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Beyond Aesthetics: Utilizing the Power of Color in Product Design

Product designers play a key role in the cycle of developing products and consumers purchasing and using those products. They have to intertwine the utility and functions of a product with the aesthetic components, all while also making sure to keep the product usable and intuitive. A good designer aims to maximize every component of their design so as to make their product most effective. One crucial component of the design of a product is its color. Color can catch a customer's attention, it can make a product look pretty or appealing, and it can also help a consumer recognize a brand. But color is capable of providing so much more for a product than just aesthetic advantages. Color has numerous capabilities that are often ignored and underutilized when designing physical products. If a designer is trying to properly utilize all the capabilities that color can offer, in addition to color's aesthetic component they must also consider the effects that color has both through the information that color implies to the consumer along with the ways color can shift a consumer's perceptions and beliefs of a product.

To say color is solely considered an aesthetic component of design for all products in every market would be an overassertion. However, too often designers only include color because they know that "package color can have a significant effect on consumers' ability to recognize a product" and that color "draws the attention of the consumers" (Kumar 4-5). This is not to say that these are not true or key additions to why products should include color. In fact,

these are actually exceptionally valid and important reasons for which to include color. Color has been found to be the “quickest product element or information recognized” by consumers, therefore making aesthetics and eye-catching colors a crucial component of product design to emphasize (Alves 1). Instead, it is more to say that too many designers view color through the lens that its only capabilities are to afford aesthetics to an otherwise blank design. If the root concept of adding color is to convince consumers to purchase a product, then there are more capabilities that color can offer than just purely aesthetics, such as the aforementioned capabilities to imply information and change a consumer’s beliefs around a product.

One relevant concept to note before continuing is just exactly what “color” means in this discussion. Color is primarily composed of three components: hue, value, and saturation. Hue is the component of color that most people consider when discussing color. Hue describes the “spectral wavelength composition of a color,” where each color corresponds to a different visible wavelength of light with violet being the shortest wavelength and red being the longest (Labrecque 857). Hue explains why green looks different from red, and yellow looks different from blue. Value describes the “relative lightness or darkness of a color” while saturation describes the “degree of intensity, richness, strength, or purity” of color (Labrecque 857). Both qualities, in addition to the often over-emphasized hue, are important when considering the appearance of color on physical objects. Research surrounding color psychology and its impacts on physical products mainly focuses on how these three components affect consumers. There are other smaller components of color, such as chroma, finish, and material which have had less research done on their effects and therefore aren’t focused on in this essay, yet they are something to look into for the future for maximizing color utilization (Kumar 4). Throughout this essay, different articles referenced will alter different components of color as a main variable.

Considering that when any of these individual components are altered the entire color is affected, this essay will eventually use the term “color” and the idea of fully “utilizing color” to mean fully utilizing the effects of the component's hue, value, and saturation.

When a consumer purchases a product, they do so to try and solve a problem. Their problem may be getting cold when going outside, in which case they may purchase a jacket to keep them warm. Maybe a consumer is hungry, so they buy a pack of chips to deal with their problem of hunger. The purpose of buying the product for the consumer is to try and resolve their problem. When a designer is creating packaging, one of their primary goals should be communicating with the customer and sharing as much information about the product as possible so that the customer can be well informed enough to know if the product is right for them. Considering the already mentioned reasons why color should anyway be added to a product design, designers should wonder whether color can be further used to actually convey information to provide another avenue to inform the customer about a product’s qualities and properties. The two following studies show that not only is color capable of offering more information to the customer, but also offer examples of how in each respective field the findings can be used moving forward.

Nina Veflen, Carlos Velasco, and Hilde Kraggerud wrote an article titled “Signalling Taste Through Packaging: The Effects of Shape and Colour on Consumers’ Perceptions of Cheeses” looking at whether shape and color of packaging affected how different cheeses were interpreted. Focusing on their second study, they aimed to evaluate and see if adjusting the shape of packaging or adjusting the saturation and value of the color on cheese packaging would “influence consumers expectations [of the] taste of [the cheese].” In addition to finding the effects of shape, the authors were curious how higher saturations and values versus lower

saturation and values on cheese packaging affected how consumers thought different cheeses would taste. The study saw participants being shown 36 cheese packaging combinations made up by two generalized brands, using varying hues, saturation/value combinations for each hue (high saturation and low value, low saturation and high value), and 3 shapes (circle, square, triangle). The participants would never try the cheeses, instead only seeing the packaging and then making assumptions about how sharp or mild the cheese's flavor was. One of the study's conclusions was that indeed color of the packaging did affect how a cheese was interpreted, finding that high value and low saturation colors were associated with milder flavor and low value and high saturation colors were associated with sharper flavor. Taking these findings into account, if designers aimed to maximize the capabilities of the colors they used on their cheese packaging, they could make sure to use these associations of value and saturation with the flavor profile in their design. By doing so, consumers would implicitly be told what cheeses tasted like without needing to try them and would be more informed in the purchasing process.

The study of colors on packaging changing expectations of a product isn't exclusive to cheese, as Grazielle Grilo et. al find in their article "It's All About the Colors: How do Mexico City Youth Perceive Cigarette Pack Design" which examines how color and other factors affect how "appealing" cigarette packets look to adolescents. The study asks multiple small groups of adolescents who are grouped accounting for age, gender, smoking experience, and socioeconomic status to rearrange twenty-three packs into two categories: appealing or unappealing. Then the groups would discuss what in particular made certain packs appealing or unappealing. Across all the groups, the groupings of what packs were considered appealing and which were found to be unappealing "did not differ greatly," offering the researchers the ability to find trends of what features and color choices made adolescents generally find certain packs

more appealing (1). They found that bold and contrasting colors in addition to features that suggested flavors made packs more appealing to adolescents. Interestingly though, the colors also communicated information to the adolescents. A female adolescent smoker from a mid to high socioeconomic status stated, “I think one [pack] that has more colors and things like that is younger” (7). She voiced a sentiment held by many in the group, suggesting that the bright contrasting colors suggested that the packs were for a younger generation and were meant to be inviting and fun to try. Even though the purpose of this article was to find what colors and packaging decisions should be avoided or prohibited to limit the sale of cigarettes, the study still explicitly shows how color can be used to communicate information to a consumer without specifically writing it on the packaging.

If a designer is trying to fully utilize color and everything it can provide for a product, as these two articles show, colors associated with information must be woven into the design. Color can implicitly state information that the designer feels is important for the consumer to know without having to take up a large amount of additional space. Color as an avenue for sharing information should act as another tool in a designer's toolbelt when designing any product.

Then comes the tool of using color as a means of shifting perceptions of a product. Where the prior argument revolved around using color to convey information and knowledge to the consumer, this tool is more about the idea of using color to shift how a consumer “feels” or “believes” about a product. Altering a consumer’s perceptions falls more in line with color’s found and researched abilities to alter how the brain works, how the body works, and what the brain prefers. An example of how color can have a more perceptual impact is how it has been found that the color red “stimulates appetite because of its effect [on] metabolism” (Singh 785). Colors have effects that consumers aren’t aware of which subconsciously alter how they act and

think. Following are two examples of how color can be altered with its perception changing qualities in mind to make products seem more appealing in varying ways.

The article “Color Influence on the Use Satisfaction of Kitchen Utensils: An Ergonomic and Perceptual Study” studies the effects that color and age have as independent variables on kitchen utensil preference and satisfaction of use. The study analyzes the effects that 3 different hues had on how everyday kitchen utensils are perceived by a group of younger women, ages 18-29, and a group of middle-aged women, ages 30-55. The participants are given either red, green, or grey garlic peelers and potato mashers, and after using the products the participants would self-evaluate their experience using a System Usability Score (SUS) and a preference scale based on experience of use. The system usability score would ask questions determining if the consumer felt that color improved the product's performance, while the preference scale would ask the participants to rank how much they enjoyed using the product. The study found that the color of the product was a major variable in perceived satisfaction of use and preference of the product. The study found that for both age groups, the grey products “had the best SUS rating but was the least preferred by the participants’ evaluation” (7). Hue being found to be a main variable for the responses and preference of the utensils confirms the idea that color can have major effects on how a product is perceived, which can be vital to a designer. If a measured positive and negative response can be found as a result of the color of the kitchen utensils, then it is only fair to expect that color may have effects on products in other fields as well. These benefits and downsides of using certain colors, such as the positive effects of increased perceived capability and the negative effects of being less visually appealing that the color grey has for kitchen utensils, should be taken into consideration to maximize the intended results of adding color to a product.

Another article that analyzes how color affects how the user perceives a product is “Evoking Premiumness: How Color-Product Congruency Influences Premium Evaluations” written by Sarah Joy Lyonsa and Anders Hauge Wien. Their study looks at the effects of using different hues of color in combination with matching hedonic or utilitarian qualities of a product and its listed benefits and how that affects how “premium” a product is perceived to be. “Hedonic” in these tests describes having “multisensory, experiential, and joyful” qualities while “utilitarian” describes having “a practical and instrumental advantage” based quality (104). The two tests performed in the article were both similar as one saw the participants given altered coffee powder cans and the other saw the participants given altered cod packaging. The elements altered on the packaging were solely whether the listed benefits were considered more “hedonic” or “utilitarian” and whether the primary hue used on the packaging was more “hedonic,” which would mean red, or “utilitarian,” which would mean green. These elements would be mixed around and then randomly assigned to participants who would decide whether the product was to be considered hedonic or utilitarian in nature, and then would rate the product’s “premiumness” on a scale of 1-7. The study found that to have consumers perceive hedonic products as more premium, the hedonic or utilitarian qualities of the listed benefits and color must be the same, while to have consumers perceive utilitarian products as more premium, the hedonic or utilitarian qualities of the listed benefits and color must be mismatched. The proper hue used in the correct place was able to substantially increase how “premium” a product was perceived to be. Although the study only looked at how these alterations affected two products, the products’ wide range in purpose would suggest that these findings should apply to other products as well. This suggests that this concept of color being used in the correct place altering how a product is perceived may also apply to other fields as well.

If a designer aims to optimize the color used in a product design, these articles show that color's effects on perception should be another factor taken into account. Satisfaction of use of a product and a product's perceived "premiumness" are both factors that color can drastically affect. Just as color serves as a tool in a designer's toolbelt for conveying information, the use of color to alter consumer's perceptions of a product should also be considered an invaluable tool.

Color on physical products is one of those things that many of us take for granted. We don't consider the effects that it has on us or how it may change how we act and think. But for the people whose job it is to make sure that a product is considered as appealing as possible and able to communicate and help the consumer as much as possible, it is disappointing to not see color used to its full extent. Although there is no "one size fits all" kind of solution for when to use certain colors for certain responses, research into how colors affect different products in different fields should certainly be encouraged and prioritized. Building on the sentiment that Nina Veflen et. al embodied when they stated, "it has been suggested that the days in which packaging was only thought of to protect and conserve a product are the past and that packaging today is considered a multisensory experience device capable of transforming the product experience," the days where color was considered purely an aesthetic element of product design should be in the past as its full capabilities and impacts are embraced.

Work Cited

- Alves, Ana Laura, et al. "Color Influence on the Use Satisfaction of Kitchen Utensils: An Ergonomic and Perceptual Study." *International Journal of Industrial Ergonomics*, vol. 90, no. 1, 2022, pp. 1-13.
- Grilo, Grazielle, et al. "It's All About the Colors: How Do Mexico City Youth Perceive Cigarette Pack Design." *International Journal of Public Health*, vol. 66, no. 585434, 2021, pp. 1-10.
- Kumar, J. Suresh. "The Psychology of Colour Influences Consumers' Buying Behaviour – A Diagnostic Study." *Ushus Journal of Business Management*, vol. 16, no. 4, 2017, pp. 1-13.
- Labrecque, Lauren I. "Color Research in Marketing: Theoretical and Technical Considerations for Conducting Rigorous and Impactful Color Research." *Psychology & Marketing*, vol. 37, no. 7, 2020, pp. 855–863.
- Lyons, Sarah Joy, and Anders Hauge Wien. "Evoking Premiumness: How Color-Product Congruency Influences Premium Evaluations." *Food Quality and Preference*, vol. 64, no. 8, 2018, pp. 103-110.
- Singh, Satyendra. "Impact of Color on Marketing." *Management Decision*, vol. 44, no. 6, 2006, pp. 783–789.
- Veflen, Nina, et al. "Signalling Taste through Packaging: The Effects of Shape and Colour on Consumers' Perceptions of Cheeses." *Food Quality and Preference*, vol. 104, no. 1, 2023, pp. 1-12.