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## **Color, Culture, and the Implications for Emotional, Cognitive, and Behavioral Reactions**

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# **COLOR, CULTURE, AND THE IMPLICATIONS FOR EMOTIONAL, COGNITIVE, AND BEHAVIORAL REACTIONS**

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Master of Mass Communication

in

The Manship School of Mass Communication

by  
Renee Lynette Grace Lucas  
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## **Abstract**

Color plays a significant role in life, influencing how we perceive things, how symbols change in meaning, how brands, logos, and pictograms are communicated, as well as how our emotions are perceived and how our moods are affected. For designers, advertisers, and visual communicators, color is crucial because it has a big impact on how people perceive, relate to, and value an image or advertisement. There are many factors that play a role when people develop their personal color interpretations – one being culture. The purpose of this study is to investigate the links between culture, color, and individuals' cognitive, emotional, and behavioral reactions when it comes to digital advertisements. Three questions guided this research: 1) Will individuals show increased behavioral intentions when shown images with culturally congruent colors compared to those who see images with culturally incongruent colors? 2) Will individuals who see images with a culturally congruent color scheme feel more positively toward the images compared to those who see images with culturally incongruent colors? And 3) Will images with a culturally congruent color scheme increase individuals' recall? An experiment of two cultural groups (African/African Americans & Korean/Korean Americans) with two ad conditions (culturally congruent & culturally incongruent) was conducted to address these questions. Results are discussed in the relationship to the body of literature on color psychology and cultural influence on message perception.

## Chapter 1. Introduction

Our perceptual experience of the world contains a wealth of color. Color is present in our daily interactions and activities, as well as in our dreams (Elliot et al., 2007). We regularly employ color considerations in our decision-making as we pick which color clothes to buy and wear, which color to paint our walls, or which color to dye our hair. Those with normal color vision experience a palette with up to 2.3 million discernible colors (Linhares et al., 2008). Color's ubiquity in people's lives leaves no surprise that researchers continue conducting studies regarding the physics, physiology, and psychology of color. Its' effects permeate numerous fields, including physics, art, mythology, anthropology, history, architecture, and medicine (Litchlé, 2007).

Historically, color is also known to serve symbolic and aesthetic functions. It symbolizes elements (i.e., red and orange for fire), space (i.e., light blue for the sky), or time and timelessness (i.e., black and white). Color also represents cosmic, ethical, and religious symbols – “for example, red is considered stimulating; it is the color of joy and childhood, but also that of blood, war and fire” (Litchlé, 2007, p. 39).

Color is a nonverbal source of information that has the capacity to influence and manipulate receivers' interpretations of a message. Therefore, color plays a significant role in the modern mass media communicative space (Makaruk, 2020), including realms such as advertising, marketing, graphic design. “For decades, research has documented that color is a dominant visual feature affecting consumer perceptions and behaviors” (Kareklas et al., 2014, p. 88). Colors are an essential component of firms' marketing communications, tend to attract attention in advertising (Moore et al., 2005), set a brand apart from its rivals (Romaniuk & Nenycz-Thiel 2014), and are crucial in consumers' first exposure to advertising (Wedel & Pieters

2015). After their first encounters with either people or items, consumers make up their minds within 90 seconds. Colors alone account for between 62-90 percent of this evaluation (Singh, 2006). Marketers and advertisers spend billions of dollars a year to sell their products (Bagwell, 2007), and in many cases, nonverbal elements such as color possess a greater persuasive potential than verbal elements (Makaruk, 2020).

“Colors lend credence to the generally accepted confidence in the psychological marketing of items” (Singh, 2006, p. 787). Before launching a logo, design, advertisement, brand, or product, managers should research the different meanings associated with the colors they intend to use. Failing to be aware of the perceived importance of color and their interpretation in a particular geographic area can negatively impact a company’s image and in turn, their sales. Additionally, colors have a considerable impact on consumers' perceptions, emotions (such as ad enthusiasm and likeability) (Gorn et al., 1997), cognitions (such as perceived information accuracy) (Bashir & Rule, 2014), and behavior in a range of crucial purchasing contexts (Bagchi & Cheema, 2013). Additionally, previous studies have shown that color has a ubiquitous impact on a variety of circumstances, such as intellectual evaluation (Elliot et al. 2007), willingness to accept a new vaccine (Gerend & Sias, 2009), and willingness to pay through influencing customer hostility toward the vendor.

Previous literature investigated various concepts that served as influencing factors when looking into color’s effects, including age (Benson et al., 2000; Brooker & Franklin, 2016), gender (Guilford & Smith, 1959; Silver et al., 1988; Elliot & Niesta, 2008) personality traits (Benson et al., 2000; Fetterman et al., 2015) and culture (Jacobs et al., 1991; Aslam, 2006; Viková & Vik, 2015). The purpose of this study is to assess whether one’s cultural identity is associated with their emotional, cognitive, and behavioral reactions when viewing images with



culturally congruent color schemes as opposed to when they are shown images with a culturally incongruent color scheme. To examine this premise, participants belonging to two cultural groups were randomly assigned to an ad condition featuring either culturally congruent colors or culturally incongruent colors, and then asked questions to assess their subsequent emotional reactions, recall abilities, and purchase intentions.

## **Chapter 2. Literature Review**

Scholars' fascination with color is no new discovery. Although its beginning focused more on the impact of color in a largely applied and aesthetically based nature, more recent color psychology research shows a turn to more methodical, lab-based studies that aim to explore the relationships between color, meaning, and psychological function. A key takeaway from this new surge of research is that color is more than a mere matter of aesthetics and can convey psychological meaning (Fetterman et al., 2015).

Although color undoubtedly has aesthetic value, as well as the ability to convey certain information and certain meanings. People are exposed to both overt and covert associations between colors and certain messages, concepts, and experiences in specific contexts from an early age. These pairings are thought to develop strong color associations with repeated exposure, so that just the perception of a hue in a certain context activates its linked associate and affects emotions, cognition, and behavior accordingly (Elliot et al., 2007).

The psychology of color is a topic that has generated a lot of literature. Scholars have conducted research for over more than a century, covering a wide range of topics that vary in methodological rigor. The study's topics include: (a) color reactions as psychological and personality traits; (b) physiological responses to color; (c) color preferences; (d) the emotional and behavioral impacts of color; and (e) responses to color concepts (Valdez & Mehrabian, 1994).

### **Color as a Concept**

“Every visual stimulus processed by the human perceptual system contains color information” (Elliot & Maier, 2007, p. 250). But what is color? Merriam-Webster (n.d.) defines it as “a phenomenon of light (such as red, brown, pink, or gray) or visual perception that enables

one to differentiate otherwise identical objects.” The physical world does not contain colors, only light waves of different wavelengths. We may credit our perception of this rainbow world to the retinal cones of the normal human eye distinguishing among these bands of light (Aslam, 2006).

Color scholars and researchers must attend to the fact that color varies on multiple attributes. The most important are hue, lightness, and chroma (Elliot & Maier, 2014). “Hue is wavelength and is what most people think of when they hear the word ‘color.’ Lightness is similar to brightness and is essentially the white-to-black property of the color. Chroma is similar to saturation and is essentially the intensity or vividness of the color” (Elliot & Maier, 2014, p. 98). Hue is considered the most in theorizing, which is likely a result of its saliency in experiments (Elliot, 2015) due to its classification as the main quality factor in color (Pulliam, 2012). The interaction between these three attributes and the three primary colors (red, blue, and green) creates various colors (Aslam, 2006).

Color may also be defined based on human meaning. Color is a “vivid, affect-loaded and memorable stimulus, influencing both human behavior and human physiology” (Aslam, 2006, p. 17). On a personal level, individual experiences may influence one’s preference for a certain color over another. In a cultural context, humans establish their own symbolic meanings of color based on their environment. For this reason, individuals belonging to different cultures may associate opposite meanings for the same color.

In the communications realm, color is defined as “that part of perception that is carried to us from our surroundings by differences in wavelengths of light, is perceived by the eye, and is interpreted by the brain” (Panigyraakis & Kyrousi, 2015). Given that color is an omnipresent and highly noticeable component in all forms of visual communication, the selection of colors is a

matter of importance not only for advertising practitioners, but for all managers and executives involved in corporate communications with stakeholder publics (Panigyrakis & Kyyrousi, 2015).

## **Color Psychology**

### ***Theoretical Background***

German poet and polymath Johann Wolfgang von Goethe developed the first theorization of color and psychological functioning (Elliot & Maier, 2014). In his work, “Theory of Colors,” Goethe (1810/1947) examined the influence of color perception on emotional experience, categorizing colors into “plus colors” (e.g., yellow, red-yellow, and yellow-red) and “minus colors” (e.g., blue, red-blue, and blue-red). Psychiatrist Kurt Goldstein expanded on this categorization, explaining the reason behind color’s emotional effects. He posited that color perception causes physiological reactions in the body that directly relate to people’s emotional experiences, cognitive focus, and motor behavior.

In terms of wavelengths, researchers have not always agreed on what the categories yield, though they do seem to agree that there are two broad categories. Goldstein (1942) suggested that colors such as red and yellow induced positive feelings such as lively, aspiring, and warm, while minus colors induced negative feelings such as restless, anxious, and cold. Plus colors are also more stimulating, more likely to prompt an outward focus, and more likely to yield forceful action (Goldstein, 1942).

On the other hand, Elliot & Maier (2014) posited that shorter wavelength colors are more relaxing. They suggested that colors such as blue and green are related to increased relaxation, more likely to prompt an inward focus, and more likely to cause calm and stable action (Elliot & Maier, 2014). Cajochen et al. (2005) suggest that blue light tends to increase alertness and improve performance in sustained, attention-requiring tasks.

Scholarly efforts continued to offer theoretical contributions focusing on colors' influence on affective, cognitive, and behavioral responses. Soldat et al. (1977) proposed that red is associated with happiness and blue is associated with sadness. The authors further suggested that these associations play a role in how people process information and how they behave. Elliot and Maier (2012) proposed color-in-context theory, which focuses on sources of color meanings and effects from biological and learned standpoints. Responses to color stimuli have two attributions. The first is a propensity that is biologically ingrained and is strengthened and shaped through social learning (i.e., through observing others). The other is the repeated pairing of color and certain concepts, messages, and experiences. According to this theory, a color's meaning and the subsequent responses to it depend on the physical and psychological context. Therefore, the same color may hold different, or even opposite, meanings in different contexts (Elliot, 2015). For example, Zhang & Shi (2020) found that in the context of national flags, red is typically preferred for its aggressive connotations even when blue is the most generally preferred color.

### ***Empirical Background***

Color psychology's multidisciplinary nature is evident when discussing the many ways researchers employ it. As mentioned previously, research linking color and alertness shows blue light's ability to increase subjective alertness and performance during attention-based tasks (Cajochen et al., 2005). Studies on color and athletic performance link wearing red to enhanced performance in sports competitions (Hill & Barton, 2005). Shi et al. (2015) found a link between color and intellectual performance, positing that viewing red before conducting a challenging cognitive task may stifle performance. Elliot et al.'s (2007) experimental studies showed that "individuals who viewed red before or during anagram, analogy, and math tasks performed worse than those who viewed green or achromatic control colors" (p. 102). Research linking

color to company evaluation shows a positive relationship between the use of blue in company logos and customers' perceived trustworthiness and quality of said companies (Labrecque & Milne, 2012). Elliot and Niesta (2008) suggest a link between color and attraction with findings showing heterosexual males' increased attraction when viewing red on or near a woman. North & Fidorilli (2017) found a link between color and click enticement with banner advertisements. They found that while red increased notability, blue increased users' click enticement.

### ***Colors Effects on Behavior and Cognition***

Color theorists believe that these learned associations of colors influence individuals' minds and behaviors. Researchers often attribute findings in the color behavior field to learned association theory (Wang et al., 2014). Meta and Zhu (2009) found that red induced avoidance motivation (due to learned associations with blood, danger, etc.) and enhanced individuals' performance on a detail-oriented task. On the other hand, blue induced approach motivation (due to learned associations with sky, ocean, etc.) and enhanced individuals' performance on a creative task. A recent study by Kim et al. (2020) discovered that the interior color of a hotel influenced customers' behavioral responses by directly affecting their consumption motivation. In Kareklas et al.'s (2019) study, they determined that people associated red with independent. Furthermore, they found that when red ad backgrounds are coupled with an independent self-construal prime, "a factor that contributes to one's motivation to react and behave in a certain manner," participants' behavioral intentions to comply with an advertisement's promoted viewpoint are strengthened (p. 34).

According to Jiang et al. (2014), "Subtle exposure to specific colors could induce affect, cognition, and behavior consistent with ascribed meanings" (p. 227). One of the cognitive functions that color may affect is recall. Morita and Kambara (2022) posit that their findings that

bizarre colors attract attention and enhance object memory have applicability in making memorable advertisements and learning materials. In terms of customers' recall of advertisements, color serves as one of the most significant factors in performance (Kazem et al., 2021). Huang et al.'s (2008) findings support this sentiment, stating that the use of preferred colors enhanced participants' recall accuracy of brand logos with which they had low familiarity. Even in the case of children, Brooker & Franklin (2016) found color yielded a significant difference in the cognitive performance of 8- and 9-year-olds. The children performed worse in the presence of red than grey. The various findings in these studies implicate the power color possesses to influence individuals' behavior and cognitive performance.

### ***Theory Limitations***

Like all theories, color psychology has weaknesses in its theoretical and empirical framework. Elliot (2015) argues that much of the scholarly writing on color and psychological functioning done pre-twenty-first century relied less on theoretical considerations. Instead, they focused on applied questions: "Does the color on an office wall influence worker productivity? What colors are most fashionable? What colors enhance the taste of food?" (Elliot, 2015, p. 97). As a result, the findings lack the conceptual precision and clarity needed to address the issue of real-world applicability.

Another limitation is that much of the theoretical work is limited in scope regarding the range of hues and color properties. Color's three basic properties, hue, lightness, and chroma do not receive an equal share of focus, even though variation in all these properties could influence cognition or behavior (Elliot (2015).

A third limitation rests on the premise that researchers must acknowledge color effects' dependence on certain conditions (i.e., culture, gender, age, type of task, etc.). "Acquiring an

understanding of these conditions will represent an important marker of maturity for this literature” (Elliot, 2015, p. 3). This paper serves as one of the needed contributions to this literature, exploring the effect and link between color, culture, and individuals’ recall, behavioral intentions, and emotion.

### ***Color and Emotion***

Due to our daily exposure to colors in different contexts, it is likely that our emotions toward certain colors reflect the contexts we consistently consume them in. For example, red is typically employed as a signal for negative information, especially information that is threatening (such as alarms or warning signs), whereas green denotes security and safety. Red and green may have developed the role of implicit cues alerting the perceiver to impending danger or potential benefits given how frequently these colors are used in daily life. This may have the effect of amplifying the impact of negative or positive information (Kuhbander & Pekrun, 2013).

Several studies call attention to this potential connection between color and emotion (Wexner, 1954; Spielberger et al., 1970; Sato et al., 2000; Soriano & Valenzuela, 2009; Wilms & Oberfeld, 2018). The source of motivation behind these studies traces back to the hypothesis that long wavelength colors (e.g., red and yellow) are more arousing than short wavelength colors (e.g., blue and green) (Valdez & Mehrabian, 1994; other source). Wexner’s (1954) study focused on links between color sample and words that describe feelings. Red linked with “exciting” and “stimulating,” which imply pleasure and high arousal, while blue linked with “secure” and “comfortable,” which imply pleasure and low arousal. Orange aligned with “disturbing,” “distressed,” and “upset,” implying displeasure and high arousal, while black was associated with “powerful,” “masterful,” and “strong,” suggesting high dominance. Spielberger et al. (1970)



found that levels of state-anxiety were positively associated with red and yellow than with blue and green. Similarly, in the context of room color, Profusek and Rainey (1987) investigated the effects of rooms painted in red versus pink on state anxiety. As hypothesized, pink resulted in less anxiety than red. When text was shown to subjects, Weller and Livingston (1988) looked at the impacts of the paper's hue (blue, pink, or white). Readers expressed their emotional responses to readings about rape and murder incidents. When the same events were recounted on pink paper as opposed to blue or white paper, they were less traumatic.

As Kuhbander and Pekrun (2013) acknowledged, effects associated with different colors and emotions may not generalize across cultures. The emotional meaning associated with colors differs across cultures (Kang et al. 2022), so one could reasonably assume that the emotional effects of colors vary depending upon one's cultural identity. The next section explores the present literature's assessments on color's effects on different cultures.

## **Culture**

Culture is “a unified set of values, ideas, beliefs, and standards of behavior shared by a group of people; it is the way a person accepts, orders, interprets, and understands experiences throughout the life course” (Thomas, 2001, p. 40). It is important because it is a critical component of what shapes individuals' experiences throughout their lives (Thomas, 2001). Culture is closely affiliated with one's race and ethnicity. Though the three tend to go hand-in-hand with one another, there are important distinctions to be made as well. “The term race generally refers to the social group a person belongs to on account of a mix of physical characteristics; whereas ethnicity refers to the social group a person belongs to based on a shared culture” (p. 68). While race much more frequently enters discussion, the cultural distinctions that serve as a mark of the different ethnic groups tend to gain less attention (Dein, 2006). Being that

one's culture plays such an important role in shaping how they interpret information, the link between culture and communication is clear. Samovar et al. (1981) provided an explanation of this link:

Culture and communication are inseparable because culture not only dictates who talks to whom, about what, and how the communication proceeds, it also helps to determine how people encode messages, the meanings they have for messages, and the conditions and circumstances under which various messages may or may not be sent, noticed, or interpreted... Culture...is the foundation of communication. (p. 24)

Intercultural communication should be a priority for any and all individuals in the communication field to ensure audiences are correctly perceiving the intended messages. This is true for verbal components (such as word choice) and nonverbal components (such as color).

### ***Color and Culture***

Under the premises of color psychology, colors can communicate various meanings. Cultural systems have varying meanings shown in “environmental cues, symbols, metaphors, assumptions, and background knowledge” (Jiang et al., 2014). Authors concerned with cross-cultural differences also make note of color perception and meaning's propensity to differ from culture to culture (Jacobs et al., 1991). The meanings given to some colors may be pan-cultural, regional, or unique to specific cultures (Aslam, 2006). Utilizing the right colors in images plays a significant role in how well the image is perceived. These implications are relevant to the mass communication realm because differentiating between these meanings will allow for efficient communication across cultural barriers, decreasing the likelihood of messages deriving unintended interpretations.

Despite its grave importance, research examining cultural meanings associated with various colors is not very extensive. Those studies that conduct cross-cultural analyses of color perceptions tend to fall into the marketing realm. This may be because of color's salience in many corporate and brand-building cues (i.e., logos, packages, and advertisements) (Madden et al., 2000). For example, Jacobs et al. (1991) suggest that international marketers conduct product-specific, cross-cultural research to find out the product or service's typical color associations and the potential connotations of alternative color options. Otherwise, the marketer may find themselves trying to persuade customers to switch to a product with an unappealing or negative connotation. Despite the risks tied to color universality, the literature in the public domain has a largely Western focus. Accepting this narrow Western perspective of colors as "universal" and using it in foreign markets often leads to cultural faux pas (Aslam, 2006).

Elliot & Maier (2012) shed light on both physiologically based and learnt sources of color meanings and effects in their color-in-context theory. Some color effects are believed to indicate innate propensities to see and react to color in a way that is comparable to that of our nonhuman primate predecessors. Other color effects are believed to stem from the repeated association of a color with specific ideas, messages, and experiences. Over time, these associations forge powerful and frequently implicit color associations, which lead to the perception of a color alone evoking meaning-congruent emotions, thoughts, and actions. Furthermore, "it is likely that some color-meaning links, especially those that are observed across time and culture, are a product of the cognitive reinforcement and shaping (via social learning) of an initial biologically engrained predisposition" (Elliot & Maier, 2014, p. 99). This concept implies that although we may have innate color perceptions, these perceptions may be altered due to the influence of the color associations we experience in our daily lives.

Intercultural studies also emphasize the importance of life experience for color meanings (Gil & Le Bigot, 2014). Given that individuals' life experiences are heavily influenced by their cultural practices, the connection between derived color meanings and culture is evident. As such, one's cultural identity may potentially impact their preference for various colors. The symbolism of color influences color preference (Litchtlé, 2007). Because cultures tend to differ in the symbolic meanings of different colors, the individuals who belong to these different cultures derive various color preferences. Jiang et al.'s (2014) findings also demonstrate how cultural identity directly impacts individuals' socialization toward certain color associations. Their study found that Mainland Chinese individuals were more likely to predict positive outcomes when presented information in red than in green, while Hong Kong Chinese individuals tended to predict the opposite. The results are consistent with the different color representations in Mainland and Hong Kong stock markets, also highlighting how two geographically close populations form opposing color associations due to differing cultures. Other variables that affect color preferences include:

- Age: young individuals favor warm colors like red, yellow, or orange, whereas older people prefer cold colors like blue and green (Benson et al., 2000)
- Gender, which influences preference intensity and consistency (Guilford & Smith, 1959)
- Personality traits: researchers hypothesized that introverts are drawn to cold colors whereas extroverts favor warm colors (Robinson, 1975; Benson et al., 2000)

To assess how individuals belonging to various cultures perceive different colors, a few methodological measures have been used, typically falling in the quantitative realm. For

example, in Jacobs et al.'s (1991) study, participants were given thirteen words that reflected emotions (i.e., happy, powerful, adventurous, trustworthy, expensive, etc.) and were asked to rate which colors they associated most closely with each of these words. Jiang et al. (2014) assessed individuals' likelihood to predict positive outcomes as a result of material color and how these interpretations differed depending on participants' culture/location. They found that Mainland Chinese participants were more likely to predict good outcomes when scenarios were presented in red, whereas Hong Kong participants were more likely to predict good outcomes when scenarios were presented in green. In eight diverse cultures, Madden et al. (2000) assessed color preferences and associated meanings by asking participants to evaluate 10 colors. First, participants rated the colors on scales designed to capture the meanings associated with color. Then, they rated how well they liked each of the ten colors. Lastly, to assess potential meaning arising from color combinations, subjects selected a color to place in the top half of three separate logos in which the bottom color was blue, red, or green. Zhang and Shi (2020) argued the distinction between individuals' color preferences and associations by asking 181 Chinese participants to rate their general color preferences and comparing them to ratings of their color preferences for nations' flag colors as it related to the trait the nation wanted to convey (i.e., competitive vs. affiliative).

Cultural experiences are part of what molds us as human beings, which means our culture factors into how we communicate and interpret communication from others. In order to successfully communicate cross-culturally, visual communicators must understand cultural factors including those associated with values, attitudes, beliefs and behaviors (Targowski & Metwalli, 2003). Failure to consider your audience's culture when creating communication

assets increases the risk of miscommunication and receiving pushback, negatively impacting your brand image (Aslam, 2006).

### *African/African American and Korean/Korean American Cultures*

This study focuses on African, African American, Korean, and Korean American individuals to delve deeper into these underexplored cultures. There is increasing demand to reach minority ethnic-group consumers (Hespaci et al., 2016). Professionals in the communication and marketing fields need to have a better understanding of these groups and the most effective way to communicate with them. Although it is now common practice to advertise to specific ethnic groups, more research is needed on advertising to African, African American, Korean, and Korean American customers (Madadi et al., 2022; Shin et al., 2016). African Americans make up more than 13% (39.2 million) of the population in the United States and had more than \$1 trillion in purchasing power in 2013 (Dodson, 2007). Similarly, the Asian American population is the fastest growing minority group in the United States (Shin et al., 2016).

Advertising messages can be more persuasive if they use culturally sensitive cues that are pertinent to the target audience of ethnic minorities (Zúñiga, 2016). “Research has shown that including cultural symbols, terms, models, and values from the target audience’s culture can improve the likelihood of the target audience identifying with the ad message and source” (Zúñiga, 2016, p. 95). Madadi et al.’s (2022) study found evidence that “ethnically targeted ads, especially for low-involvement products, result in brand attachment, which then yields brand love, and in turn results in positive behavioral outcomes such as brand loyalty, purchase intention and [word-of-mouth]” (p. 359). In the case of African Americans, Elias et al. (2011) found that

their ethnic identity has a significant impact on their attitude toward ads. These sentiments prompt further investigation into the effects of ethnically targeted ads and communication.

There is a clear pattern in previous literature pointing to the correlation between one's color perceptions and their emotional, cognitive, and behavioral responses. Research also shows that culture is a prevalent factor that influences individuals' color perceptions. These sentiments led to the question of whether culturally congruent color schemes would better one's mood, improve recall abilities, and increase likelihood of purchase intentions. The following research questions were developed to assess these possibilities:

### **Research Questions**

1. Will individuals show increased behavioral intentions when shown images with culturally congruent colors compared to those who see images with culturally incongruent colors?
2. Will individuals who see images with a culturally congruent color scheme feel more positively toward the images compared to those who see images with culturally incongruent colors?
3. Will images with a culturally congruent color scheme increase individuals' recall?

## **Chapter 3. Methods**

To investigate these research questions, I conducted a study consisting of a 2 (participant culture: African/African American vs. Korean/Korean American) x 2 (cultural congruence: culturally congruent colors vs. culturally incongruent colors) factorial experiment. There were two independent variables. One was manipulated (relevancy of colors) and the other was measured (ethnicity of participant). The study encompassed two phases: a pilot and a main study. For the pilot study, participants of all cultural identities were accepted. For the main study, participants who culturally identified as African American/African or Korean American/Korean were accepted. The dependent variables investigated were the emotional, cognitive, and behavioral reactions of participants in relation to the use of culturally congruent/incongruent colors in the ad images they were shown. Specifically, whether individuals' attitudes, recall abilities, and purchase intentions were affected when shown images featuring colors associated with their culture/ethnicity as opposed to when they were shown images featuring culturally incongruent colors.

### **Independent Variables**

The study's two independent variables were respondent cultural identity and image colors based on cultural congruency (congruent, incongruent). The purpose for the respondent culture variable is to assess whether cultural associations with colors specifically affect African/African Americans' and Korean/Korean Americans' emotions, cognition, and behavior. The purpose of the image colors variable is to assess whether the cultural significance of the colors truly plays a role in the results.

### **Stimuli**



Digital advertisements continue to dominate as a significant source of consumer traffic for companies. Consumers often rely on social media as a key source of information about brands, so firms use digital advertisements on social media platforms to help tailor their campaigns to certain customer segments (Santoso et al., 2020). For this reason, spending on digital advertisements is growing rapidly, and it is increasingly important for advertisers and marketers to know whether using culturally tied colors or nonculturally-tied colors plays a role in consumers' reactions to their advertisements. Because digital ads on social media are visible until users click away, participants will be allowed to look at the ad image until they choose to click to the next section.

To decrease confounding variables, the only difference in the ad images are the colors of the elements. Also, the images in the ads did not contain people to ensure perceived attractiveness of models is not a factor in respondents' answers.

### ***Pilot Study***

To ensure that the study's visual stimuli adequately reflected a digital advertisement featuring the intended colors of focus, I conducted a pilot study testing participants' perceptions of two ads, both with two color variations. Participants were recruited through the participation pool of Louisiana State University's Media Effects Lab (MEL). In exchange for their participation, students were awarded course credit. The only required criteria to participate in the study was that participants had to be at least 18 years old. Approval through the university Institutional Review Board was obtained prior to launching the online experiment, and participants took about 10 minutes to complete the study.

**Participants.** A total of 47 students participated and completed the study. Six (12.8%) were male, 39 (83%) were female, one identified as non-binary/third gender (2.1%), and one did

not disclose. The average age was 20 years old, and ages ranged from 18 to 27. Of the sample, 28 (59.6%) were White or Caucasian, 12 (25.5%) Black or African American, 2 (4.3%) Asian, 4 (8.5%) Hispanic or Latinx, and 1 (2.1%) was Native American or Alaskan Native. One individual preferred not to disclose their race.

Once they consented to participate, participants answered an initial questionnaire that asked basic demographic questions regarding gender, age, and racial identity. Then they were told that they would view the stimulus and answer follow-up questions. One set of ads featured a book sack, and the other set of ads featured a television. These products were chosen because advertising literature shows that they are both moderately-involving products, meaning they are the most susceptible to attitude change from consumers (Principles of Marketing, 2015; Church et al., 1985). In each ad set, one variation displayed primarily red, yellow, and brown while the other primarily displayed red and blue. These color choices were derived from color and advertising literature suggesting that these colors have positive cultural associations for the two cultural groups of interest (i.e., red, yellow, and brown for African/African Americans and red and blue for Korean/Korean Americans) (Silver et al., 1988; Park & Guerin, 2002). Each participant was shown one of the four ads (by random assignment) and asked questions to assess the ecological validity of the ads (i.e., How would you identify the image? What are the major colors in the ad? What is this an ad for?). Participants were also asked to rate how attractive, realistic, and convincing they perceived the ads to be. The set of ads (e.g., backpacks) that received the most favorable ratings was chosen as the visual stimuli for the main study.

**Results.** The four ads were randomly, evenly distributed among all participants: 12 (26.1%) saw the African American TV condition, 13 (28.3%) the Korean American TV condition, 9 (19.6%) the African American backpack condition, and 12 (26.1%) the Korean

American TV condition. Of those shown the African American TV condition, 72.7% perceived the image as an ad, with 75% correctly identifying what the ad was for. Of those shown the Korean American TV condition, 76.9% perceived the image as an ad, with 100% correctly identifying what the ad was for. Of those shown the African American backpack condition, 100% perceived the image as an ad, with 54.5% correctly identifying what the ad was for. Of those shown the Korean American backpack condition, 100% perceived the image as an ad, with 41.7% correctly identifying what the ad was for. Every participant recalled at least one of the intended primary colors of each ad set.

For each ad descriptor (e.g., attractive, realistic, and convincing), I ran a series of analysis of variance (ANOVAs) to compare the mean scores. There were no differences in the attractiveness ratings,  $F(3, 41) = .65, p > .05, \text{partial } \eta^2 = .046$ . Though not statistically significant, participants had slightly higher attractiveness ratings for the African/African American cultural colors of both the TV ad ( $M = 2.82, SE = .41$ ) and the backpack ad ( $M = 3.11, SE = .45$ ) when compared to the ratings for the Korean/Korean American cultural colors for the TV ad ( $M = 3.08, SE = .37$ ) and the backpack ad ( $M = 2.42, SE = .39$ ). There were similar results for participants' ratings of how realistic the ads were. There were no differences in the realistic ratings,  $F(3, 41) = .62, p > .05, \text{partial } \eta^2 = .042$ . Again, though not statistically significant, ratings for the African/African American cultural colors for both the TV ad ( $M = 2.82, SE = .39$ ) and the backpack ad ( $M = 3.44, SE = .43$ ) were relatively higher than the ratings for the Korean/Korean American cultural colors for the TV ad ( $M = 2.85, SE = .36$ ) and the backpack ad ( $M = 2.75, SE = .37$ ). For the convincing ratings, however, there was a difference between the ad conditions,  $F(3, 41) = 1.5, p < .05, \text{partial } \eta^2 = .101$ . Statistically, the African American cultural colors for the backpack ad ( $M = 3.11, SE = .32$ ) was higher than the backpack ad with

Korean/Korean American cultural colors ( $M = 2.25, SE = .33$ ), as well as both the TV ad with African/African American cultural colors ( $M = 2.18, SE = .35$ ) and the Korean/Korean American colors ( $M = 2.15, SE = .32$ ). I suspect that the reasoning for the slight differences in the three descriptors' means can be attributed to the fact that one quarter of the pilot participants identified as one of the target cultural groups. Because more participants perceived the backpack ad versions as an ad, this version was chosen for use in the main study. Some of the participants who incorrectly identified what these ad versions were advertising suggested that they struggled to identify the product because the ad did not contain the word "backpack." For this reason, I modified the ad versions used in the main study by adding the term into the ad copy.

### **Main Study**

To test the research questions, I conducted the main study recruiting participants from Amazon Mechanical Turk (MTurk) as well as social media outreach and email blasts to Korean/Korean American faculty and Korean/Korean American campus organizations. Participants who were recruited through Amazon's MTurk received modest monetary compensation in exchange for their participation in the study, while those recruited through social media were given the opportunity to enter into a drawing for one of three \$25 Amazon gift cards. Due to the nature of my inquiries, only those participants who identify as African/African American or Korean/Korean American were accepted. Approval through the university Institutional Review Board was obtained prior to launching the survey experiment. The experiment took participants about 20 minutes to complete. Once data was collected, results were analyzed using SPSS 27.

### ***Participants***

Black respondents were originally oversampled, but to maintain equal cell sizes on the participant ethnicity variable, 82 were randomly selected to be included in the analysis. Further data cleaning resulted in a total of 154 participants. Seventy-seven (50.3%) were male, 76 (49.7%) were female. The average age was 34 years old, and ages ranged from 20 to 70. Of the sample, 78 (50.6%) were African/African American and 76 (49.4%) were Korean/Korean American. Of the participants, 48.1% ( $n = 74$ ) were shown the African/African American ad condition and 51.9% ( $n = 80$ ) were shown the Korean/Korean American ad condition.

### ***Procedure***

Once they provided consent, participants answered an initial questionnaire that asked basic demographic questions such as gender and age. They were then asked questions to assess their cultural identity and the strength of their ties to their cultural heritage. To disguise the purpose of the study and avoid priming participants, a question measuring color preferences was asked amongst other questions about other favorites (i.e., favorite movie genre, music genre, and food). Once this portion was complete, participants were shown one of two ad images: one containing colors that were culturally congruent to them and one that contained colors that were culturally incongruent to them. The image culturally congruent to African/African American participants featured primarily red, yellow, and brown, and the image culturally congruent to Korean/Korean American participants featured primarily red and blue. For the culturally incongruent conditions, participants were shown the image tailored to the other cultural group. These color choices were derived from color and advertising literature suggesting that these colors have positive cultural associations for each group (Silver et al., 1988; Park & Guerin, 2002). Participants were randomly assigned to either ad variation and given 15 seconds to look at the ad before they were allowed to proceed to the next page.

Directly after viewing the ads, participants were asked questions to measure their emotional (PANAS), cognitive (aided recall), and behavioral reactions to the images. More specifically, these scales aimed to explore whether there was a connection to culturally tied colors and participants' a.) contentment b.) ability to recall and c.) purchase intentions. Once participants fully completed the study, they were informed that the study seeks to investigate their cultural ties and the impact these ties have on their perception of certain colors. This disclosure was given during the debrief as to not sensitize participants to the purpose of the study, and in turn, their responses.

### *Measures*

Participants were asked to describe the feelings and emotions they experienced while looking at the ad and to reflect on why they believed they experienced said emotions. They were also asked about the elements and colors they remembered seeing in the ad, as well as their subsequent purchase intentions in relation to the ad. Two factors that had potential to be associated with the influence of the ad's color scheme were also measured: strength of cultural identity and color preferences.

**Emotion.** The first measure was designed to determine whether the ads shown influenced participants' moods. More specifically, the study sought to investigate if there is an association with participants' attitudes when they are shown images with culturally congruent colors as opposed to images with culturally incongruent colors. First, participants were asked to describe all the feelings or emotions they experienced in response to the ad. Then participants were asked to reflect upon and describe why they believe they experienced the emotions they described in the previous question. The next measure used was the PANAS (Watson et al., 1988). In response to the ad, participants indicated to what extent they felt each of the affective states listed in the

survey. The PANAS consists of 20 items and the 5-point Likert scale ranged from 1 (not at all) to 5 (very much). Finally, participants were asked to identify what about the ad they felt influenced their emotional responses. The final scores included the average of the 10 positive affective items and the average of the 10 negative affective items. Cronbach's alpha was .93 for the positive affect scale and .94 for the negative affect scale, affirming high reliability for both measures. These questions gave insight into audience responses associated with culturally congruent or incongruently themed ad images (Oliver & Hartmann, 2010).

**Recall.** Recall is a measure of explicit memory often used by advertising professionals to assess consumers' abilities to mentally evoke their ads (Till & Baack, 2005). In this study, the goal of recall measurement was to assess if images featuring culturally congruent colors have a direct correlation with participants' ability to recall features of the ad. There were two aided recall questions tailored to participants' recollection of the ads: one asked about the elements (i.e., logo, product, ad colors, ad setting, ad text) they remembered seeing and the other asked about which colors they remembered seeing. Participants were allowed to select all that applied, and only elements and colors featured in the ads were analyzed.

**Behavioral Intentions.** To measure intended behavior, participants were asked about their intended future behaviors regarding the product in the ad. The goal of this measure was to determine if ads' usage of culturally congruent colors influences consumers' behavioral intentions. The four items, adapted from Dobson and Poels (2020), were modified to reflect the context of a digital advertisement. Behavioral intentions were assessed on a 7-point Likert type scale ranging from 1 (highly unlikely) to 7 (highly likely):

- Based on the colors used in the digital advertisement, I would...
  - (1) Buy this product.

- (2) Make this product one of my first choices.
- (3) Exert a great deal of effort to secure this product.
- (4) Recommend this product to a friend or family member.

Cronbach's alpha for the behavioral intentions scale was .95, demonstrating the scale's high reliability.

**Strength of Cultural Identity.** It was anticipated that the degree to which one felt tied to their cultural identity would be associated with perceptions of the ads. To measure the strength of participants' cultural ties, the survey featured three items assessing their cultural pride, cultural identification level, and internalized culture. The question assessing cultural pride asked them to identify how proud they were of their cultural heritage on a 5-point Likert type scale ranging from 1(not at all) to 5(very proud). The cultural identification measure was adopted from Tropp and Wright (2001) and Abrams and Giles (2007), which instructed participants to select the pair of circles that they felt best represents their own level of identification with their cultural group. Participants were then shown seven pairs of circles (one circle featuring an "S" for "self," and the other circle featuring a "G" for "group"), each with a different degree of overlap. The four items assessing internalized culture were adapted from Lynch (2020). The items were preceded by the stem, "To the extent that I live by or follow my culture/ethnicity's way of life, I do so because..." (see Appendix) and were rated on a scale of 1 (not at all) to 4 (a lot). The internalized culture scale held high reliability with a Cronbach's alpha of .89.

**Color Preferences.** Another factor that I included was individuals' color preferences. Though one's culture typically plays a role in determining their color preferences, other factors such as age (Benson et al., 2000), gender (Guilford & Smith, 1959), and personality traits (Robinson, 1975; Benson et al., 2000) also contribute to their development as well. Therefore,



participants' color preferences were assessed through a Likert type scale that asked them to rate their preference for each of the colors featured in the ad (i.e., red, yellow, and blue) along with placebo colors (i.e., orange, green, purple, and black) as to not sensitize them to the colors of interest. Colors were rated on a scale of 1 (least preferred) to 5 (most preferred).

## Chapter 4. Results

RQ1 focused on whether individuals' behavioral intentions increased when shown ad images with culturally congruent colors as opposed to ad images with culturally incongruent colors. I conducted a factorial ANOVA to determine whether these differences were present. The results did not show a main effect for culture,  $F(1,1) = .12, p > .05, \text{partial } \eta^2 = .104$ . African/African respondents indicated just as high of a likelihood to either purchase or further read up on the product ( $M = 4.07, SE = .21$ ) as did Korean participants ( $M = 4.01, SE = .20$ ). The results also failed to show a main effect for ad condition,  $F(1,1) = .04, p > .05, \text{partial } \eta^2 = .038$ . Respondents indicated just as high of a likelihood to either purchase or further read up on the product when shown the African/African American ad condition ( $M = 4.06, SE = .21$ ) as they did when shown the Korean/Korean American ad ( $M = 4.02, SE = .20$ ). Most relevant to this research question were the results of the interaction effect. There was no significant interaction effect between the two variables,  $F(1,141) = .40, p > .05, \text{partial } \eta^2 = .003$ . As shown in Table 1 and Figure 1, African/African American respondents held a similar likelihood of purchasing or reading up on the product when shown the culturally congruent ad ( $M = 4.18, SE = .31$ ) as they did when seeing the culturally incongruent ad ( $M = 3.96, SE = .28$ ). The same pattern occurred for Korean/Korean American respondents, when shown the culturally congruent ad ( $M = 4.08, SE = .29$ ) and the culturally incongruent ad ( $M = 3.93, SE = .28$ ). These statistics speak to the fact that although the numbers were not statistically significant, there is a trend present in the direction of the suggested outcomes.

RQ2 dealt with whether individuals who see images with a culturally congruent color scheme feel more positively toward the images compared to those who see images with

Table 1. Behavioral Intentions in Relation to Participant Ethnicity and Cultural Congruency of Ad Shown

	Ethnicity of Participant	
	African/African American	Korean/Korean American
Ad with Culturally Congruent Colors	4.18 (.31)	4.08 (.29)
Ad with Culturally Incongruent Colors	3.96 (.28)	3.93 (.28)

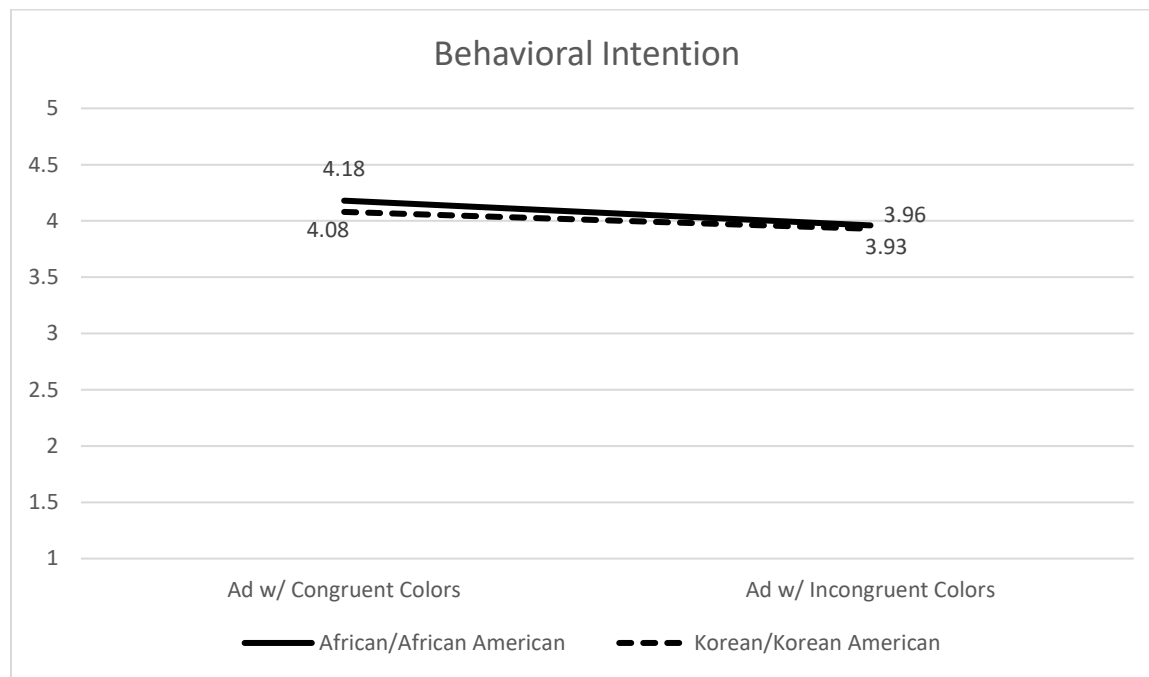


Figure 1. Behavioral Intentions in Relation to Participant Ethnicity and Cultural Congruency of Ad Shown

culturally incongruent colors. To assess these findings, two factorial ANOVAs were run, one for the positive affect items of the PANAS scale, and one for the negative items. For the positive affect scale, there was no main effect for culture,  $F(1,1) = 27.7, p > .05, partial\ eta^2 = .965$ . African/African Americans were just as likely to have positive emotional reactions to the ad images ( $M = 3.06, SE = .13$ ) as Korean/Korean American participants ( $M = 2.84, SE = .12$ ).

Table 2. Positive Affect in Relation to Participant Ethnicity and Cultural Relevancy of Ad Shown

	Ethnicity of Participant	
	African/African American	Korean/Korean American
Ad with Culturally Congruent Colors	3.09 (.18)	2.86 (.18)
Ad with Culturally Incongruent Colors	3.03 (.17)	2.84 (.17)

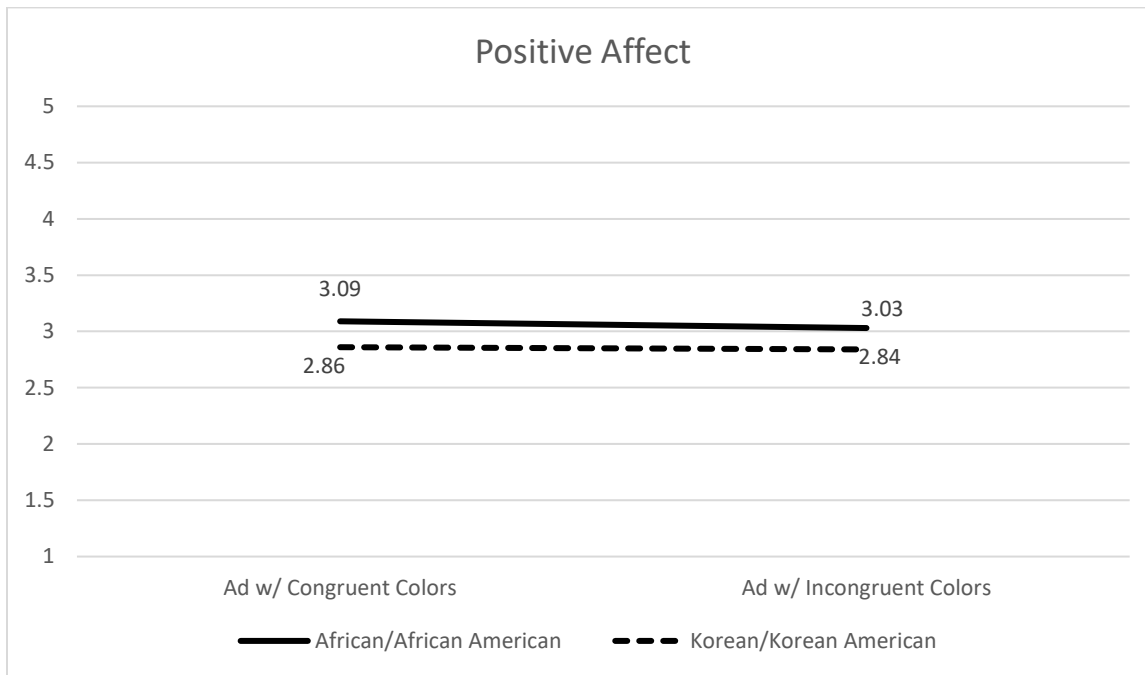


Figure 2. Positive Affect in Relation to Participant Ethnicity and Cultural Relevancy of Ad Shown

There was also no main effect for the ad condition,  $F(1,1) = .42, p > .05, partial\ eta^2 = .30$ .

Participants were just as likely to have positive emotional reactions when shown the ad with African/African American cultural colors ( $M = 2.97, SE = .13$ ) as they were when shown the one with Korean/Korean American culturally relevant colors ( $M = 2.94, SE = .12$ ). There was also no significant interaction effect between the two variables,  $F(1,144) = .06, p > .05, partial\ eta^2 = .000$ . The results are illustrated in Table 2 and Figure 2. African/African American respondents

Table 3. Negative Affect in Relation to Participant Ethnicity and Cultural Relevancy of Ad Shown

	Ethnicity of Participant	
	African/African American	Korean/Korean American
Ad with Culturally Congruent Colors	1.78 (.17)	2.31 (.16)
Ad with Culturally Incongruent Colors	1.66 (.16)	2.32 (.16)

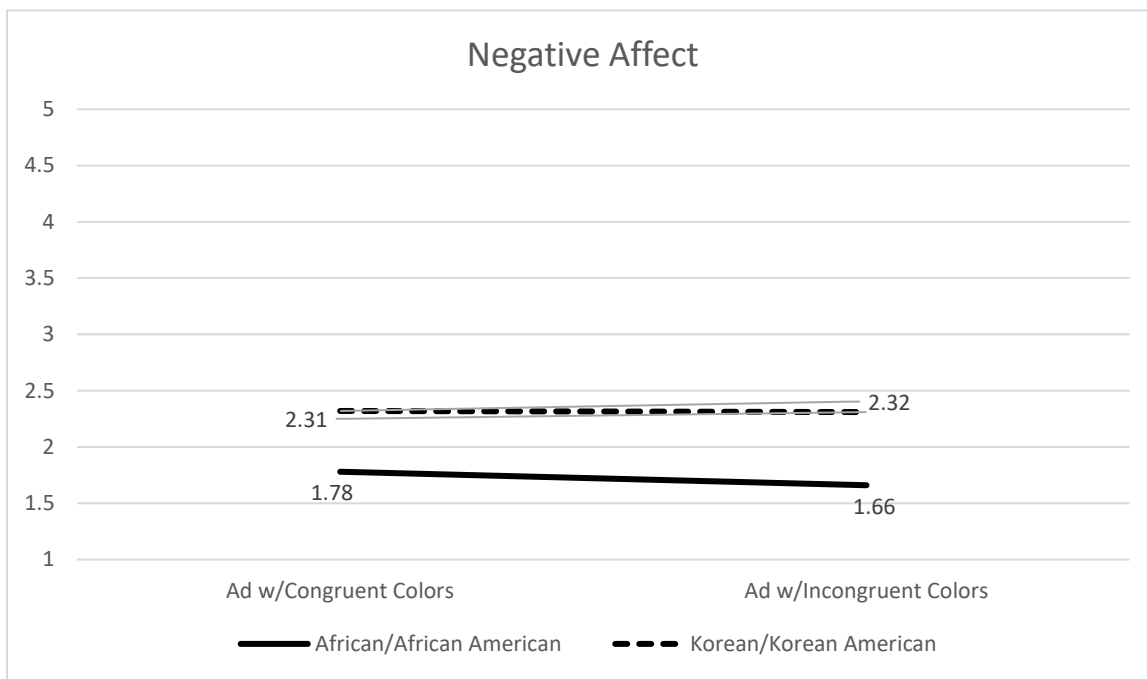


Figure 3. Negative Affect in Relation to Participant Ethnicity and Cultural Relevancy of Ad Shown

experienced a similar positive emotional response when shown the culturally congruent ad ( $M = 3.09$ ,  $SE = .18$ ) and the culturally incongruent ad ( $M = 3.03$ ,  $SE = .17$ ). The same results occurred for Korean/Korean American respondents, when shown the culturally congruent ad ( $M = 2.85$ ,  $SE = .18$ ) and the culturally incongruent ad ( $M = 2.84$ ,  $SE = .17$ ).

For the negative affect scale, there was no significant main effect in culture,  $F(1, 1) = 144.7$ ,  $p > .05$ ,  $partial\ eta^2 = .99$ , although close to displaying one ( $p = .05$ ). African/African

Americans were slightly more likely to have negative emotional reactions to the ad images ( $M = 1.72$ ,  $SE = .11$ ) than Korean/Korean Americans ( $M = 2.32$ ,  $SE = .11$ ). There was no significant main effect for the ad condition shown,  $F(1, 1) = 1.9$ ,  $p > .05$ ,  $partial\ eta^2 = .652$ . Participants were just as likely to have negative emotional reactions when shown the ad with African/African American cultural colors ( $M = 2.01$ ,  $SE = .11$ ) and the Korean/Korean American cultural colors ( $M = 1.98$ ,  $SE = .11$ ). There was also no significant interaction effect between the two variables,  $F(1, 144) = .06$ ,  $p > .05$ ,  $partial\ eta^2 = .001$ . As shown in Table 3 and Figure 3. African/African American respondents experienced a similar level of negative affect when shown the culturally congruent ad ( $M = 1.78$ ,  $SE = .17$ ) and the culturally incongruent ad ( $M = 1.66$ ,  $SE = .16$ ). The same results occurred for Korean/Korean American respondents, when shown the culturally congruent ad ( $M = 2.31$ ,  $SE = .16$ ) and the culturally incongruent ad ( $M = 2.32$ ,  $SE = .16$ ). I find it important to note that although not statistically significant, the results' trends were in the general direction of participants responding more positively to images with culturally congruent colors. When it came to negative affect, we saw the trend for Korean/Korean Americans but not for African/African Americans.

Participants were also asked to reflect on why they thought they experienced the emotions they did in response to the ad. These open-ended responses were filtered for quality and comprehensibility and analyzed to identify common themes. Also disqualifying those respondents who skipped over the question, a total of 141 open-ended responses were deemed quality responses. The most frequent themes were those associated with: 1) nostalgia for school, 2) dislike of the appearance of the ad, 3) appreciation for the appearance of the ad, or that 4) the ad was irrelevant/boring to them.

### **Nostalgia for School**

This theme was prevalent among several participants' responses where they often expressed how the ad image made them reminisce about their days in school or their children's days in school. Several respondents commented that the ad evoked their good memories of back-to-school time. For example:

- “The design of the ad made me feel nostalgic and took me down memory lane”
- “Simply seeing the words back to school or seeing backpacks in general. It brings me back to those old times when I was in school.”
- “Just the wording and design of it. It was rather simple but the image gives off a feeling of nostalgia for me.”

Several respondents referenced the back-to-school theme of the ad. One respondent simply stated that “the ‘back to school’” message in the ad is what influenced their emotions. Another shared, “The message of the ad was all it took to invoke emotions for me, which was the fact that school was going to be starting again soon.” In a few rare cases, participants had unpleasant memories of their school days, which they referenced as the reasoning behind their emotional reactions. One respondent shared, “I felt the fear and discomfort I felt in my past school days.” Another wrote, “The ad reminded me of when I was young and in school. I did not have the chance to have a good quality book bag...”

### **Dislike of Appearance**

Several respondents wrote that the ad was aesthetically unappealing, which influenced their emotional reactions to it. These comments included references to the color choice or the overall quality of the ad design. One participant wrote:

- “The overall look to it. The ad was not pretty, or engaging, and just did not make sense.

Other participants wrote:

- “It looked like a sad version of school”
- “The ad was not appealing.”

### **Appreciation of Appearance**

There were also several participants who identified their appreciation for the look of the ad as the reasoning behind their emotional reactions. Many simply stated that it made them feel good or excited to explore a new product. Others were more detailed in their responses in reference to the ad’s design elements (i.e., the setting, the messaging, the colors, etc.). For example:

- “The setting, the textures of the brick wall that offset the smooth blue lockers.”
- The sale indicated in the ad influenced my positive emotion responses. I could save money for my family and it’s really important nowadays.
- “The ad was colorful and motivating to purchase a new backpack. The backpacks were on sale.”

### **Irrelevancy/Boringness**

The last main theme of reasoning that emerged from respondents was that the ad was either irrelevant to them or boring to them, resulting in a neutral emotional response. Most of these responses included simple, short responses such as, “No mood,” or “No difference.” One respondent wrote:

- “Nothing because there was not anything interesting about the ad”

Others wrote:

- “It never influenced my emotions.”
- “How boring it felt and the dark colors used.”



Most participants felt into this category of indifference toward the ad, which accounts for the lack of statistical significance in their emotional reactions in response to the ads they were shown.

RQ3 asked if images with culturally congruent color scheme increase individuals' recall. To assess whether participants recalled the primary colors of interest, chi-square tests were conducted to analyze their recall overall, and their recall as it related to whether they were exposed to the culturally congruent condition or culturally incongruent condition. In general, people remembered colors the most (77.4%), followed by the ad text (75.3%), the product (68.5%), the ad setting (50.7%), and the logo (29.5%). Across the two types of ads, a significantly large percentage of people remembered the colors that were present in the ads seen: for those shown the African/African American cultural colored ad (i.e., red, yellow, and brown), 59.3% remembered red,  $X^2(1, N = 54) = 5.06, p < .05$ ; 51.9% remembered yellow,  $X^2(1, N = 54) = 16.2, p < .001$ ; and 70.4% remembered brown,  $X^2(1, N = 54) = 10.1, p < .05$ . For those shown the Korean/Korean American cultural culturally colored ad (i.e., red and blue), 78.9% remembered red,  $X^2(1, N = 57) = 5.06, p < .05$ , and 86% remembered blue,  $X^2(1, N = 57) = 38.5, p < .001$ . When accounting for whether they were shown a culturally congruent ad or culturally incongruent ad, the numbers held consistently high across both conditions. For those shown the culturally congruent ad, 52.2% of African/African American respondents remembered red,  $X^2(1, N = 23) = 1.50, p > .05$ , 47.8% remembered yellow,  $X^2(1, N = 23) = 6.05, p < .05$ , and 65.2% remembered brown,  $X^2(1, N = 23) = 4.57, p < .05$ . For Korean/Korean American participants shown the culturally congruent ad, 69.2% remembered red,  $X^2(1, N = 26) = 1.50, p > .05$ , and 84.6% remembered blue,  $X^2(1, N = 26) = 19.5, p < .001$ . For those shown the culturally incongruent ad, 64.5% of African/African American respondents remembered red,  $X^2$

(1,  $N = 31$ ) = 4.31,  $p < .05$ , 54.8% remembered yellow,  $X^2$  (1,  $N = 31$ ) = 10.1,  $p < .05$ , and 74.2% remembered brown,  $X^2$  (1,  $N = 31$ ) = 5.43,  $p < .05$ . For Korean/Korean American participants shown the culturally incongruent ad, 87.1% remembered red,  $X^2$  (1,  $N = 31$ ) = 4.31,  $p < .05$ , and 87.1% remembered blue,  $X^2$  (1,  $N = 31$ ) = 19.4,  $p < .001$ .

### **Additional Analyses**

Two other variables of concern in the study were strength of cultural ties and color preferences. To analyze the results of the three measures of strength of cultural ties, three independent sample t-tests were conducted to determine whether there were differences in strength of identity between the two groups of respondents. There was no difference in cultural pride  $t$  (151) = .38,  $p > .05$ . African/African Americans ( $M = 4.24$ ,  $SD = .91$ ) held similar levels of cultural pride as the Korean/Korean American participants ( $M = 4.19$ ,  $SD = .94$ ). There was also no difference in the level of cultural identification between the groups  $t$  (151) = .28,  $p > .05$ . African/African Americans ( $M = 4.72$ ,  $SD = 2.01$ ) held similar levels of cultural identification as the Korean/Korean American participants ( $M = 4.63$ ,  $SD = 2.03$ ). Thirdly, there was no difference in internalized culture  $t$  (150) = .58,  $p > .05$ . African/African Americans ( $M = 4.01$ ,  $SD = .94$ ) held similar levels of cultural identification as the Korean/Korean American participants ( $M = 3.92$ ,  $SD = .95$ ).

For further analysis of the measures for strength of cultural ties, a variable was created that represented whether participants saw an ad with culturally congruent colors, or without (regardless of their cultural group). For each group, bivariate correlations were conducted to explore the associations between the various cultural strength indicators, and the key dependent variables. For participants who saw a culturally congruent ad, there was a positive association between their internalized culture and their behavioral intentions ( $r = .32$ ,  $p < .01$ ). The more

they internalized their culture, the more likely they were to further read up on or purchase the product. However, there was no association between their internalized culture and their positive affect ( $r = .10, p > .05$ ), or with their negative affect ( $r = -.12, p > .05$ ). These results were similar for cultural pride. For participants who saw a culturally congruent ad, there was a positive association between their cultural pride and their behavioral intentions ( $r = .25, p < .05$ ), but there was no association between their cultural pride and positive affect ( $r = .13, p > .05$ ), or with their negative affect ( $r = -.14, p > .05$ ). So, the more prideful participants felt about their culture, the more likely they were to further read up on or purchase the product. Participants' level of cultural identification was positively associated with their negative affect ( $r = -.34, p < .01$ ). The higher their level of cultural identification, the more likely they were to experience negative emotions in response the ad. However, there was no association between participants' level of cultural identification and behavioral intentions ( $r = .05, p > .05$ ), or with positive affect ( $r = -.20, p > .05$ ).

For participants who saw a culturally incongruent ad, there was a positive association between internalized culture and both behavioral intentions ( $r = .41, p < .01$ ) and positive affect ( $r = .33, p < .01$ ). The more participants internalized their culture, the more likely they were to experience positive emotions in response to the ad, as well as further read up on or purchase the product. However, there was no association between internalized culture and negative affect ( $r = -.19, p > .05$ ). For participants who saw a culturally incongruent ad, there was no association between their cultural pride and their behavioral intentions ( $r = .19, p > .05$ ), or with their positive affect ( $r = .16, p > .05$ ) or with their negative affect ( $r = -.20, p > .05$ ). Participants' level of cultural identification was positively associated with their negative affect ( $r = -.31, p < .01$ ). The higher their level of cultural identification, the more likely they were to experience negative

emotions in response to the ad. However, there was no association between level of cultural identification and behavioral intentions ( $r = .19, p > .05$ ), or with positive affect ( $r = .18, p > .05$ ).

For color preferences, bivariate correlational results (e.g., preference of red with behavioral intention, preference of blue with behavioral intention, etc.) were analyzed for the prominently featured colors in the ads (regardless of the respondents' culture or the ad they saw). Preferences for red were positively associated with behavioral intentions ( $r = .25, p < .01$ ) and with positive affect ( $r = .19, p < .05$ ). The higher participants' preference for red, the more likely they were to experience positive emotions in response to the ad, as well as further read up on or purchase the product. However, there was no association between preference for the color and negative affect ( $r = -.07, p \geq .05$ ). There was no association between preferences for yellow and behavioral intentions ( $r = .16, p > .05$ ), with positive affect ( $r = -.06, p > .05$ ) or with negative affect ( $r = .10, p > .05$ ). Preferences for blue were positively associated with positive affect ( $r = .19, p < .05$ ). The higher participants' preference for blue, the more likely they were to experience positive emotions in response to the ad. However, there was no association between preference for the color and behavioral intentions ( $r = .15, p > .05$ ), nor with negative affect ( $r = -.07, p > .05$ ).

## Chapter 5. Discussion

Color psychology posits that color is a ubiquitous, nonverbal source of information that possess the ability to influence receivers of a message. For this reason, color is a significant factor in the modern mass media communicative space (Makaruk, 2000). Previous literature poses that the use of various colors influences individuals' perceptions and behaviors in realms such as advertising, marketing, and graphic design (Moore et al., 2005; Singh, 2006; Kareklas et al., 2014; Romaniuk & Nenycz-Thiel, 2014; Wedel & Pieters, 2015). Though not as heavily investigated, previous literature has also called attention to the influence of individuals' culture on their interpretations and perceptions of various colors (Kuhbander & Pekrun, 2013; Elliot, 2015; Kang et al., 2022). The repeated exposure of color associations in cultural contexts are thought to be strong enough to where the perception of a hue activates its linked associate and affects cognition, emotion, and behavior accordingly (Elliot et al., 2007). The goal of this study, then, was to assess whether individuals' cognition (recall), emotion (positive/negative affect), and behavioral intentions are influenced by the use of culturally congruent colors in ad images as opposed to the use of culturally incongruent colors.

Color psychology suggests that individuals' learned associations of colors influence their minds and subsequently, their behaviors (Wang et al., 2014). Therefore, research question one sought to investigate whether culturally congruent images increased individuals' behavioral intentions. The participants in this study did not show a significant difference in their behavioral intentions when shown culturally congruent or culturally incongruent images. However, both African/African American and Korean/Korean American participants had slightly higher behavioral intentions when shown the ad image featuring their culture's respective colors as opposed to when shown the ad tailored to the other group's culture. These findings, therefore,

hold a degree of support for color psychology's underlying assumption that an individual's culture and their subsequent perceptions of culturally congruent colors in visual images stand to influence their behavioral intentions.

Another assertion in color psychology refers to color's power to denote certain connotations that influence one's emotions in relation to the given context (Kuhblander & Pekrun, 2013). In turn, the second research question focused on whether individuals' emotions were more positive when shown culturally congruent ad images. Similarly, to behavioral intentions, evaluation of the results shows that generally, participants reacted slightly more positively toward the ad image featuring culturally congruent colors versus culturally incongruent colors. In other words, both African/African American and Korean/Korean American participants had slightly higher evaluations of the culturally congruent ad than the culturally incongruent ad. The only instance when the results did not follow this trend were with the measurement of negative affect of African/African Americans. Interestingly, this group of participants displayed slightly greater negative affect (i.e., upset, irritable, nervous, ashamed, etc.) toward the ad featuring their culture's respective colors than that of the other group. In this regard, the study results did not completely align with color psychology's assertion about colors link to individual's emotional reactions. I am not sure what could have influenced these results, but future research should assess whether they find the same inconsistency or not.

The third research question asked whether culturally congruent images increased individuals' recall. Color psychology literature suggests that subtle exposure to specific colors could induce cognition consistent with ascribed meanings (Jiang et al., 2014). Several studies have found results that support color's significance in participants' recall performance (Huang et al., 2008; Kazem et al., 2021; Morita & Kambara, 2022). This study's results do not support the

hypothesis that cultural relevancy of the colors in the ad will increase recall. Across both ad conditions, a high, statistically significant percentage of participants were able to recall the primary colors of interest. These high percentages held consistent despite whether individuals were shown the culturally congruent ad or the culturally incongruent ad. The only minor discrepancy was in participants' recall of red when shown the culturally incongruent ad. This was the only case where participants' recall was not statistically significant. In some cases, brightness of a color has been posited to affect individuals' reactions (Elliot, 2015). Seeing as though red was one of the culturally associated colors for both cultural groups, the difference in the brightness may have influenced the results in this case.

Two additional factors were analyzed in the study: strength of cultural identity and color preferences. Regarding strength of cultural ties, African/African American nor Korean/Korean Americans displayed differences in their levels of cultural pride, cultural identification, or internalized culture. In turn, we analyzed the associations between the various cultural strength indicators and the key dependent variables in relation to whether participants saw a culturally congruent or culturally incongruent ad. Because previous literature has addressed the importance of culture in one's subsequent perceptions and reactions to messaging, we expected that the more participants internalized their culture, felt cultural pride, and identified with their culture, that they would have more positive emotional responses and increased likelihood of purchase intentions when shown the culturally congruent ad, and less positive emotional responses and decreased likelihood of purchase intentions when shown the culturally incongruent ad. However, the results varied in regard to aligning with these arguments. There were clear positive associations between participants' increased internalized culture and their likelihood to further read up on or purchase the product after viewing the ad featuring colors tailored to their culture.

The same trend was found between their increased cultural pride and their behavioral intentions. However, participants' level of internalized culture, as well as their level of cultural pride, had no significant relationship with their likelihood to have positive or negative emotional reactions toward the ad with culturally congruent colors. These results suggest that culturally congruent colors did seem to have a positive impact on participants' behavioral intentions, though not impactful at all on their emotional reactions. However, when comparing participants' level of cultural identification with their subsequent emotional reactions and behavioral intentions, the results changed. Among those who saw the culturally congruent ad, the more they felt aligned with their cultural group, the more likely they were to experience negative emotions toward the ad. Their cultural identification had no correlation with their behavioral intentions, nor their positive emotions.

For participants shown the culturally incongruent ad, results were also contrary to our expectations. Instead of being less likely to experience positive emotions or read further up on or purchase the product as their cultural ties strengthened, participants were actually more inclined to have increased positive emotional reactions and increased behavioral intentions the stronger their internalized culture. Participants' level of cultural identification and their subsequent emotional reactions and behavioral intentions were the closest to our predictions. The more participants felt aligned with their cultural group, the more likely they were to experience negative emotions toward the ad and the less likely they were to experience positive emotions toward the ad or further read up on or purchase the product. Cultural pride did not play a significant role at all in relation to their emotional reactions or behavioral intentions.

To help explain potential reasons for these unanticipated results, we looked to the participants' responses when asked to explain why they believe they experienced the emotions



they did while viewing the ad image. Of the four different themes, the most prevalent among respondents' answers was that the ad was irrelevant or boring to them because they have been out of school for an extended period. Though another theme that emerged was how the ad evoked individuals' nostalgia for the good times they had in school, which in turn influenced their emotional reactions, the ad having no affect or mood change was more commonly occurring. The remaining responses fell into a theme of dislike for the appearance of the ad and appreciation for appearance of the ad. Because the most responses fell into the irrelevant/boring theme, I suspect that the emotional reaction results reflected this sentiment as well. Had the product been one of more relevancy to the wide range of ages in the sample, the results may have differed.

Regarding color preferences, I sought to investigate whether they were associated with participants' cognitive, emotional, and behavioral reactions to the advertisements. According to the literature dealing with emotional reactions, "plus colors" such as red and yellow induce positive feelings while "minus colors" such as blue induce negative feelings (Goethe, 1810/1947; Goldstein, 1942). However, in other contexts, researchers found that blue is related to increased relaxation and calm feelings (Elliot & Maier, 2014). The results from the emotional measures of this study both support and contradict these sentiments. The higher their preference for red, the more positive feelings participants felt toward the ad they were shown, and the same is true for the relationship between their preference for blue and their positive feelings. These findings support the literature that as a "plus color," red induces positive emotions, as well as Elliot and Maier's (2014) findings that blue increases positive feelings such as calmness. Based on the literature, we anticipated that yellow would follow the same trend. Participants' preference for yellow had no significant association with their emotions toward the ad they were shown,

meaning they were not more or less likely to have positive or negative emotions toward the ad in relation to their preference for the color yellow.

Additionally, the previous literature on color's effects on behavioral reactions primarily focused on red and blue when conducting studies. Both colors have been found to increase individuals' behavioral intentions in the context of digital banner advertisements (North & Ficorilli, 2017; Kareklas et al., 2019). This study's results both support and contradict the previous literature because it was only participants' preference level for red that reflected their likelihood to further read up on and purchase the product featured in the ad shown. Their color preference level for blue had no association their behavioral intentions. This study also contributes to the literature on color preferences' effects on purchase behavior, because results show that participants' preference for yellow had no association with their likelihood to further read up on or purchase the product in the ad. This may account for the reason why most studies on color's effects on behavior focus on red and blue hues.

In the case of this study, two occurrences were at play and manifested in the data. The first is color psychology literature's assertion that various factors go into influencing one's color preferences (Guilford & Smith, 1959; Robinson, 1975; Benson et al., 2000). We see this in the varying degrees of participants' color preferences and the various associations these preferences had when it came to their emotional reactions, recall abilities, and behavioral intentions in response to the ad they were shown. These extraneous factors that likely differed between participants may explain why the results only reflected a slight trend in the projected direction as opposed to a statistically significant trend. The other occurrence at play was the lack of product relevancy to a significant number of participants. The backpack was chosen as a product for its moderately-involving attribute, but the thematic analysis revealed that participants'

disconnection with school influenced their subsequent evaluations of the ad they were shown, regardless of its cultural congruency. For these reasons, I assert that when it came to the degree of influence on the results, what mattered most was the product, then the colors, then the culture of the participants.

The findings of this study hold practical implications for mass communicators, advertisers, marketers, designers, and any other individuals who deal with aspects of visual communication. Although the results showed no main effects or interaction effects within variables, the general trend of the results displays that individuals responded more positively to the ad featuring culturally congruent colors. This was especially true when it came to participants' behavioral intentions. In the competitive marketplace that is mass communication, any aspect that holds the potential to give companies, brands, etc., a competitive advantage over their counterparts may be worth the extra effort. In line with this study, this means researching target audiences' cultures and incorporating culturally congruent color schemes into visual assets (i.e., logos, brand colors, promotional material, product advertisements, etc.).

### **Limitations and Future Research**

This study possesses several limitations that are worth noting. One involves how the study failed to assess how important the participant found the product shown in the ad (backpack). The pilot study did well in terms of recall when tested with college students, possibly because of the product's high relevance to this group of individuals. The thematic analysis conducted on the reasoning behind participants' emotional reactions in the main study, however, suggest that it was their disconnection with school/backpacks that influenced most of the participants' subsequent reactions to the ad they were shown. Because the main study consisted of a broader group of individuals and ages, using a phone case for a product, for

example, may have resulted in a different outcome. Future research should consider using a product with high relevancy for all subjects involved. A second limitation lies in the study's use of a singular ad, shown for 15 seconds. Had participants been shown a campaign with more pieces to it (i.e., a website, magazine ad, etc.) over a longer period, there may have been a difference in results. Future research, therefore, should investigate whether there is a difference in individuals' reactions when shown various stimuli featuring the culturally congruent/incongruent color scheme. This study also focused specifically on African/African American and Korean/Korean American participants. Future research should assess whether results remain consistent when evaluating members of other cultural groups.

There were a few limitations affecting the internal validity of the study. One is that because participants completed the study from their respective locations, we were not able to control for factors in their environments that may have affected their answers. Future research should replicate the experiment with participants in a controlled environment while completing the study. Another threat to the internal validity of this study was the inherent limitation of self-reported measures. More specifically, by asking participants to indicate their strength of cultural ties, color preferences, emotional reactions, and behavioral intentions, the study automatically took on the chance of participants understating or overstating certain aspects, which would affect the results.

There was also a limitation concerning the external validity of the study. Because the participants were recruited through the Amazon mTurk system and through social media outreach, every African/African American and Korean/Korean American in the population were not given an equal chance to participate. We were also only able to analyze 154 participants in the study, which is also not a substantial reflection of the populations of these two groups.

Therefore, the study cannot be generalized to the overall populations of these groups. Since it is fairly difficult to obtain a sampling frame of every individual who identifies as African/African American or Korean/Korean American in the population, future research should at least aim to include a larger sample number to provide a more accurate account of results.

Another limitation present in the study lies in my failure to assess brown as one of the color preferences since it was also a color of interest for African American cultural colors. This information may have proved to influence the results from the African/African American cultural color condition and should be assessed when investigated in future research.

## **Conclusion**

Scholars have investigated the concept of color for centuries. Color is a ubiquitous perceptual stimulus whose research began simply as a means of aesthetics. Over time, however, links to color and psychological functioning surfaced. Color psychology highlights how color's power to carry meaning and its capability of impacting people's cognition and behavior. Within this line of research, scholars are beginning to uncover several factors that influence how individuals associate color meanings. One of these factors is culture. Given that color perceptions change within different cultural realms, I raised the question of whether the use of culturally congruent colors would affect recall, emotions, and behavioral intentions differently depending on one's cultural associations. Though the results were not statistically significant, they did trend in the general direction of people responding positively to images with culturally congruent colors. Therefore, this study provides grounds for further investigation, both in academia and in the communications professions. In the academic realm, this study contributes to support the existing color psychology theory, suggesting that individuals may have different, though minor, reactions to images depending on the cultural congruency of the image's colors. Even though I did not find

overwhelming evidence, this study suggests that cultural symbols are important, along with personal experience and a host of other factors. As such, it may behoove businesses and brands to consider their target audiences' cultural identities and how these cultural associations affect their perceptions of the colors used in advertisements and branding. To do so, businesses and brands could incorporate decisions related to their target audiences' culturally congruent colors while making branding decisions or advertising decisions.

## Appendix A. Institutional Review Board Approval



**TO:** Meghan Shara Sanders  
LSUAM | Sch of MCOM | Mass  
Communication | CC00235

**FROM:** Alex Cohen  
Chairman, Institutional Review Board

**DATE:** 30-Aug-2022

**RE:** IRBAM-22-0861

**TITLE:** Color, Culture, and the Implications for  
Emotional, Cognitive, and Behavioral  
Reactions

**SUBMISSION TYPE:** Initial Application

**Review Type:** Exempt

**Risk Factor:** Minimal

**Review Date:** 30-Aug-2022

**Status:** Approved

**Approval Date:** 30-Aug-2022

**Approval Expiration Date:** 29-Aug-2025

**Exempt Category:** 2a

**Requesting Waiver of Informed Consent:** Yes

**Re-review frequency:** Three Years

**Number of subjects approved:** 450

**LSU Proposal Number:**

**By:** Alex Cohen, Chairman

### Continuing approval is **CONDITIONAL** on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects\*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

\* All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.lsu.edu/research>

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## Appendix B. Pilot Stimuli

### African/African American culturally congruent conditions

#### Backpack



#### TV





**Korean/Korean American culturally congruent conditions**

**Backpack**



**TV**



## Appendix C. Pilot Study Questionnaire

1. How would you identify this image?

Zoom Background    Advertisement    Other

2. What are the major colors in the ad?

3. What is this an ad for?

4. On a scale of 1 (not at all) to 5 (very), rate how strongly you feel the following aspects describe the ad:

Attractive

Realistic

Convincing

## Appendix D. Main Study Stimuli

### African/African American culturally congruent conditions



### Korean/Korean American culturally congruent conditions



## Appendix E. Main Study Questionnaire

### Demographic Information

Male      Female      Third Gender/Non-binary      Prefer not to say

Age: \_\_\_\_\_

### Cultural Identity

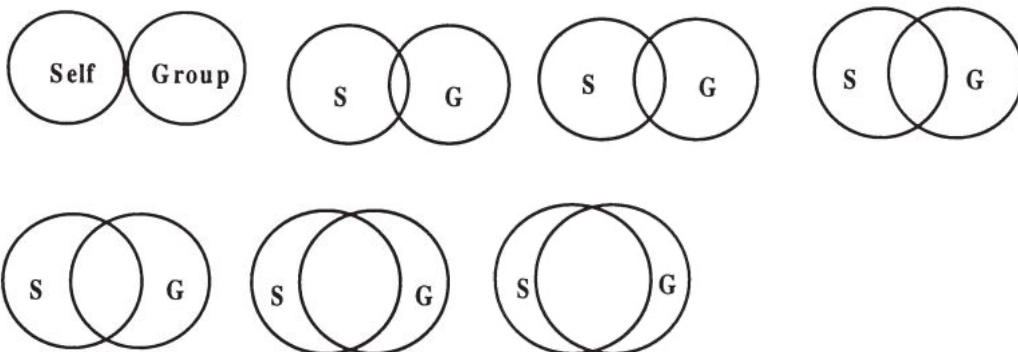
Which culture/ethnicity do you identify as?

African      African American      Korean      Korean American      Other

How proud are you of your cultural heritage?

- Not at All Proud 1 (1)
- 2 (2)
- Somewhat Proud 3 (3)
- 4 (4)
- Very Proud 5 (5)

Select the pair of circles that you feel best represents your own level of identification with your ethnic group, where S = self and G = group.



On a scale of 1 (not at all) to 4 (a lot), answer the following questions:

To the extent that I live by or follow my culture/ethnicity's way of life, I do so...

1. because it is personally important to me
2. because I value my culture's way of life
3. because I enjoy it
4. because being true to one's culture is important

### **Color Preference**

What is your favorite movie genre?

What is your favorite genre of music?

Rank the following colors from your 1 (least preferred) to 7 (most preferred):

Red

Orange

Yellow

Green

Blue

Purple

Black

On a scale of 1 (least preferred) to 5 (most preferred), please indicate your preferences for getting news information:

Social media

Local TV network

Cable TV network

Podcasts

Website

What is your favorite food?

What is your favorite hobby?

**Stimuli viewing (minimum page time: 15 seconds)**

**Emotional Measure**

Describe all the feelings or emotions you experienced while looking at the ad image:

Reflect upon and describe why you believe you experienced the emotions described in the previous question:

On a scale of 1 (not at all) to 5 (very much), to what extent do you feel this way right now?

1. Interested
2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired

- 15. Nervous
- 16. Determined
- 17. Attentive
- 18. Jittery
- 19. Active
- 20. Afraid

What about the ad influenced your emotional responses?

**Recall Measure**

What elements do you remember seeing? (Select all that apply.)

Logo   Product   Ad Colors   Ad Setting   Ad Text

\*If “Ad Colors” is selected, ask:

What colors do you remember seeing?

**Behavioral Intentions**

Based on the colors used in the digital advertisement, I would...

Buy this product. (1-highly unlikely, 7-highly likely)

Make this product one of my first choices. (1-highly unlikely, 7-highly likely)

Exert a great deal of effort to secure this product. (1-highly unlikely, 7-highly likely)

Recommend this product to a friend or family member. (1-highly unlikely, 7-highly likely)

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## **Vita**

Renee Lucas, a Baton Rouge, native, earned her bachelor's degree in mass communication with a public relations concentration and a minor in business administration from Louisiana State University in 2020. She graduated as the sole University Medalist of the Manship School of Mass Communication. Her other academe awards include the Bryan Putman Memorial Scholarship in 2019, the Robert Ewing Scholarship in 2019, the Tiger Athletic Foundation Scholarship in 2020, and a 2020 LSU Discover Research Grant recipient, through which she obtained her first publication. She plans to receive her masters this December 2022.