

Overview of colour and its Psychological Impacts ... (Hashim, et.al. 2022)

Overview of Colour and its Psychological Impacts on Elementary School Environments

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Abstract

This paper aimed at providing clear understanding of the concept of colour with respect to elementary the school environments, how it can affect children perceptions in subtle ways. Man reacts to colour based on his personal interactions within his civilization, beliefs, nation, society, community, and cultural background. Colour is also a language; it conveys the messages faster than anything else, color is stronger than words and faster than speech. There are several gaps within the literature on colour that has not been overview; this is because the current colour models fails to accurately address the colour related problem in design n. Therefore, the significance of this study is to bridges the gap that exit in the following areas: the impacts of color on children performance in the elementary schools in Nigeria, the psychological meaning of colour to the design concept, the intricate meaning of colour in our society. Furthermore, this paper will serves as a guideline for the graphic designers and school administrators and general public to colour related issues in order to enhance the teaching and learning process.

Keywords: Colour Psychology, Graphics Design, Elementary School Environments.

Introduction

Colour is an indistinguishable aspect of everyday life; it's an important aspect in all the professions such as, chemistry, psychology, physiology, biology, physics, art, design, and health. Colour is also a language; it conveys the messages faster than anything else, colour is stronger than words and faster than speech. Neal, (2000) stresses that, colour has major effects on plants, animals, insects, as well as the human beings to enhance the total experience of the world around. Colour is an evocative medium, possessing the powers to provoke the reactions of the viewer, as such it has been developed as a language of symbol in both the natural and man-made worlds. Colour is conceptual, color is just pure idea, pure intellectual, pure emotion. Colour animates, bringing past and the future in the present. Color makes things come toward life (Linton, 1999).



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The term colour psychology is the study of how colors control human feelings, attitudes, emotions, moods, and behaviors. Colour can affect perceptions in subtle ways, because Man reacts to colours based on his personal interactions within his civilization, beliefs, nation, society, community, and cultural background (Birren, 1997). What pupils see and what they are feeling are two very different things. At first they are seeing the aesthetic experience of an image, and then latter is a psychological connotation of what they have seen. Good design necessitates a thoughtful assessment of both before it can be exposed on primary pupils. On that note graphic designers/Artists need more than a basic understanding of colour for their work to excel. This is because every brand and organization has their own right colour (s) deliberately in their product designs, logos, packages, adverts, and websites.

Great graphic design also anticipates cultural differences in the way colours are perceived. The same colour can mean very different things to different audiences; for example, in most cultures yellow has a bright, cheerful connotation, but in China it may have vulgar or adult connotations. In the US white symbolizes purity and is often used for bridal branding, but white is a mourning colour in Japan, India, China, Korea, and the Middle East (Paul, 2002). The bottom line here is to know your audience before choosing the colour of any used. In other wards graphic designers are not just selecting color combinations that look nice. A careful consideration of colors that signifies and represents the organizational aim, mission and vision is essential part of the graphic designer's job. This means that a deep understanding of the psychology of color and knowing and how to use each color strategically is a core component of successful design.

Colours can be categorized into Primary, Secondary, Tertiary, Complimentary, Neutral, Cool and Warm Colours each category has their own unique features, characteristic, Principles, formulas, nature, and direct the designers on how, what and where to use each and every colour and its signifies.

The roles of colour in visual experiences

Colour is a visual experience produced by the interaction between light, materials, and our visual system, as shown in Figure below (Osborne, 2012). Light strikes the retina, which is the inside back wall of the eye, and is detected by rods (brightness receptors) and cones (colour receptors). When the level of light is increased or decreased, the retina moves back and forth between the rod and cone dominant areas. In bright light, we can see more colourful objects, while in dim lighting conditions, colours are seen less clearly (Holtzschue, 2006). This process ishow our visual system adaptsto the quantity of the light and perceives colour.

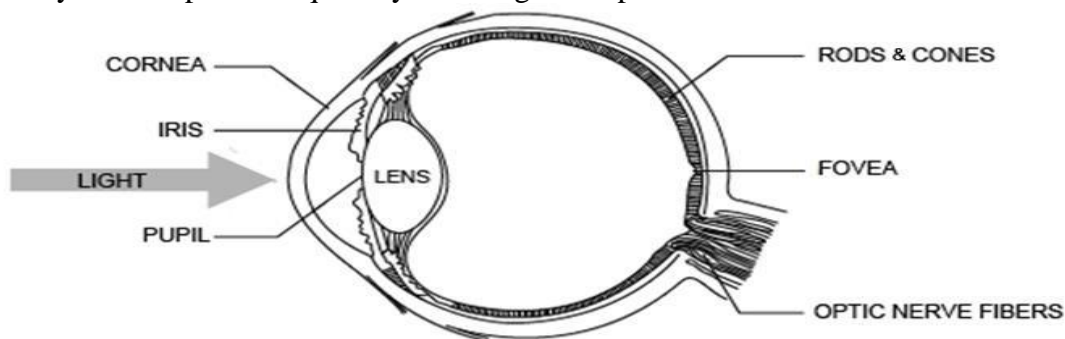


Fig. 1. Visual system of human eyes (Holtzschue, 2006)



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Colour, light and human vision

Light is the carriage of energy in the form of electromagnetic waves that make things visible to humans (Hanson, 2012). Light can be described by its wavelength, and the wavelengths to which humans are sensitive are those between 360 and 780 nm (Westland et al., 2007). Our understanding of the concept of light and colour was greatly influenced by Isaac Newton's (1643 - 1727) discovery that when white light passes.

Colour in Art and Design

Colour has been of great interest in art and design over at least the last five centuries (Osborne, 2012). A review of the existing academic colour books largely includes various ways and examples of colour application in well-known paintings or design work (Riley, 1995; Gage, 1999; Zelanski & Fisher, 1999; Feisner, 2006; Osborne, 2012); for example, how early people used colours or how famous designers and brands applied colours to their products and/or advertisements.

Theoretical viewpoints on colour

Colour theory refers to systematic frameworks and rules that have been established to explain what colour is both scientifically and psychologically (Feisner, 2006); it forms the basis for the curricula of many higher education colour courses in art and design. Isaac Newton attempted to separate coloured light (by passing it through a prism) into its component colours and claimed that there are seven representative hues. Moses Harris maintained that there was a multitude of colours in his book, *The Natural System of Colors* (1766). He presented three primary colours (red, yellow, and blue) and suggested that other colours can be created by mixing these three basic ones (Feisner, 2006). Furthermore, other colour observations were made by Goethe in *Theory of Colors* (1810) and Chevreul in *The Principles of Harmony and Contrast of Colors* (1854). Subsequently, systematic and artistic colour theories were also introduced by Albert Munsell, Wilhelm Oswald, and Johannes Itten. In the early 20th century, industrial attempts had expanded to produce CMYK or Pantone codes.

Colour and its influence on emotion

The symbolism of colour has been a longstanding subject of study. It is highly intermixed with physiological and psychological responses. Symbolic associations indicate a base pattern for emotional colour approach. People's mood and emotions are influenced by colour. It individually or in combination might evoke both positive feelings such as happiness, energy, excitement, calmness and negative feelings such as anger, disgust, and sadness. The evaluations of emotional responses of colour are called colour emotion studies.

Colour and human perception

The term 'perception' is related to the process through which human senses, such as seeing and hearing, become aware of and understand physical objects or phenomena (Oxford English Dictionary, 2015). The study of how people perceive colour is complex. Neurosciences have focused on the responses of eye receptors (and/or the brain) to understand how people see and react to colour (Webster, 1996; Zeki, 1999). Psychologists are interested in subjective thinking or beliefs concerning specific colours (Grieve, 1991; Hurlbert & Ling, 2012) or visual searching



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(Eriksen, 1952; Farmer & Taylor, 1980; Carter, 1982). In product-related research, colour perception is strongly concerned with how it draws consumers' attention (Nelson, 1994).

Colour psychology Colour psychology is the study of the human mind and behaviour (Oxford English Dictionary, 2015). According to O'Connor (2009, p.230), colour psychology is defined as "effective, cognitive and behavioral responses and associations linked to specific colours". Psychologists have a broad interest in colour, such as the innate, perceived, emotional, and learned reactions to a coloured object (Crozier, 1996). There is a clear potential overlap between the terms colour psychology and colour meaning. Although there are intersections and subsets between other colour terms, the definition given by O'Connor was considered appropriate for this study. However, designers should thoroughly research their palette choices to avoid offensive or confusing colors or combinations. In the United States, there are slight color preference variations among ethnic groups. Asians, blacks, Hispanics, and whites all prefer blue (Paul, 2002). Purple is slightly more popular among blacks and Hispanics, whereas Asians prefer pink and whites lean towards green. One staggering statistic is blacks' typical dislike for pink. Forty percent of blacks listed pink as their least favorite color, compared to 23% of whites and 17% of Asians and Hispanics (Paul). Social status. Blue-collar audiences prefer primary colors, while more upscale audiences prefer softer pastels (Nelson, 1994). Silver, gold (Nelson), and red (Cheskin Research, 1998) convey a sense of quality that appeals to more sophisticated audiences. Black is also a very formal, chic, serious color used for reaching white-collar demographics (Peterson & Cullen, 2000). **Personality.** Personality affects not only response to different colors, but color sensitivity in general (Nelson, 1994). Extroverts are highly responsive to color, whereas introverts are actually more sensitive to shape. Color is more persuasive with its audience than shape is, however, as extroverts are more responsive to color than introverts are to shape. Extroverts also prefer brighter colors, whereas introverts prefer lighter, more subdued tones (Crozier, 1999). Color trends choosing colors are an important decision in any area of design. Selecting a color that will appear for years to come has far-reaching consequences and may either bolster or damage sales in the future (Lambert, 2004).

Physiological effects of color

According to Birren (1961) a long time color researcher studied color and its effect on all life forms; observing both plants and humans. He examined growth patterns of plants when exposed to different wavelengths of light and found that plants exposed to red-orange light grew taller than plants exposed to other colors. In humans Birren (1976) studied the way in which humans see color suggesting that it is more than just what the eye sees, it is how the brain interprets it. Zelanski and Fisher (2010) describe the effects that color has on the human body and what results from exposure to certain colors of light. They explain that each color can be associated with a different part of the body for example orange wavelengths tend to affect the immune system and can help the digestive system (Zelanski & Fisher, 2010; Bellizzi, et.al. 1983). It has been reported that warm colors create excitement which can lead to higher blood pressure and a greater frequency of eye blinks (Lee & Rao, 2010). A consistency throughout the current literature is that cool colors are preferred over warm color environments and so cool colors evoke more positive feelings in a retail setting (Babin et al. 2003). Warmer colors are generally associated with feelings of elation

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(Bellizzi & Hite, 1992), while cool colors have the opposite effect creating a sense of relaxation (Lee & Rao, 2010).

Psychological meaning of some selected colours found in elementary School Environments

A review of relevant literature on some colours and their Psychological meaning are as follow:

Colour blue

Blue is signified: calming, calming, thoughtful, peaceful, reliable, expensive, thoughtful, peaceful, male, warm and cold, (Grimes & Doole, 1998). The colour blue is the most preferred colour cross cultures (Eysneck, 1941; Paul & Okan, 2010), and is perceived as calming, peaceful (Madden et al., 2000), reliable, thoughtful, expensive, serious and male (Grimes & Doole, 1998). Also, it communicates unique meanings in different countries; interestingly, warmth in the Netherlands; coldness in Sweden; death in Iran and purity in India (Paul & Okan, 2010).

Colour red

Red colour is signified: stop, Danger, warning, warm, expensive, premium excitement, active, hot (Paul & Okan, 2010). The colour red is generally associated with warm (Paul & Okan, 2010) and excitement (Hynes, 2009). It also has connotations as hot and active cross countries (Madden et al., 2000); and it is preferred across countries (Eysneck, 1941). It is also associated with expensive and premium across cultures (Grimes & Doole, 1998).

Colour yellow

Yellow signified: playful, expensive, luxury, sorrow, despairs, ready, warning and jealous (Aslam, 2006; Paul & Okan, 2010). Yellow typically belongs to the set of warm colours (Grimes & Doole, 1998; Hynes, 2009). The colour yellow is associated with both positive and negative meanings. Yellow is associated with playful, expensive and luxury (Grimes & Doole, 1998). On the other hand, it is associated with sorrow, despair and jealous in some countries (Aslam, 2006; Paul & Okan, 2010) and it is less preferred across countries (Eysneck, 1941).

Colour Green

Green colour signified: reliable, go, fidelity, Agriculture, peaceful, gentle, beautiful, health, traditional, inexpensive, safe, environment fresh and natural. Green is generally associated with reliable, safe, fresh, natural, environment (Grimes & Doole, 1998), peaceful and gentle (Madden et al., 2000) across cultures but also with health (Kauppinen-Räsänen, 2014). In addition, in some countries, the colour green is associated with inexpensive, traditional, and beautiful (Grimes and Doole, 1998).

Colour Black

The Colour Black is signifying: Sadness, stale, fear, anger expensive, Hi-tech, death, old, power and dignity (Madden et al., 2000). Black tends to have colour meanings such as sad and stale across cultures (Madden et al., 2000). Moreover, the colour black is generally associated with fear, anger, powerful (Grieve, 1991; Aslam, 2006) and death (Grieve, 1991). In addition, it is perceived as expensive in Korea, China and Japan (Aslam, 2006), and old, dignity and hi-tech in some countries such as UK and Taiwan (Grimes & Doole, 1998).

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Conclusion

This paper aimed at providing clear understanding to the effects of colours to the age, gender, and differences in the functions of the spaces on color preferences of children in their school environments. Colour converses and designers can use colour most effectively once they have studied the colour languages of their target audiences, as well as the messages to convey. The best designs are visual languages in which colours have active voices and appeal to their audiences on both emotional and intellectual levels. Whether the audience is conscious or unconscious of this conversation, color's hypnotic potential makes it a worthy asset for any visual communicator. The main contribution of this paper is the idea of contextualizing the concept of colour theories, and its contributions on elementary schools children and graphics designers, and general public, an evaluation of the model-based predictor, taxonomy of colour use in information visualization, an analysis of internal and external factors that influence colour perception. This paper will also serve as a guideline for the graphic designers and school administrators on colour preference in order to enhance the teaching and learning process.

Color application in graphic design is a discipline that builds directly upon the fundamentals of color psychology. Color choices based on a whim or the designer's own preference is generally not as effective as choices that give careful consideration to message, audience, and context. Understanding the basics dimensions of colour and their influence upon human viewers is invaluable.

Recommendations

Based on the outcomes of the paper, the following recommendations there made:-

1. It is recommended that, colour psychology as a course should be introduced into NCE and B.Ed. curricula. This is because, there is a clear potential overlap between the terms colour psychology and academic performance in elementary schools.
2. There is a serious need for the school administrators and the graphic designers to explore the complicated and psychological meaning, effect and impact of colour on elementary pupils for proper application on elementary school environment.
3. It is recommended that, a colour based models that idealized the contextual concepts of colour theories, and its impact on children should be formed as a guideline for elementary school environment decorations.

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