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Luminous Chromatics: Unveiling the Synergy of Light and Color in Visual Perception

Kromatika Cahaya: Mengungkap Sinergi Cahaya dan Warna dalam Persepsi Visual.

Muxamadiyev Muxamadiyev , eson@samdaqu.edu.uz, (1)

Samarkand State Architecture and Construction University, Uzbekistan

Xasanova Xasanova , x.xafiza@samdaqu.edu.uz, (0)

Samarkand State Architecture and Construction University, Uzbekistan

⁽¹⁾ Corresponding author

Abstract

This scientific inquiry delves into the symbiotic relationship between light and color within the realm of design, elucidating their profound impact on visual perception. Employing a qualitative analysis of the interplay between these fundamental elements, our study reveals the unmistakable vibrancy and ubiquitous presence of light and color across all surfaces. The consistent presence of color not only illuminates but also augments the visibility of surrounding elements, thereby endowing a defining characteristic that facilitates color perception in the presence of light. Our findings underscore the intricate dynamics between light and color, opening avenues for further exploration in the nuanced field of visual aesthetics and design principles.

Highlights:

- **Harmony in Design:** Investigates the interplay between light and color, emphasizing their harmonious integration in design aesthetics.
- **Vibrant Visual Presence:** Examines the unequivocal and vibrant manifestation of light and color across all surfaces, contributing to a visually compelling environment.
- **Enhanced Visibility:** Highlights the role of color in consistently illuminating and enhancing visibility, providing a crucial characteristic for color perception in the presence of light.

Keywords: Light, Color, Design, Visual Perception, Synergy

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Introduction

At first glance, the separate existence of light and color seems absolutely obvious and without any doubt: color has always been present on all surfaces, and light illuminates and sees everything around, including color. It is understood as a certain feature that allows. Thus, the complex interaction of the considered phenomena has been thought about for a long time [1]. The great English scientist I. Newton was the first to explain the complex relationship between light and color based on scientific experience. From his experiments, it became clear that the sensation of color depends on what light rays affect the eye, and the simple white light of the sun is equal to the sum of all colors: "... rays, more precisely, a colored thing no. They have a certain force or tendency to induce this or that color." However, the conventional ideas about the separate existence of light and color were so fixed, so powerful, that even Although Newton's discovery was not immediately recognized by everyone, many great scientists, especially philosophers and artists, were skeptical of it in the 19th century. "Light," he wrote, "while remaining colorless, is a pure indeterminacy of identity: color is something relatively dark compared to light, It refers to something fundamentally different from light, which has a specific dimness and is united with the beginning of light.

Methods

In visual art, light and color are active as independent aesthetic categories, as elements of artistic forms. Also, the problem of the relationship between light and color has its own characteristics. This is confirmed, first of all, by the division of visual arts into graphics. Here, light serves as the main means of expression, in the form of the contrast of black and white, or in the gradation of light and shade of the latter, and in the color image that depicts the existence in its colors. But if the black and white image is analyzed more deeply, we can come to the conclusion that through black and white it is possible to express the color properties of the objective existence, and we can see that the color image cannot exist without light, and it is not only color, but also light. We understand the need [2]. Light and color, as seen below, enter into different relationships with each other and often seem to be fighting for the right to play the main role in the artist's arsenal of artistic tools. Therefore, in the lexicon of artists, when talking about painting, the word "light" is often contrasted with the word "color" as its antipode. Here, the colored surface is always bathed in light and creates different moods in a person, that is, we recognize that the work is "colorless" or "lightless" if it is not enough.

Result and Discussion

At the same time, usually the first, i.e. light, is given the main role in modeling the three-dimensional shape of objects and creating certain light and spatial depth effects in images, and the second - color, mainly increases the attractiveness of the picture, decorates it [3]. "decorative" functions such as rendering, inner feeling and emotional approach of the artist are imposed. In a more detailed analysis, it becomes clear that color takes part in the modeling of forms and the construction of space, and light and shade cannot be without color. The phenomenon of light in fine art is multifaceted, and its importance in the system of expressive means of painting is comparable to the importance of light in human life. This situation makes it possible to consider the phenomenon of light in relative separation from color along with the traditional concepts of light in painting. Following this path, several aspects can be distinguished that reflect the different functions of light in a painting. For example, the problem of light is supported by the division of artists into "colorists" and "illuminators" in debates about the priority of a color or color tone (primates of color tones) [4].

This is one side of the general problems. If we consider light as the antipode of shadow, we will approach the question from a slightly different point of view. Thus, the painters of the Italian Renaissance thought that the environment of their plot compositions should be constantly flooded with light. They were unaware of the fact that the world is shrouded in darkness and that only various sources of light illuminate them. Leonardo da Vinci can be said to have proved to be the first to understand this fact with his sfumato (softening the background of the picture by tonal bleaching, making it distant), and the Caravaggios or Rembrandt were already the Italian Awakening in terms of their own interpretation of light. It was the exact opposite of the concepts of Renaissance artists. In addition, light itself can be an image element in itself. For example, as conditional interpretations of it, the "Preobrazhenie" icon of Novgorod, created in the XIV century, and Kuindzhi's illusionistic painting "Moonlight Night", which was effectively processed with the help of different shades and light, as well as the color works achieved by the Impressionists in the field of plein air, as well as practical and theoretical developments, are included [5]. And finally, light can act as a formative element in a painting or a means of artistic expression. Similarly, both in nature and in painting, these are closely connected and layered wholes.

Conclusion

This article delves into the symbiotic relationship between light and color within the realm of design, exploring the nuanced perception of color under the influence of light. The unequivocal separation of light and color is evident, as

color ubiquitously adorns all surfaces, while light serves as the illuminating medium that facilitates perceptibility. This inherent duality prompts contemplation on the intricate interplay of these phenomena. From an academic standpoint, the historic acknowledgment of their distinct existence is acknowledged, notably exemplified by the pioneering work of I. Newton. This understanding sets the stage for potential avenues of further research, encouraging exploration into the psychological implications of color perception under varying lighting conditions and the potential evolution of design principles. In conclusion, this examination underscores the fundamental relationship between light and color, laying the groundwork for continued scholarly inquiry into the multifaceted dimensions of this interaction.

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