscious reactions, thereby strengthening the validity of the proposed mediating mechanism. In addition, given that the generational color preferences seem to change over time, future longitudinal research could examine whether the differences identified reflect stable generational characteristics or current trends. Finally, future research could examine emotional responses by distinguishing positive and negative emotions rather than treating emotional response as a single, aggregated construct in larger-scale studies. That would allow researches to investigate whether the same color can simultaneously evoke both positive and negative emotions and how these opposite responses influence brand perception.

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