"Praemonitus Color: Examining the Link Between Preconceived Notions and Color Theory"

An Honors Thesis

by

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2020

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The intentional use of color in design to persuade consumers to think and feel a certain way has been heavily utilized by artists and designers to sway an individual's preferences subconsciously. It is accepted that color has an effect on emotion in a way that is reliably predictable (Wilms, 2018, p. 896). The level of predictability that the emotional reaction to color has allows for fields of communication to reinforce ideas that are presented onto the individual without the individual being aware of the persuasive methods. If the knowledge of color theory was known by the common consumer in that the use of color is chosen purposefully to manipulate the consumer to feel a certain way, the actual effectiveness of color in designs would change.

A basic premise of color theory is that the longest wavelengths of color cause high levels of arousal while the shortest wavelengths cause an inverse effect on the emotions of an individual (Wilms, 2018, p. 896). The longer wavelength colors, such as red and orange, give a dramatically different feeling then the short wavelength colors, such as blue and green, where their uses can be seen as obviously appropriate or inappropriate depending on the context they are used in. We can feel when a color is out of place since the feelings we associate with specific colors are either learned associations or instinctual responses from repetitive tendencies through evolution (Elliot, 2007, p. 251). It's learned that wearing black clothing during a funeral in regions heavy with European descendants is appropriate yet wearing black during a wedding is not. This would be learned associations of color. In nature, color often serves as an indicator for what is safe and what is potentially hazardous such as bright reds, oranges, and yellows often indicating poison or venom or the ripeness of fruit (Elliot, 2007, p. 251).

The effects of color on a subconscious level can be found in a wide array of things outside of creative/communication fields. Red ink on paper is linked to harsh grading, resumes printed on yellow paper are rated more negatively compared to equivalent ones printed on white, and paper color has a subjective effect on a person's reading performance fatigue (Clary, 2007, p. 42-43). Even one that aligns themselves with the Republican party will find political posters

more appealing if blue on white were the color choices in design when no political party is established (Howard, 1984, p. 209). It can be concluded that the calmer, more reliable aspect of the color blue outweighs the political ties that red has with one's party.

Knowing when a color feels out of place can affect how genuine and authentic a product or brand appears. While some colors are thought to feel more reliable and honest compared to others, if the color is appropriate to the nature of the product or brand, it will feel more trustworthy. Natural shades of green are commonly used in products and companies that are natural, organic, and eco-friendly. The association is obvious due to nature being composed largely of green flora. By using this association, companies can reinforce their environmental morals within their logos and packaging. The meaning that a color has influences the consumer's perception of the company without the company making a direct claim (Sundar, 2017, p. 686). Color is often used to mislead consumers in their perceptions of the retail practices that a company undertakes (Sundar, 2017, p. 686). The United States Patent and Trademark Organization (USPTO 2013) made guidelines that prevent the word "green" from being in the trademarks of companies that are not actually environmentally friendly to help reduce consumer manipulation (Sundar, 2017, p. 685). These guidelines do not prevent companies from using green in their marketing, however, still manipulating consumers who want to support companies that are eco-friendly. When little information is known, color allows for an individual to infer information on a company or brand to fill in this gap (Sundar, 2017, p. 686). It is this powerful influence that color has over people that I wanted to investigate in this study. My hypothesis is that if people were told that a color has a specific meaning, the way they look at something that uses that color could change to either reflect what they were told, change to reflect the opposite to resist what they were told, or to not change from what they thought before any influence.

Color is often looked at as the biggest deciding factor on if a good or service will be purchased. Color not only indicates the nature of the item but also the nature of the company behind the item. It can also become the identifier for a company such as a specific shade of red

representing Coca Cola. After a consumer becomes used to a brand, the traits of the brand, whether good or bad, become associated with the specific color or color combinations they use. When companies are rivals for the same market, they often take on a different color palette so customers are more likely to be able to identify them over their competitors while also showing the quality, morals, price range, and other associations with the product. The company's color becomes synonymous with their brand identity.

The social psychology theory, forewarned is forearmed, suggests that if people were aware that they were experiencing an attempt at influencing them, they would be less likely to be influenced (Wood, 2003, p. 129). It also suggests that under some situations that forewarning could also result in temporary compliance with the influence (Wood, 2003, p. 129). For designers of any kind who want to use color as a tool, knowing how color theory changes based on how well informed the potential consumers are on how color in design works would be imperative. Color theory and how it's used in design is not a secret, yet if people were conscious of the colors used when they shop, color in design would change.

To see the possible change in how people respond to color when being blatantly influenced, I developed two surveys to establish a control group and a prompted variable group. Both surveys have the same set of five pictures with one single colored object as the focus. For each image the respondents were asked to state in one word the feeling they got from the image. To avoid any prior preferences or biases that respondents might have to specific brands, I used objects that were not branded in an obvious manner. This included a red umbrella, a pair of blue sunglasses, a green notebook, a ball of orange yarn, and a purple jacket. The color and objects were chosen to avoid obvious biases such as how making a water bottle blue would give the idea of cold water. The difference between the two surveys was the variable survey had prompts above each image. Based on known ideas for what a color can represent within color theory, I wrote out an example of what each color could feel like for the prompt, none of which match the image so that the respondents give their initial thoughts rather than a more obvious association, such as a white dress giving off a wedding dress feeling. These prompts

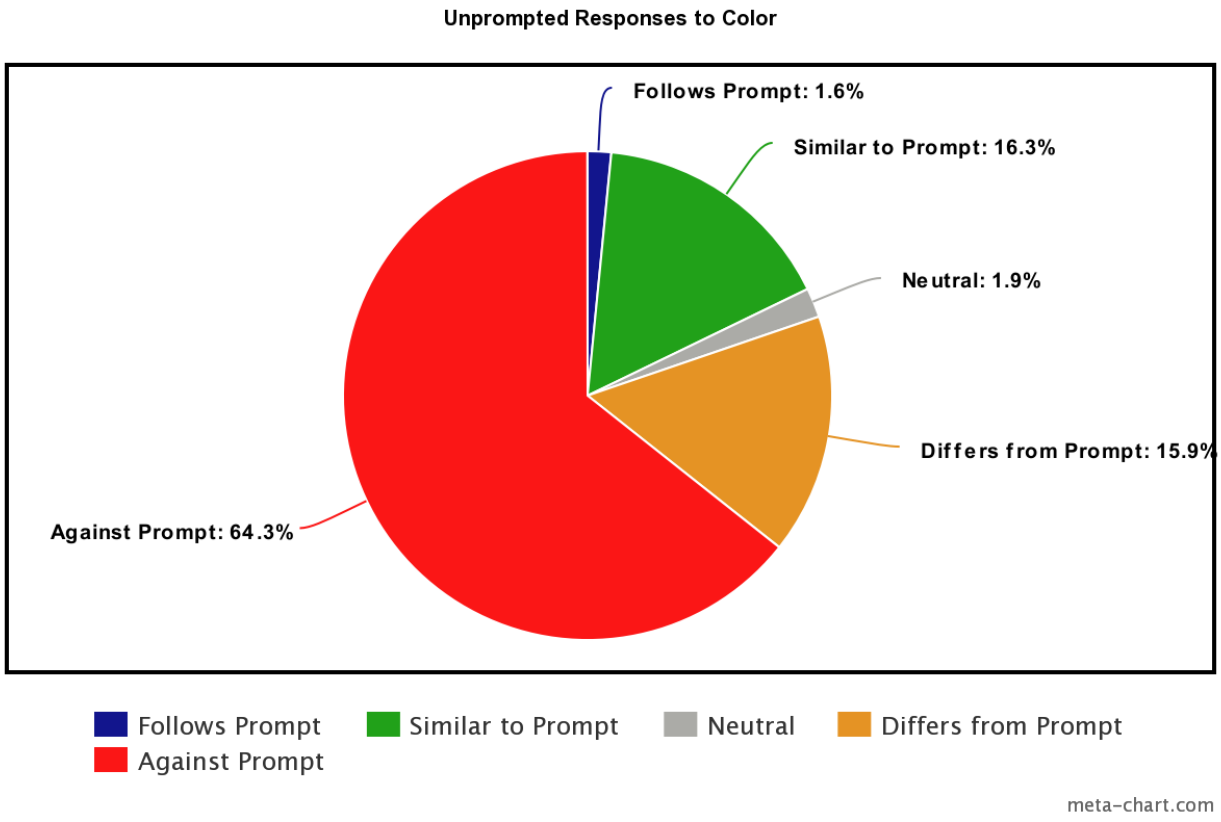
also didn't directly contradict the image they were associated with, such as bright green vegetables and green representing rotten. I used passion for the red umbrella, responsibility for the blue sunglasses, vile for the green notebook, alert for the orange ball of yarn, and mysterious for the purple jacket as the prompts. The prompts were based off of the color of the object and not the actual properties or nature of the object. The control survey would show a person's response to an item presented to them without influence in any direction. The variable survey would demonstrate how responses change when influential information is provided beforehand.

After collecting data, the responses for each image and categorized them based on how close they were to the initial prompted words. If the words were the same or direct synonyms of the prompt (according to a thesaurus), they were marked with blue. If they were similar to the prompt but not a word that could be interchangeable with the prompt (according to a thesaurus), they were marked with green. If the words were near opposites to the prompt or antonyms, they were labeled with red, and if they were similar to the prompt's antonyms then they were labeled with orange. If the response's word was neutral it was kept black and white. After the words were color coded, the number of each color for both surveys were tallied. Respondents consisted of college age students and up resulting in 109 participants, most of which are current students attending the California University of Pennsylvania as of spring 2020.

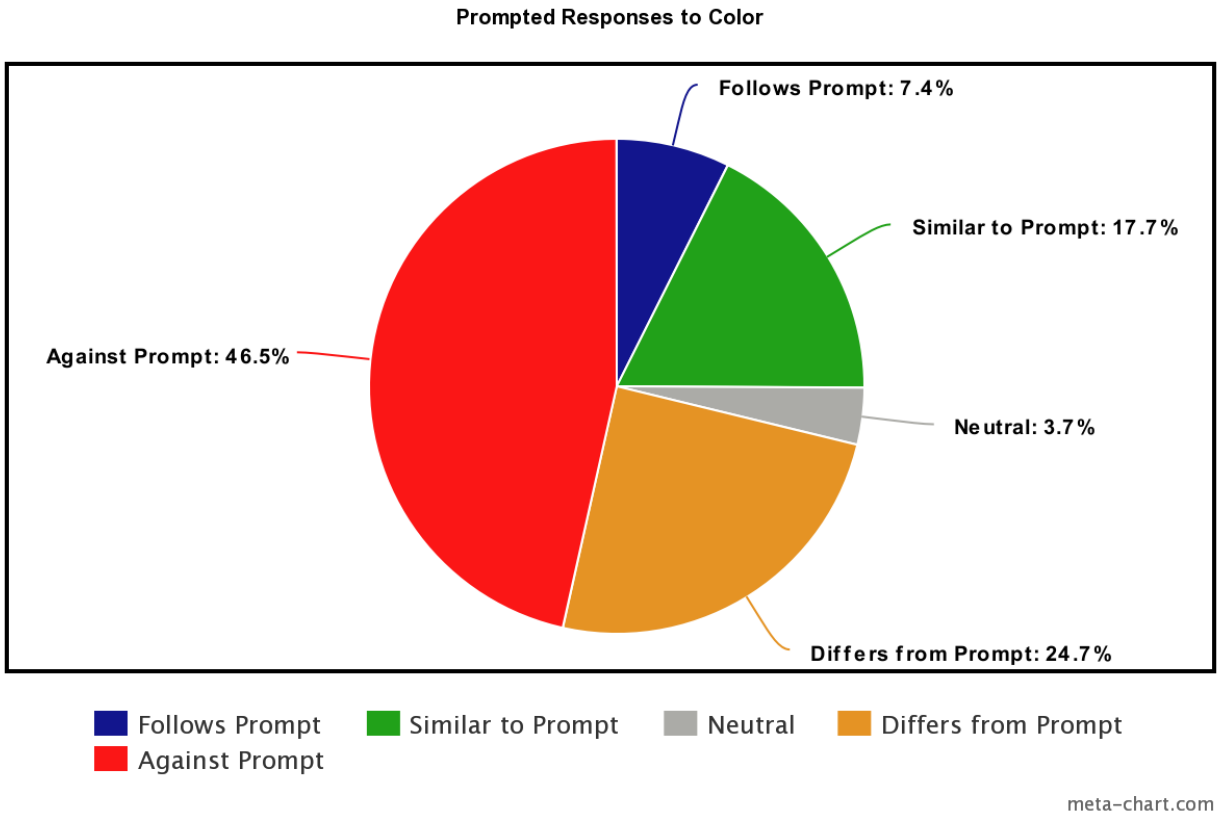
When comparing the data between the two groups, there is a visible difference when information is given. While the unprompted group shows how people respond to the images, the prompted group shows that, though not a drastic amount, there is a distinct change in how people responded for each image. Across all of the images, when given a feeling of what a color could mean before an image, respondents were 7% more likely to react similarly to the prompt then if there was no prompt (17.9% unprompted versus 25.1% prompted). The difference of 7% is seemingly small yet over all there was also a shift in the percentage of respondents that reacted in various degrees against the prompt. When prompted, responses directly against the

prompt dropped 17.8% while responses that differed, but wasn't a complete opposite, from the prompt increased by 8.8% when prompted. When looking at both of these negative against the prompt responses, the overall percentage of responses against the prompt dropped by 9% (80.2% unprompted versus 71.2% prompted). Overall, when given a prompt the responses start to lean towards following the prompt and away from responding against it. Responses even lean away from being completely against the prompt and more towards just differing and neutral. (F1 & F2 show unprompted and prompted responses for all images respectively).

F1



F2



The trend in influence resulting in compliance from the respondents can be tracked across the five images to differing degrees. Seeing that the trend continues across the images shows that, while each image results in a different array of response ratios, when a person is given influence to respond a certain way to a color that doesn't match the object in question, respondents are more likely to comply. (F3 is in reference to image one, F4 is in reference to image two, and so on and so forth)

F3

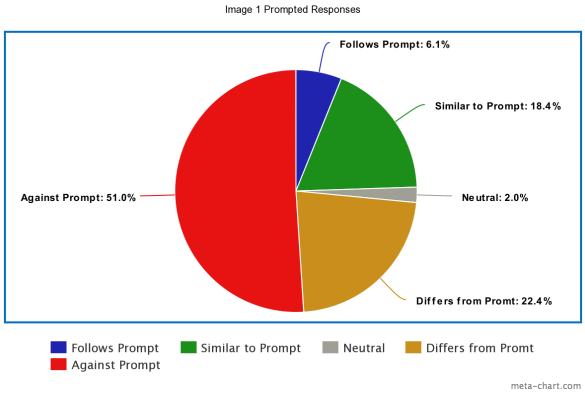


Image 1 Prompted Responses
Follows Prompt: 6.1%
Similar to Prompt: 18.4%
Neutral: 2.0%
Differs from Promt: 22.4%
Against Prompt: 51.0%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

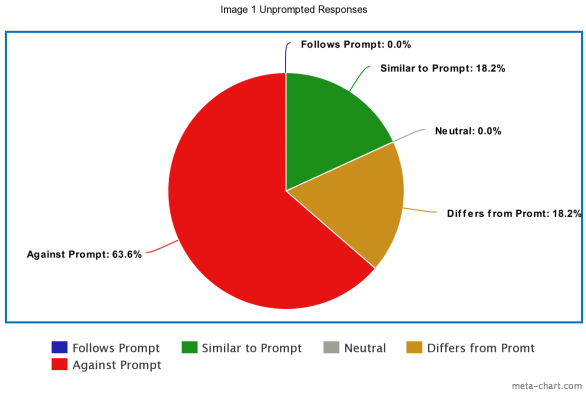


Image 1 Unprompted Responses
Follows Prompt: 0.0%
Similar to Prompt: 18.2%
Neutral: 0.0%
Differs from Promt: 18.2%
Against Prompt: 63.6%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

F4

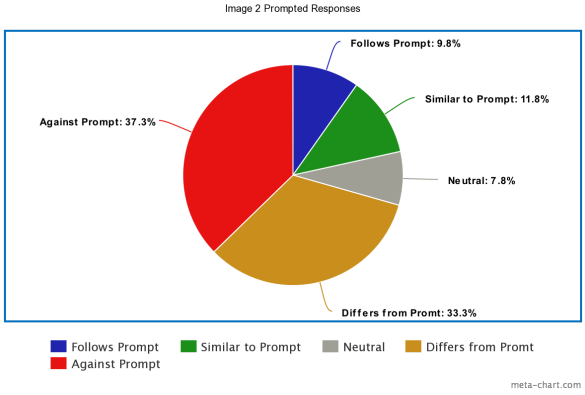


Image 2 Prompted Responses
Follows Prompt: 9.8%
Similar to Prompt: 11.8%
Neutral: 7.8%
Differs from Promt: 33.3%
Against Prompt: 37.3%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

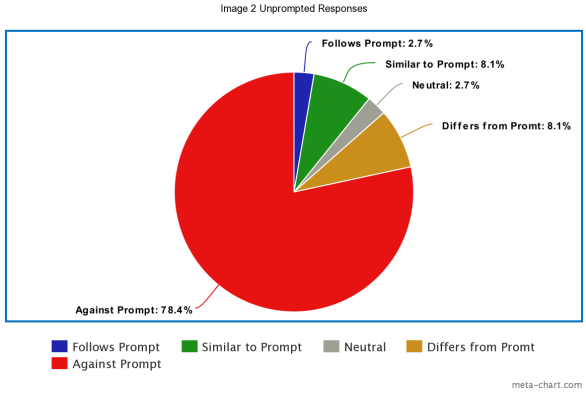


Image 2 Unprompted Responses
Follows Prompt: 2.7%
Similar to Prompt: 8.1%
Neutral: 2.7%
Differs from Promt: 8.1%
Against Prompt: 78.4%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

F5

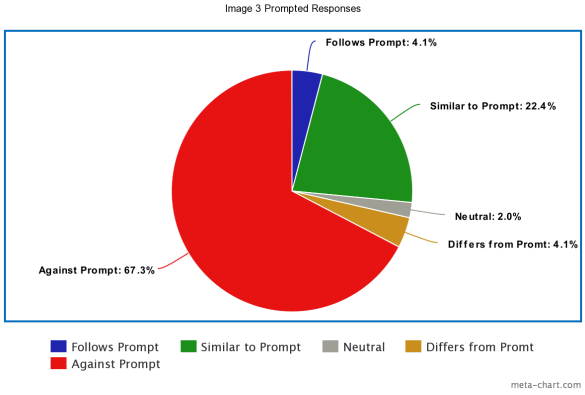


Image 3 Prompted Responses
Follows Prompt: 4.1%
Similar to Prompt: 22.4%
Neutral: 2.0%
Differs from Promt: 4.1%
Against Prompt: 67.3%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

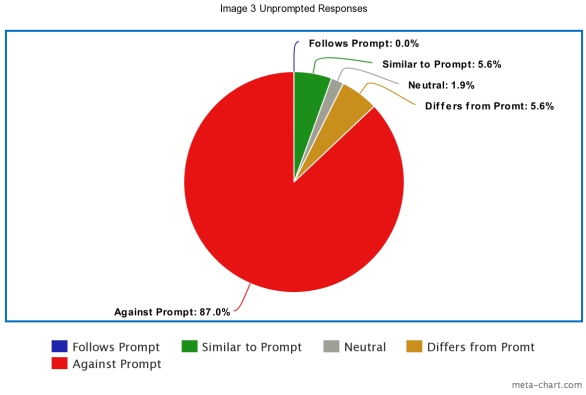
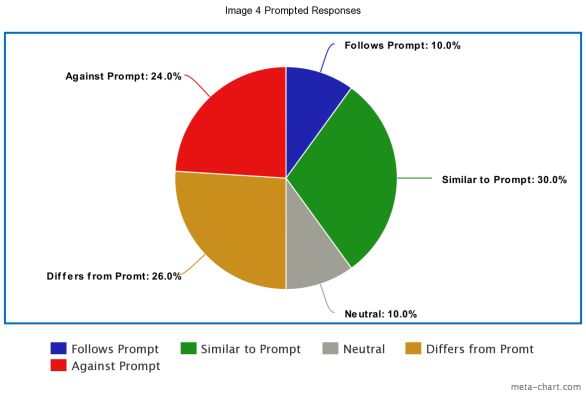
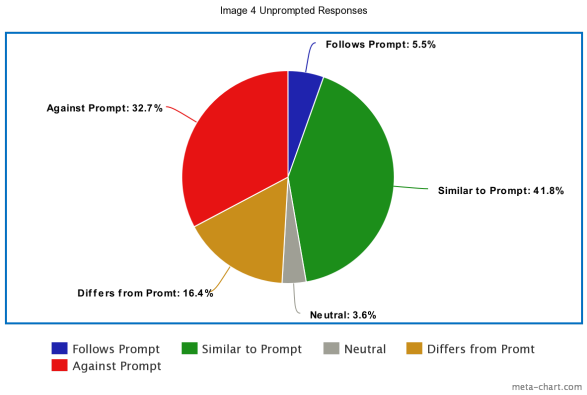


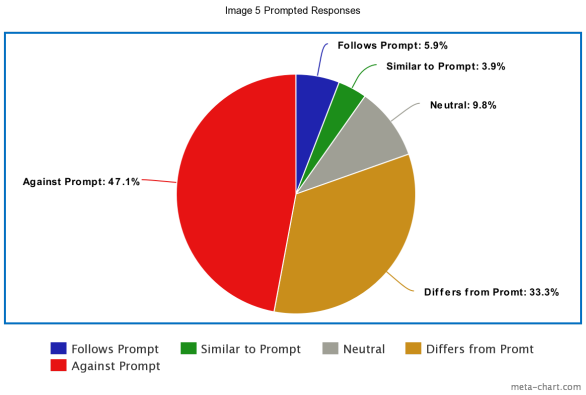
Image 3 Unprompted Responses
Follows Prompt: 0.0%
Similar to Prompt: 5.6%
Neutral: 1.9%
Differs from Promt: 5.6%
Against Prompt: 87.0%
Follows Prompt
Similar to Prompt
Neutral
Differs from Promt
Against Prompt
meta-chart.com

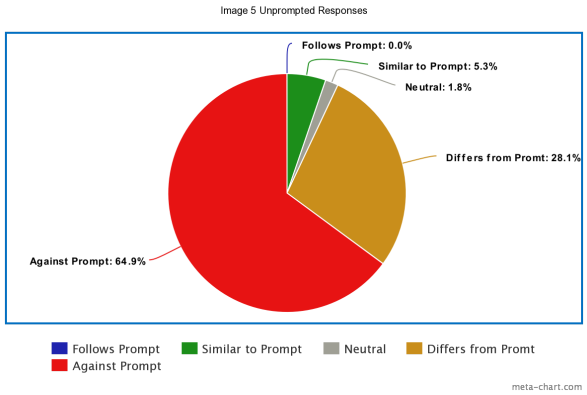
F6





F7





This data shows that if color theory, the simplest aspect of what feelings certain colors can produce, became widely known to consumers, people would still be influenced by it. This would mean that if consumers are unaware of specific morals that a company has, the colors used for the company's products would act as the only information the consumer has to base their decision making on. In practice, consumers could be manipulated to view products in a specific light that might not be accurate. If one doesn't do the proper research on the morals of a company to see if they align with the consumer's own morals, the colors used would result in

the wrongful interpretation of the product and company whether it be on the quality of the product or the world impact that the company has. Going back to the use of green in company logos that influence consumers to view their products as environmentally friendly, by knowing that consumers will still be influenced by color even if they are aware of the implementation of color theory during the design process, more companies may resort to purposeful manipulation via color. Designs may no longer focus on using color to appeal to a specific audience's desire for a certain quality, price range, or morals but rather focus on mass appeal to the audience in a way that makes the consumer feel good about their decision without the company having to put in the effort to uphold these obligations. While this less honest manipulation is already common, it could become a more common practice for businesses to gain more profit.

There are many flaws within my research that I can see right away. I wish I had a bigger pool of respondents though I am happy that I got as many as I did. Testing subjective concepts are hard to measure and having the survey be online reduces the likeliness for honesty on the respondent's part. Having repeated studies as well as comparison studies using brands that have a heavily associated color could solidify the relevance or irrelevance of this study. With brands, however, there could be legal issues of potential slandering of the products shown if done the same way. In addition, having multiple versions of the prompted surveys where different sorts of prompts, ones that align more closely and less closely with the image, could help demonstrate how the different feelings a color can convey change how one responds to the object in question. However, for all that happened while I was studying this, I am happy with the outcome of my research.

References

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