

Semiotics and Communicating with Color

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Abstract

The purpose of this paper is to examine how using semiotics and color theory can be utilized to facilitate or enhance communication. A definition and history of semiotics is offered along with some key aspects of color theory. Examples and studies of color used in marketing, branding and business communications show color from a semiotic perspective with an emphasis on their psychological effects. Some limitations will be described as well as thoughts on future studies. Color can be effectively used in communication. Applying the research and studies of semiotics along with the principles of color theory may help to understand how color is used to elicit reactions and influence ideas.

Introduction

Does color function as a mode of communication? How can color be used with semiotics to effectively communicate a message? This paper attempts to examine how color is used as a semiotic source in communication. Color plays an important role in the study of semiotics. In order to understand color's function in communication, a definition and overall view of semiotics is in order. Ferdinand de Saussure, Charles Sanders Peirce and Roland Barthes are a few of the most significant scholars in the field. This research will provide an overview of these scholars while highlighting the theories of Peirce and his three symbolic classifications of signs: symbolic, iconic and indexical. Studies on the effects of color will be reviewed as well as how they relate to these classifications. It will also be important to understand the technical aspects of color along with some history and emotional effects. An emphasis will be placed on the psychological responses of color and how they can be used as a semiotic form of communication. Some examples and studies on the use of color in business communications, marketing and advertising will be explored. There are many limitations as well as cultural implications when using color. Nevertheless, color can be effectively used in communication. Applying the research and studies of semiotics along with the principles of color theory may help to understand how color is used to elicit reactions and influence ideas.

Semiotics

Semiotics is the study of signs and symbols, especially their processes and systems, or the study of anything that can stand for something else. The goal of semiotics is interpreting verbal and nonverbal signs (Griffin, 2012). Semiotics focuses on the interpretation of signs and the perception or meaning derived by the receiver. Meaning is not a quality inherent in a given sign, but an aspect of how that sign differs from other signs (Jensen, 2010).

The science of signs is Semiology which comes from the Greek root semeion meaning 'doctrine of signs.' The history dates back over two thousand years. Hippocrates (460-377 BC) showed an interest in signs and their relation to medical symbols. Plato and Aristotle dealt with signs in their philosophical writings. Modern studies are found in the humanities, social sciences, music, fine arts, architecture, fashion, anthropology, medicine, mass media and communication (Berger, 1995). The verbal side of the field is called Linguistics (Griffin, 2012). Some contemporary Semiotic theorists include Arthur Asa Berger and Daniel Chandler. They look at symbols, denotation and connotation, codes and hidden messages, and signs that lie such as dyed hair, imitation foods, impostors and impersonators. Signs and symbols are inherent to the way we find meaning in the world (Berger, 2010).

A sign is something that stands for something else. Signs come in many forms. They can be in the form of sounds, spoken or written words, gestures, figures, material objects and images. The rudimentary principle is that signs are made up of a *signifier* and a *signified* (Berger, 2010). There are both denotative and connotative meanings behind a sign. These meanings are learned and can vary between cultures or over a period of time (Lester, 1996).

Ferdinand de Saussure (1857–1913), a Swiss linguist, began the study of Semiotics and was the first to conceive the term. Semiotics is the science which studies the role of signs as part of social life. Saussure is considered the Father of the 20th century linguistics. His studies were concerned mainly with words (Griffin, 2012). The sign consists of two parts: the *signifier*, which is the form that the sign takes and the *signified*, which refers to the concept that the sign represents. Concepts do not mean anything by themselves, we develop and use codes to help us learn what some signs mean. The same signifier can stand for different signifieds depending on the context. In Saussure's theory - denotation is the signifier and connotation is the signified, one signifier can have many signifieds and meanings can change over culture and time (Berger, 1995).

Charles Sanders Peirce (1839-1913) was an American philosopher, mathematician and scientist. He developed a triadic model of the sign that contained three components: *object*, *representamen* (signifier), *interpretant* (signified). The representamen is the form in which the sign takes. It represents the object, meaning or concept to which the sign refers. The interpretant refers to the idea or interpretation in the mind. He included both words and images in his studies (Griffin, 2012). Perception, cognition, reflection and communication are all mediated by signs (Jensen, 2010). Peirce's model is similar to Saussure theory who identifies just a signifier and signified. From Peirce's perspective, connotation is involved. The meaning of the symbol has to be learned, and a symbol can have many different meanings (Berger, 1995). The interpretant identifies a second layer of orientation, interaction, perception and behavior - this is Semiosis. The interpretant becomes a sign for further interpretation (Jenson, 2010).

Peirce also classified three different types of signs based on his triadic model. *Symbolic* signs do not resemble the object and are open to interpretation, they must be learned. Examples of symbolic signs are words, symbols, flags and traffic lights. *Iconic* signs have a resemblance to the object. They represent what they represent - at face value, like a photograph. *Indexical* signs point directly in some way (physically or causally) to the object. Examples are: where there is smoke there is fire or bullet holes in a piece of wood indicate that a gunshot took place (Griffin, 2012). Peirce's theory can be applied to culture and society in combination with other theories (Berger, 2010).

Roland Barthes (1915-1980) was a French philosopher, literary critic and author of *Mythologies* (1957). He studied the nonverbal side of Semiotics, looking at multifaceted visual signs. He found hidden ideologies in products, signs that seem straight-forward but have a connotative meaning and reflect the views of society. Barthes applied this model to visual images: *Image* (Signifier) + *Concept* (Signified) = *Sign*. Barthes identifies a second-order semiological system. The sign of the first system becomes the signifier of the second. The two systems interconnect. The meaning of the first sign is still there but it becomes less important. He believed the semiotic systems of a society define the status quo. Barthes' approach looks at myths that we take for granted in our visual culture. Logos and brands can be used to identify people and place them into class, creating stereotypes (Griffin, 2012). Fans at a football game use gestures and dress in colors and logo gear to represent an allegiance to their team. These myths can represent things like success or failure, masculinity or femininity, or good or bad health (Crow, 2010). Roland Barthes considered semiotics as "an adventure" (Griffin, 2012, p. 332).

Semiotics offers an explanation of how people find meaning in everyday lives (Berger, 2010). Cultures are interconnections of symbolic forms expressed in words, gestures and graphics. Our cultural symbols shape our actions, identities, thoughts and sentiments. For example, the wink of an eye can stand for conspiracy, mischievousness or flirtation. We take signs and symbols for granted and accept them because we have been conditioned to do what they say. Something as simple as a road sign arrow or traffic light persuade us to do something. Communication is a creative process of building and reaffirming through symbols (Lester, 1996).

Semiotics goes much deeper when looking at communication, advertising, art, religion, etc. "Religions are steeped in symbolism, and religious iconography is a physical manifestation of that symbolism" (Lester, 1996, p. 195). Icons, symbols, colors, clothing, insignia and other symbols are important in understanding religion (Lester, 1996).

Art critics and historians look for hidden meanings in art. Are they meaningless details or do they have hidden significance? There is no real answer, the images don't actually *mean* anything, the meaning

is invented by the interpreter. This is the problem of understanding signs and symbols. Readers and viewers bring their own cultural and personal experience to draw conclusions and interpretations.

Signs and symbols are used often in advertising to convey an advertiser's message. An advertisement may contain text, photographs, symbols and color, music and sounds. The process of semiotics may not appear instantly. It may take time for the audience to recognize and associate a symbol to a message or product. The use of semiotics in advertising can bring music, words, images and symbols together to create a strong identification with a message or a brand.

Color Theory

Color theorists look at the meanings of colors and the effects they may have. Color theory looks at art, philosophy, physics and psychology of color. Color communication is important to artists, graphic designers, architects, interior designers, fashion and costume designers, theatrical set design, sports and many other fields (Stockton & Shibukawa, 1984).

With color you get an instant message whether it be a feeling or a warning. The effectiveness of color becomes a vital tool for communicating in business, advertising and in the marketplace. Color has been called the 'silent salesperson' for it can attract consumers, convey messages about a product, create a brand identity and make a sale. In Web design, color can elevate interest. The persuasive power of color is instant and subliminal. Color families express certain moods and connections, this symbology is important in marketing. The colors become a reference to the product or idea. This is important to communication because color can strengthen a message and provide instant perception (Eiseman, 2000).

Some elements of color perception include: hue, saturation and value. Hue refers to the color family. Saturation is the intensity or brightness of the color. Value is the lightness or darkness of a color, (Stockton & Shibukawa). Colors come in varying tints (lightened), shades (darkened) or mid-tones. Colors may be warm (reds, orange, yellow) or cool (blue, green, violet). Warm colors seem more energetic, aggressive and active while cool colors are more restrained, reserved and calm. When colors are combined they have additional effects. They may be monotone, monochromatic, analogous or complementary schemes. Monotone refers to the use of one neutral color and provides a calm, quiet, understated impression. Monochromatic refers to a color family that is used in varying values and intensities. They can impart subtle and refreshing nuances. Analogous colors are adjacent on the color wheel and may convey harmony. Complementary colors are opposites. They can provide balance but also 'simultaneous contrast.' Used at their most vibrant intensities, complementary colors demand attention. The effect can be softened by varying the values (Eiseman, 2000).

The appearance of color can vary across different media whether it be projected light or printed ink. Two common color modes are RGB (red, green, blue) and CMYK (cyan, magenta, yellow, black). RGB is additive color and seen on computer monitors and video screens. CMYK is subtractive color and used in printing. Paints and pigments are also considered additive. Each of these color modes have their own limitations. Color is important to graphic design and marketing and essential when communicating products and images. Color can be used to draw attention and elicit psychological response (Jessee & Wieble, 2008).

People are affected by color in different ways. Colors are perceived differently between genders (Singh, 2006). Over time, people's color perceptions and preferences may change. Our eyes turn yellow as we get older and this affects our color perception (Harrington & Mackie, 1993). More than 19 million people in the United States are afflicted with some degree of color-blindness (Kaufmann-Scarborough, 2002). The brain perceives color from light that is carried on wavelengths through the eyes. The eyes contain cones and rods that allow us to see color and light. Cones are of three types that each recognize red, green and blue. Other colors come from combinations of these 3 colors (Singh, 2006).

Studies have used skin response, pupil dilation, brain activity, heart rate and blood pressure to measure the response to color stimuli (Key, 1976). Methods for testing subconscious thoughts include: EEG (Electroencephalography) which measures electrical activity in the brain, fMRI (functional Magnetic Resonance Imaging) which measures blood flow to different areas of the brain and IAT (Implicit Association Test) a psychological test that detects the strength of associations between mental representations of objects in memory (Lewis, 2014).

Associations are established between visual images and human memory. One of the most important parts of this cognition is how we understand and process color (Stockton & Shibukawa). How

one person experiences a color may be different from another. There are many psychological responses to color. In restaurants, colors are used to increase or decrease appetite causing customers to eat more or linger longer. Colors can calm customers and make them feel like they haven't waited as long when standing in line (Singh, 2006). The colors we see can effect the way we feel. These associations begin as infants. We may not remember why we have certain associations with colors but become conditioned to their characteristics.

Symbols have more of an unconscious effect than a conscious significance. Color is one example of a symbol that has subliminal implications. It can be difficult to predict these effects due to a number of reasons: 1) there are infinite variations and shades of every color 2) meanings may be interpreted differently between individuals and cultures 3) meaning can change from one application to another. It would be impractical to generalize on all of the meanings of colors. But color can be used as a non-verbal means of communication. Color can provide feeling or emotion (Key, 1976).

Combinations of colors can impact perception. Some colors when placed next to one another may seem grayed while others become intensified or even suggest another color. The psychological aspects of color are personal and emotional so determining the reactions can be difficult (Stockton & Shibukawa, 1984). To establish an instant message, combinations of color can be used to generate a reaction. Placing colors adjacent to one another has an affect on the hue, saturation and brightness. Some examples of the effects of color combinations are: *serene* (blue, blue-green, green or lavender), *earthy* (greens, reds, tans and browns), *mellow* (light to mid-tone pastels), *spiritual* (purples, blues, mauve and grays), *romantic* (light to mid-tone pinks and lavenders), *sensual* (reds, purples, bright oranges and pinks), *powerful* (black alongside one other hue like black and gold or black and red), *elegant* (black and darkened tones with neutrals), *robust* (browns, deep reds, purples and greens), *delicate* (pale combinations of warm and cool colors), *energetic* (vibrant mixtures of warm and cool colors), *traditional* (navy blue, hunter green, burgundy red, deep gray, tan and brown) (Eiseman, 2000). Combining these types of color palettes can greatly increase the value of a message. Color and combinations can be very powerful in Web design and printing as well as the theater, opera or ballet. They create many layers contributing to emotional impact (Stockton & Shibukawa, 1984).

Historical and cultural traditions have an effect on color associations (Stockton & Shibukawa, 1984). Connections with color are found in different cultures. Some cultures have linked color with health. Colors have been found to increase blood pressure (red), lower blood pressure (purple), strengthen lungs (orange) and activate the sympathetic nervous system (green). Red can stimulate appetite and affect metabolism. Yellow can grab attention. Blue can calm and relax. Colors can make time seem to speed up or slow down (Singh, 2006). Most people are in agreement on some aspects like hot and cold or pleasure and pain. Used in general, color can provoke a tone or mood to a subject (Stockton & Shibukawa, 1984).

Throughout history, color has been used symbolically to designate social status and cultural or group affiliation. We use color in our surroundings and choose colors for their meaningful effects. Color trends are established by celebrities and influential people as well as fashion designers and interior designers. Color trends are inspired by sports teams, fashion and entertainment world, artists, patriotism, economics, lifestyles, cultural values and ethnic groups (Eiseman, 2000). There are trend setters and trend followers which falls in line with the Diffusion of Innovations theory. Color palettes change over time. Color trends can be attributed with different eras, products or fashions (Stockton & Shibukawa, 1984).

Color as a Semiotic Source

Color can be a semiotic resource. It has many uses in the cultural association of signs. Some features that contribute as a signifier are saturation, purity, modulation, value and hue. Red can signify danger, green can stand for hope. In most countries black is a sign of mourning. However, in some parts of Europe, brides wear black for their wedding. In China and some other Eastern Asian countries, white is considered the color for mourning. While in America and most of Europe, white is a sign of purity and worn by brides. These contrasts of cultural semiotics make color partly unpredictable. In order for the color to function as a sign, there must be a consensus of meaning. In most cases there is not a consensus that is shared by all societies. There are some regularities and this is what makes color function as a semiotic resource. The challenge is understanding the motivations and interests of different groups. Some colors translate well and some do not. Finding these regularities within groups and applying them as semiotic resources is a challenge (Kress, 2002). Some associations to color are universal and these connections could spread as communication becomes more global (Eiseman, 2000).

Color is an important resource in visual communication. Color has many functions. It can be used to classify people, places and things. The colors of a flag can designate a nation. Corporations and universities use color to distinguish identity. With maps, colors can distinguish water, land, etc. They can mark and identify separate elements. The colors become icons. Color can convey an interpersonal message without language. This can be expressed in the colors that we wear such as 'the power tie' or colors that indicate safety and warning. Color in uniforms may signify rank. Using color in documents can increase the audience's attention span by over eighty percent. When an invoice shows the amount due in red, it is thirty percent more likely to be paid on time (Kress, 2002). Color can be used to differentiate departments or chapters in a book. Color repetition in advertising gives value to a product. Color coordination can provide connections. In these cases color does function as a semiotic resource. However, color does not always fulfill the intended function, "color does what people do with it" (Kress, 2002, p. 350).

In *Theory of Colours* first published in 1810, Johann Wolfgang Goethe was one of the first to publish content on the philosophy and effect of colors. He recognized the meanings behind colors and found they may 'excite,' 'disturb' or 'inspire sentiment.' He also recognized that some people are more susceptible to these effects than others. Colors are used in personality tests like the *Lüscher Color Diagnostic*, which was developed by Dr. Max Lüscher in 1947. The meaning of colors relies on association (Kress, 2002).

The transmission of messages effectively relies on associations, information and analogies. Visual communication relies heavily on shape, function, color, material, technique, technology, etc. to produce a message. Semiotics looks at the communication of these objects or signs. There is no direct correlation between the mind with symbols or color. These associations develop over time. It is not their resemblance but their association of idea or fact that connect them. Graphic design is similar to language and used as a communicative tool. Just as language represents a sign or object, as does design. Designers attempt to make the design speak for itself. This can occur through associations between sign, object and interpretant (Gambarato, 2013).

Color can be used as a symbolic expression, whether it be physical, physiological or psychological. Peirce came to the realization that signs are not evident unless they stand for something else and that representation has meaning for someone. The sign does not represent the object in its entirety but stands for some part of it. Yellow, orange and red are considered warm colors while blue, turquoise and green are considered cool. These colors may be seen along with other objects. In the right combinations, they can help to convey an important message. For instance, the way red, yellow and green of traffic lights helps to prevent traffic accidents.

Color has been analyzed to affect human activities. For example, color may be used in work situations to increase productivity. Dark colors give the impression of density or heaviness. When workers are required to lift darker objects they complain of physical distress. This changes when objects are lighter in shade. This is caused by the density that is associated with the dark colors (Caivano, 1998). Red does not just imply redness, it may be associated with something else. This is another way that color may function as a sign.

Color is used in marketing as a sign of distinction. The classes of signs developed by Peirce are icon, indexical and symbolic. Color can serve all three. When red, orange and yellow are associated with fire, sun and heat or blues and greens are considered cool they are acting as iconic signs. When a person's skin turns yellow this acts as an indexical sign that they are feeling ill. Another example would be reddened cheeks indicates embarrassment. When meanings are assigned to colors that do not actually represent the way the color is seen, they are acting as symbolic signs. Some examples are green means go, yellow means warning and red means stop. In sports, a yellow card is a warning and a red one means stop playing. Over time, symbolic meanings can become iconic or indexical. This is the case of purple representing royalty, a color becomes habitually perceived in a certain way. Colors that are considered symbolic usually have other qualities that assist in their identification. These may be shapes, textures or a part of a more complex visual symbol. Examples would be a flag or a logo. The color effect becomes more complex as it needs these other visual elements for distinction (Gambarato, 2013).

Small differences can have an impact on consumers. Some examples of marketing influence are color, lighting, music and aromas. A study conducted by Joseph Bellizzi and Robert Hite analyzed sales in two different stores. One store had a red decor and the other was blue. They found that in the blue store, consumers browsed more, made more purchases, more quickly. They attributed this to the red store producing a negative mood in consumers. The blue store was more relaxed and provided a more positive experience (Bellizzi & Hite, 1992).

Colors may be used for persuasion and are important for branding purposes. Branding helps to grab attention. Semiotics is used in the branding approach. Some colors may act as a sign to establish a brand. One example might be gold packaging can signify luxury because gold is a sign of wealth. Branding communicates a sign to the audience that may make a product or idea unforgettable. Most marketing research tries to understand consumers' opinions and individual choices. Semiotics uses a different approach where opinions and perceptions originate in culture. Branding uses many different signs, color is one of them. For marketing it is important to use signs that fit within the culture of the target audience. It is difficult to understand what gives branding success. Semiotic analysis may help to decode these messages. (Gadsby, 2010) Color can distinguish one product from another and influence feelings about the product whether they be positive or negative. Coke embodies red while Heineken uses their signature green. Colors serve as a semiotic tool when representing brands (Singh, 2006). Color acts as a sign. This semiotics of color can be beneficial to marketing, advertising and communication research (Caivano, 1998).

Color can be used in email to make it more emotionally powerful. People receive an overabundance of emails in their Inbox each day. With this information overload it can be difficult to grab their attention. This study looked at the decisions people make to open and read an email. Color is used to produce emotion. Using color in email may motivate readers to respond. Advertising research typically examines the effects of color on consumer behavior. Typical responses might be boredom/excitement and relaxation/tension. Pastel colors tend to make one feel more relaxed while bright colors produce feelings of excitement. People are more inclined to act when they are excited. The most effective colors will excite without creating tension so this becomes a thin line. In this study, most of the emails that included color did increase the response rate. The rates varied depending on the colors used. The researchers came to the conclusion that color has two principal functions: to set a mood and to attract attention. Readers have short attention spans and make quick decisions. Color can be the attention grabber they need. This can translate to increased business (Zviran, Te'eni & Gross, 2006).

The effects of color help to understand how audiences may perceive visuals used in business communication. The use of color has become more prevalent in business as the costs of including color graphics has decreased. Color is often used in business communication to represent categories. Some examples would be charts and presentations. A summary of empirical studies on the effects of color by The Program of Research for Investigating Management Information Systems was reviewed in this article. The studies show significant time improvements in business related activities when color was utilized. Also that the use of color improves: recall, search-and-locate tasks, retention, comprehension and decision making (Hoadley, 1990).

Conclusion

Color is considered a sign that substitutes for something else. This relationship may change depending upon the notions of culture, age and gender. There is no guarantee of consistent performance when using color. The effects of color are subliminal. Some people are color-blind so this also limits the effectiveness. Over time, people's color perceptions and preferences may change. Many cultures have different associations with color. Some colors are considered sacred in certain countries so the improper use of these colors could cause negative effects. These are some of the shortcomings of communicating with color. The effects of color can be uncertain and subjective with strong cultural relationships. The same can be said of most of the communication theories.

Further exploration might examine Saussure's linguistics studies and Barthes' approach of myths that we take for granted in our visual culture and apply these to color theory. Other semioticians could be explored as well. Robert Hodge and Gunther Kress applied semiotics to social relations in *Social Semiotics* (1988). Gender differences in color preference and stereotypes associated with colors is an interesting aspect of social semiotics. In some applications, the range of colors may be limited, such as fashion and paint manufacturing. This is something that printers struggle with all the time. The color seen on screen doesn't match the printed piece. The reasons for these in-discrepancies are many and beyond the scope of this paper. These problems all contribute to the difficulties in using color as a communication tool.

With new technologies available, we have better opportunities to use color in design. "People make up their minds within ninety seconds of their initial interactions with either people or products. About 62-90 percent of the assessment is based on colors alone." (Singh, 2006, p. 783). Color appeals to the psyche in the blink of an eye. These types of visuals used in communication are essential. There needs to be

more studies of how visuals and colors are used for persuasion and as communication tools. This may be very important with new technologies as we use symbols as part of our interface.

Color is everywhere and can be a source of information. Understanding semiotics as it relates to color can be important in communication. Color theory can benefit from a semiotic perspective in understanding the visual perceptions of color. We often remember and describe things by their color. Some well known color associations are 'green with envy,' red with passion,' black with death,' 'yellow with cowardice' and 'blue with loyalty.'

Semiotics is the study of signs and symbols or the study of anything that can stand for something else. Color may be used to stand for something or create a feeling or mood. Color can also provide harmony and composition. We need these codes because we need consistency in our lives. We need signs and symbols to convey a message (Berger, 1995). Not everyone agrees on what a sign signifies and the effects of semiotics may take some time. Studying Semiotics is vital for communication and for defining who we are as individuals as well as understanding individual cultures. Semiotics can also be applied to the study of color to help facilitate communication.

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