



■ A graphic style manual for understanding how color affects design

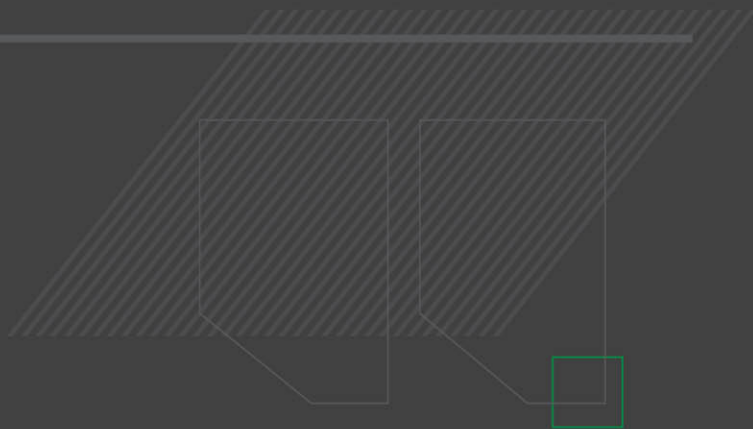


Design Elements: Color Fundamentals

ROCKPORT



Aaris Sherin



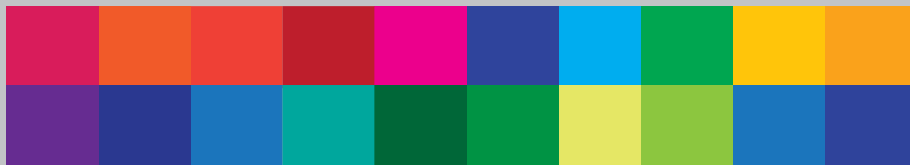


Design Elements:

Color Fundamentals

- A Graphic Style Manual for Understanding How Color Affects Design

Design Elements: Color Fundamentals

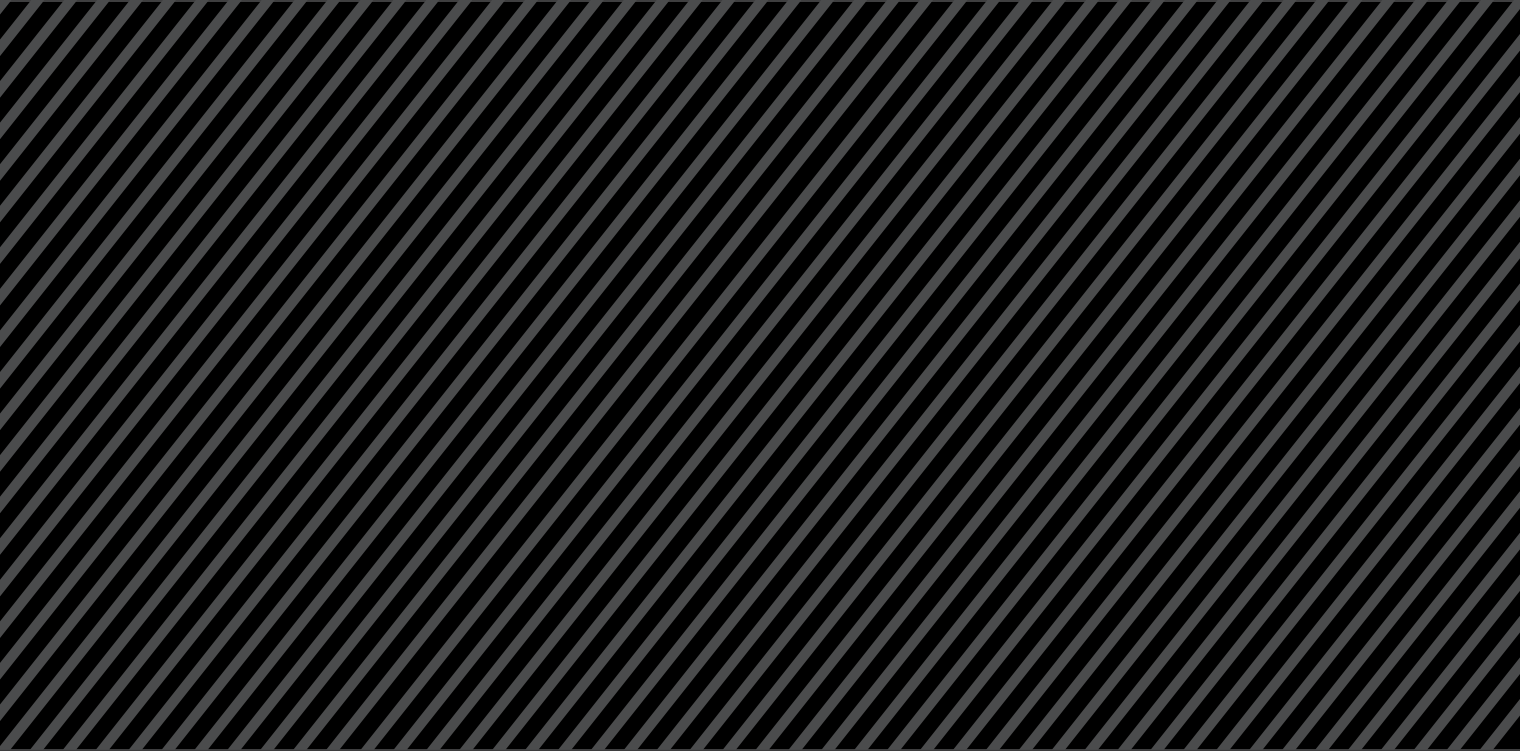


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“Color problems are an excellent vehicle for developing a discriminating eye for color choice, composition and a greater understanding of what constitutes visual sensitivity.”

— Rob Roy Kelly



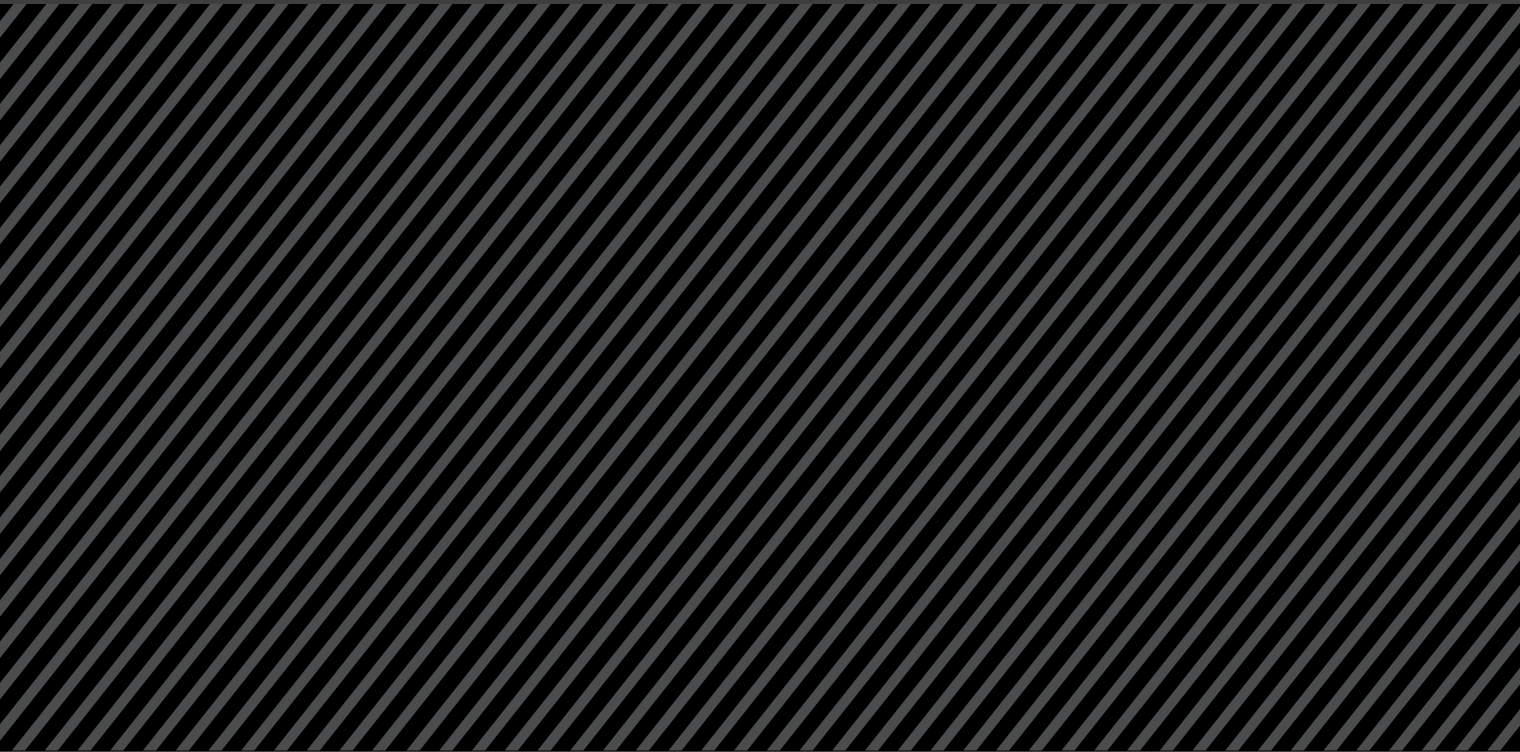
Introduction: Color in Design

Why Color Matters

Color is one of the most powerful tools a designer has to communicate a client's message. It can symbolize an idea, can invoke meaning, and has cultural relevancy. Successful color relationships can determine whether people buy a product or use a client's services. Color can aid in wayfinding, it can give structure to projects with multiple components, and it can show emphasis and convey mood. Whether it is suggesting space or showing movement and rhythm, color always has a story to tell.

As much as color can help to catch and hold a viewer's attention, it can also present myriad challenges for the designer. The subjective nature of color may cause a designer to shy away from using bold combinations or from taking risks with tone and value. Preferences for certain colors sometimes get in the way during the approval process with a client. Cultural associations can lead some viewers to misinterpret information, and the technical difficulty of representing a color correctly on screen, in print, and on other media can be daunting. Fortunately, as difficult as it may seem to choose the right hues for a project, there are numerous examples of engaging graphic design that are made possible by successful color relationships.

Learning which colors work well together and how to create successful tonal relationships will save time and money. But more importantly, color can help designers elicit the correct response from an audience and produce striking graphic design.





Chapter 1

Communicating with Color



What Is Color?
Theory in Practice
Choosing a Color Palette
Color Systems

What Is Color?

In a world where first impressions are formed in as little as one-twentieth of a second, color can help the designer catch a viewer's attention and communicate information in a busy visual environment. Color can also help the viewer quickly make the correct association or have the right reaction to a product brand or service. Color acts as an exclamation point, as a way to achieve compositional balance, and as a tool to suggest and convey meaning.

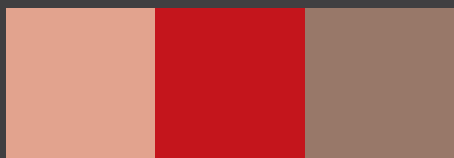
Color seems concrete in our physical environment, but it is actually created by varying wavelengths of light that, when reflected off a surface, are interpreted as color. We see color because rods and cones, which are part of our optical system, are able to tell the difference between these rays and their frequency. The specific color that is perceived by a viewer is determined by the degree to which a surface is able to reflect light and produce rays of different lengths. Reds have the longest wavelengths and violets have the shortest. White contains all color and black is produced by the absence of color or a surface where no visible light can be reflected.



▲ In a high-traffic area, it is color that calls attention to this sign and makes it more noticeable.



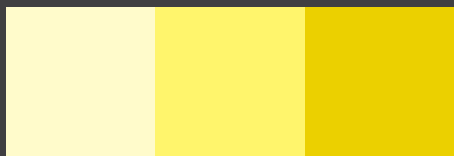
Hue – is another term for color and the two words are used interchangeably.



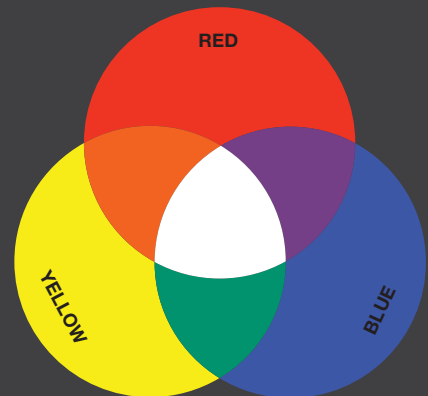
Saturation – also referred to as the intensity of color. Saturation is the strength or purity of a hue without the addition of white or black.



Color temperature – the perceived warmth or coolness of a color.



Value – the relative degree of lightness or darkness of a color. Adding white or black will change the value of a color.



This subtractive model is based on the primaries red, blue, and yellow and most closely mimics the artist's spectrum. For designers who are used to mixing paints or pigments, it will probably be easiest to relate to this model.



▲ One often thinks of applying color to a large area in a design, but sometimes less is more. In this composition, the image is the primary carrier of color.

Design: Bob Wilkinson, Abuja, Nigeria

The hues that can be distinguished by the human eye are referred to as “the visible spectrum” and are composed of a fairly limited range of colors, including red, orange, yellow, green, blue, blue violet, and violet. In their absolute form, the visible spectrum can be further limited to colors, which are most different from each other. These hues are referred to as primary colors and include red, blue, and yellow. A small change in the frequency of a primary color will

cause the eye to perceive a new hue. The human eye is able to discern about 10 million colors, all of which are combinations of the basic primaries. Since light creates color, it also affects how we perceive hues and their value and intensity. Strong light intensifies color and low light dulls it. In extremely low light conditions, some colors may barely be visible and it can be difficult to distinguish between hues of similar value.



▲ Color is produced by light, but how light waves reflect off different surfaces changes how hues are perceived. Similarly, the same shape appears to be different when various colors are applied to it. Design: Answr Inc., Tokyo

Color Temperature

The temperature of color refers to a measurement or, the power, in degrees Kelvin that indicates the specific hue of light present, but in most situations, temperature is understood as the difference between warm and cool hues. How the human eye recognizes color temperature will vary depending on the light source. Lower color temperature implies warmer light (yellow and/or red) and higher color temperature usually suggests cooler tones (green and/or blue).

There are several implications for design when considering color temperature. The temperature of the hues within a layout can affect an entire composition. Also, when creating design work on a computer, the temperature of the monitor can change how colors are perceived on screen. Calibration utilities that are built into operating systems (as in the case of Apple products) and special software can measure a monitor's color temperature and adjust it so that what is seen on screen matches the intended output more closely. Calibration is particularly important when working with digital photography and digital prepress.



▲ This highly saturated palette manages to include numerous colors and shapes without appearing to be too busy.
Design: Diego Giovanni Bermúdez Aguirre, Valle, Colombia

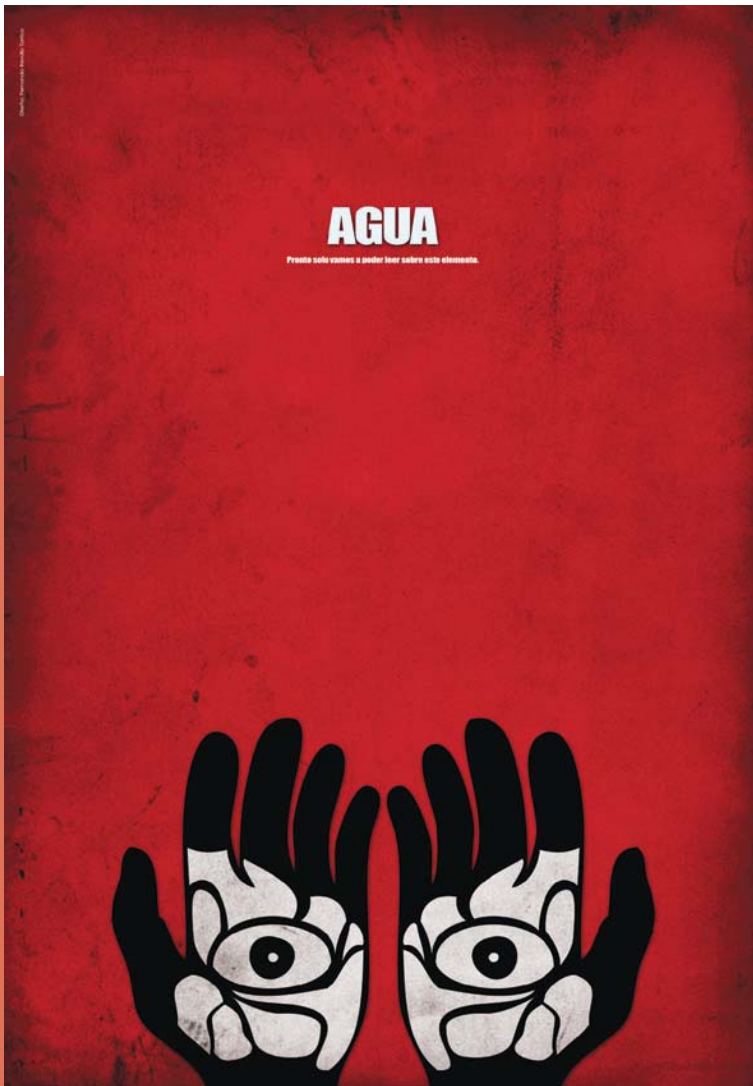


Saturation (Also Referred to as Chroma)

A more saturated hue is stronger, more vivid, and/or brighter. Duller colors are referred to as being desaturated.

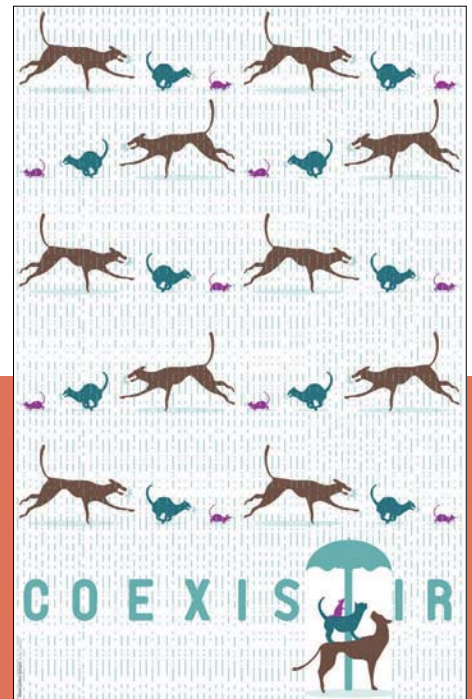


Whether a color appears to be saturated will be somewhat dependent on what colors it is next to. Understanding which hues appear to be vivid will allow the designer to use intense colors to achieve greater visual impact.



▲ One might think that a poster about water should have a cool temperature, but this composition stands out because it uses blue as an accent on a warm red background. Design: Fernando Revollo, Cochabamba, Bolivia

▲ ► Highly saturated color palettes are effective at getting a viewer's attention, but in this case, the designer chose to use slightly duller colors on a bright white background. The light background contrasts with the shapes and makes them more noticeable. Design: Rubén Moreno, Caracas, Venezuela



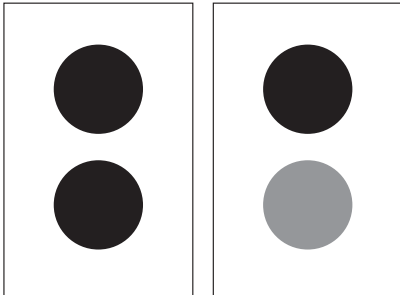
▲ Bright yellow accented by orange is combined with a red violet hue to give this poster an intensity that is characteristic of bright, warm colors. Design: Antonio Perez Gonzalez Níko, Xalapa, Mexico

Color and Value

Value is the relative lightness or darkness of a color and is an important tool to add emphasis and establish visual hierarchy within a composition. On its own, color is stronger than value. For instance, a gray tone will blend into a series of similarly colored shapes, but adding a color to one of those shapes will make it stand out. The effect of value on a composition is relative and is determined by the lightness or darkness of all the other elements within a layout. The greater the difference in value among compositional elements, and against the background, the more contrast there will appear to be. Therefore, value is one of the best ways to achieve contrast in design.



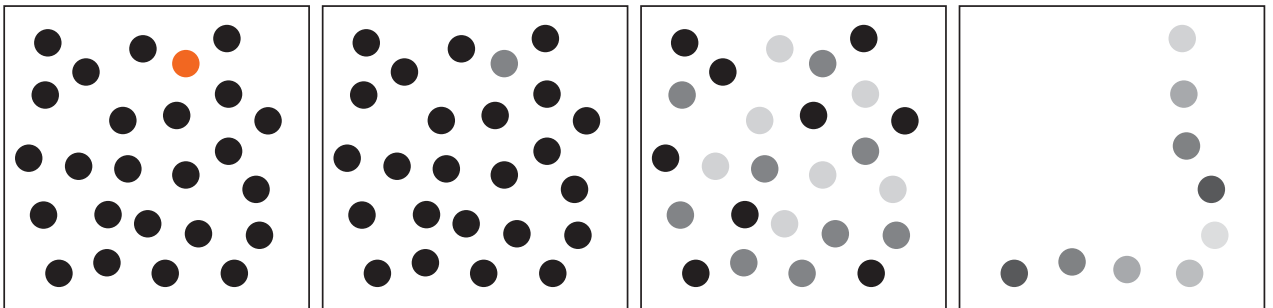
Notice how the same color gray appears to be different depending on whether it is next to a darker or lighter tone and if it is in the foreground or background.



Altering value is an easy way to indicate hierarchy and relative importance. By changing the value of one circle, more emphasis is placed on the composition on the left.



Value can be an excellent tool for showing relative importance. Two shapes of equal size and value will appear to have equal importance. However, if the value of one of those shapes is altered, the darker or brighter value will stand out and seem to have more significance.



Value can also be used to show movement or to make a viewer's eye travel around a composition. Making some objects within a composition darker and others lighter will cause a viewer to first look at what stands out most and then at what stands out least.



◀ Changing the value of some elements in a design is an excellent way to make certain parts of a composition stand out. These two value studies are an example of how different the same piece can seem when varying degrees of gray are applied to elements within the composition. Design: Lindsey Burris, Rochester, New York (courtesy of Bruce Ian Meader)

Value and intensity can be broken down into seven visible steps. These are the maximum variations that will be discernable to the human eye.

Altering the value and intensity of hues used within a composition is one of the ways that a designer can achieve visual harmony within a composition. Since a viewer's perception of color is always relative, one can make colors "seem" brighter by putting them next to duller tones.



White



Tints

Hue



Shades

Black

Theory in Practice

Scientists and artists have studied the effects of color and the relationships that different colors have to each other for centuries. A variety of theories, rules, and ideas have developed to explain how color is perceived and how this information can be applied to art, science, and design. While it is not necessary for designers to be familiar with every one of these principles, understanding the basic relationships between colors and combinations of hues can help a designer make better and faster decisions. By employing known principles and rules, it is easier to create work that is visually pleasing and better at conveying a client's message.



▲ Green and yellow green are the dominant hues used in these stamp designs, but the warmer red tone provides a useful accent to emphasize imagery. Design: Suunnittelutoimisto BOTH, Helsinki, Finland

◀ This poster references primary colors, even though a yellow green tone is used rather than pure yellow. Design: Rubén Moreno, Caracas, Venezuela



Why It Matters

Color theory is most useful to designers because it can allow them to understand why some color relationships are successful and how to create color combinations that can be used to effectively communicate information. Color theory is a valuable tool, but it won't always lead to predictable real-world results. The basic goal when dealing with color is to produce pleasing color combinations. These groupings are commonly referred to as being in harmony. Rather than referring to a specific set of attributes, harmony has more to do with achieving the intended reaction than it does an absolute set of rules or attributes.

Color Combinations

Designers have an endless number of color schemes to choose from. These pairings can positively impact a design, but they can produce negative consequences as well. Depending on the specifications of a project, it may be appropriate to create a palette by choosing known color combinations, while in other instances, creating groupings

that are based on research or the attributes of the target audience will produce the best results. The benefit of working with known pairings is that they can provide a starting point for inexperienced designers and are ideal for designers who excel at working within set limits.



These color studies show what a difference color and value can make in a composition. The first example doesn't have enough contrast. The second effectively uses an analog color scheme, and the palette of the third version of the poster works well but doesn't match the content. Design: Stephanie Boland, Rochester, New York (Courtesy of Bruce Ian Meader)

