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PSYCHOLOGICAL IMPLICATION OF COLOUR USAGE IN CONTEMPORARY COMMERCIAL INTERIOR SPACES

Aisha Farheen[1], Prof. Suparna Sircar[2], Priyanshi Rastogi[3]
[1]Enrollment No. A8380323028, [2]Research Guide, [3]Co-Guide
Bachelor of Interior Design, Amity School of Architecture and Planning
Amity University Uttar Pradesh, Lucknow, India

ABSTRACT

Color is one of the most powerful and often underestimated tools in interior design. In contemporary commercial environments – restaurants, retail spaces, offices, and hospitality interiors – color functions as a psychological and physiological stimulus that shapes how occupants feel, decide, and behave. This review paper investigates the psychological impacts of color in commercial interior spaces, neuroscience, and interior design theory. The study employs a qualitative, literature-based methodology, synthesizing peer-reviewed sources, and comparative case studies. The scientific basis of color perception – retinal cone stimulation, visual cortex activation, limbic system engagement, and autonomic nervous system responses – forms the foundational framework. Key findings confirm that warm colors (red, orange, yellow) increase arousal, appetite, and impulsive behavior, making them suited to food service and retail environments. Cool colors (blue, green) promote calmness, focus, and restoration, rendering them effective in offices and hospitality spaces.

KEYWORDS: *Color Psychology; Commercial Interior Design; Human Behavior; Neuro-physiological Response; Retail Design; Hospitality Interiors; Color Perception*

I. INTRODUCTION

Of all design variables in any interior space, color is the most immediate stimulus—registered by the human brain before furniture, layout, or material texture. From the warm terracotta glow of a neighborhood café to the cool blue grey of a corporate workspace, color permeates every spatial experience and influences mood, perception, and behavior even before a person has consciously registered their surroundings. This immediacy is not accidental; it is rooted in the deep neurological architecture of human vision and emotional processing.

In contemporary commercial interior design—where spaces must serve experiential, economic, and functional objectives simultaneously—color has emerged as a critical strategic tool. Research in environmental psychology consistently demonstrates that the visual environment affects occupant comfort, performance, purchasing behavior, and emotional state. Advances in neuroscience have further illuminated the neurological mechanisms by which color stimuli are processed, revealing that colour is not merely seen, but physiologically and emotionally experienced. The implications of this for commercial design are profound and far-reaching.

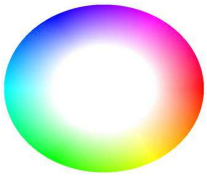


Fig. 1.1 – The colour wheel: a foundational tool for understanding hue relationships in design.

When we look at spaces, we often see that the colors used are chosen because they are popular or someone just likes them. This is not a way to pick colors. We should use science to help us choose colors. This paper tries to fix this problem by looking at how colors affect our minds and bodies. It then uses what we learn to give advice on how to use colors in different types of commercial spaces like restaurants and cafés, stores, offices, and hotels.

II. METHODS AND TECHNIQUES

This study adopts a qualitative, literature-based analytical approach. The methodology involves the systematic review and synthesis of peer-reviewed academic journals in environmental psychology, cognitive neuroscience, color theory, and interior design research. Sources from conferences including TICASH and journals such as the Journal of Environmental Psychology and Journal of Retailing and Consumer Services formed the core corpus.

The study further involved comparative analysis of documented commercial interior case studies—retail environments, hotel interiors, and office workspaces—examining how color has been applied in practice. As a review-based study, no primary experimental testing was conducted. Individual variation in color response, cultural differences, and context-specific factors is acknowledged as limitations. However, the breadth and diversity of the literature reviewed provides a robust basis for the conclusions drawn.

III. LITERATURE STUDY

3.1 The Science of Color Perception

We see colors because of the retina, where three kinds of cone cells help turn light into signals for our brain. These cone cells are sensitive to wavelengths of light, like blue, green, and red. The signals from the cone cells travel to the visual cortex through the optic nerve. At the time they also connect with the limbic system, which is the part of the brain that handles emotions and memories. This direct link is what makes color perception closely tied to how we feel (Hiremath et al., 2024). Color signals also affect the nervous system or ANS, which can cause changes in our heart rate, blood pressure, and how alert we feel. All these changes together influence how we experience a space (Ghai et al., 2022).

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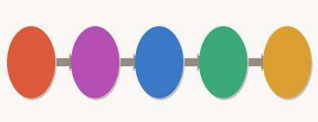


Fig. 3.1 – Color perception pathway: from retinal cone stimulation to emotional and behavioral response.

3.2 Warm vs. Cool: The Primary Psychological Division

The basic idea in applied color psychology is that colors are either warm or cool. Warm colors like red, orange, and yellow have longer wavelengths, make our heart rate go up, our blood pressure rise, and make us feel like taking action. Cool colors, such as blue and green, have shorter wavelengths and help us feel calm and focused with lower blood pressure and a slower heart rate.

The warm and cool colors are where we start when we think about colors for spaces. The thing is, how much a color really affects us depends on how strong or weak it is and how light or dark it is. For example, a soft earthy terracotta color and a bright red color can make us feel very different even though they are both warm colors. We need to understand the shades of colors if we want to use them in a smart way.

3.3 Psychological and Physiological Responses to Individual Colors

Studies have investigated how different colors affect people and found some patterns across various cultures. Table 1 presents a summary of these findings:

Colour	Physiological Response	Psychological Effect	Behavioural Outcome
Red	↑ Heart rate, arousal	Energy, urgency, appetite	Impulse buy, faster eating pace
Orange	↑ Social arousal	Warmth, sociability	Extended dwell, social engagement
Yellow	NS stimulation	Optimism, creativity	Creative engagement; fatigue if overused
Green	↓ Eye strain, tension	Calm, balance, restoration	Longer browsing, reduced stress
Blue	↓ BP, calming ANS	Trust, focus, clarity	Analytical performance, trust-building
Grey	Minimal arousal	Professional, stable	Credibility; flatness if used alone

3.4 Documented Case Studies

3.4.1 Warm Color Application: Restaurant and Retail Environments

Research on designing places where people eat shows that using colors like red, orange, and brown makes people hungrier. These colors also make people want to talk to each other and leave the table sooner so others can eat. When we see these colors, it does something to our body—it wakes us up and gets our body working faster and makes us more aware of what's going on around us. This helps us feel like eating and enjoying the company of others.

In psychology, using warm colors as accents can make people more likely to buy on impulse and catch their attention. By using colors in certain areas like promotional displays against a more neutral background, businesses can get customers more engaged and make their brand more recognizable. This is because bright warm colors grab the eye while neutral colors stop the eyes from getting tired.

3.4.2 Cool Color Application: Hospitality and Office Environments

Research on luxury hospitality interiors indicates that blue-green palettes enhance emotional comfort, perceived quality, and guest satisfaction. A study in the Journal of Retailing and Consumer Services (2020) found that interior color directly influences guests' assessment of service quality, with cool and muted palettes consistently associated with premium positioning and emotional ease.

In office environments, cool color schemes improve focus and reduce physiological stress. Mehta and Zhu (2009) demonstrated that blue environments enhanced creative task performance, while red environments improved detail-oriented analytical performance. The most effective contemporary offices use color zoning to align palette with activity type.



Fig. 3.2 – Retail color zoning: red and yellow accent zones against neutral background surfaces.

3.5 Review of Key Research Papers

Hiremath, Swathi, and Gowda (2024) provide a comprehensive overview of color psychology in interior spaces, identifying correlations between specific hues and occupant behavior. Their work underscores hue, saturation, and brightness as independent variables each producing subtly different effects. Ghai, Ghai, and Mittal (2022) examine the perceived impact of colors in architecture, noting that while cultural background mediates associations, broad psychological responses are largely consistent across cultural groups.

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Himawan and Hartini (2021) map colour-behaviour relationships in commercial settings, confirming that color decisions significantly affect footfall, mood, and purchasing intention. Research in the Journal of Environmental Psychology reveals that color-lighting combinations produce synergistic effects: warm color with warm-white light reinforces premium brand positioning, while cool colour with cool-white light communicates modernity and efficiency.

IV. FINDINGS

4.1 Color Application by Commercial Typology

4.1.1 Restaurants and Cafés

When we think about food and beverage places, there are a few things that the people who design them want to do. They want to make people hungry, make them feel comfortable and friendly, and make them want to stay for a while. The colors they use can really help with this. Colors like red, orange, and yellow can make people feel happy and want to eat. Red is especially good at making people want to eat more and eat faster, which is great for restaurants that want to get people in and out. Orange is good for making people feel friendly and want to talk to each other, which is good for businesses that want people to come back.

Earth colors like brown and beige are also good because they do not compete with the food. The brightness of the colors is also important. Bright red is good for fast food places, but softer earth colors are better for nicer restaurants where people want to take their time. Coloring helps with stimulation, social warmth, and making people want to stay, which are the main goals of food and beverage environments.

4.1.2 Retail Spaces

When you are in a store, you want to see things that catch your eye. You also want to feel comfortable. Studies have shown that using colors like red, yellow and orange can make you notice things more and even buy things on impulse. If you use these bright colors too much it can be too much to look at and people will not want to stay in the store for very long. The best way to do it is to use these colors to draw attention to certain things and use neutral colors for the rest of the store so your eyes can rest.

The kind of store also matters. For example, fancy stores like to use cool colors to show they are high end while stores that want to appeal to everyone like to use bright and bold colors to show they are fun and welcoming. Retail environments must balance stimulation with perceptual comfort, using accent colors like red, yellow and orange to enhance visual attention and encourage impulse purchasing.

4.1.3 Office Workspaces

The workplace today needs colors that help people work alone and also work together in teams. Colors like blue and green are really good at helping people focus and feel calm. Green is especially good because it helps people feel better when they are stressed and it helps their eyes not get tired when they are working on a computer for a long time. If we only use colors like blue and green the office might feel like a hospital. So, the best offices use warm colors in the areas where people meet and work together, choosing these colors based on what people are doing in that area.

4.1.4 Hospitality Interiors

In hotels, spas, and lounges, the main goal is to make guests feel comfortable, safe, and relaxed. To make them feel better, hotels use colors that are not too bright or overpowering—cool colors and warm colors that are not too strong. Blue and green colors work well together. When you add some gold and warm neutral colors, it makes the place feel more luxurious and comfortable. It shows that the hotel really cares about its guests and wants them to feel good.

The way colors work together is very important in hotels. Instead of using just one bright color, they use a mix of different colors that go well together. They also use materials like linen, stone, and old wood. These materials help make the place feel calm and relaxed.

4.2 Role of Hue, Saturation, and Brightness

The way colors make us feel is not always the same. It changes a lot with how bright and strong the colors are. When a color is very strong, it can really get our attention. When it is not so strong, it can actually calm us down. This is true for all colors whether they are warm or cool. So, designers can use this to make things exciting or calming depending on what they want to do. The brightness of a color can also make a room feel bigger or smaller. Light colors can make a room feel bigger while dark colors can make it feel cozy and closer together.

4.3 Cultural and Contextual Variations

Colors do not mean the same things everywhere. In Western countries white is associated with being pure but in some East Asian cultures it is a color of mourning. Red is a stimulating color for shoppers worldwide and in Chinese culture it is also linked to good fortune and celebrations which might make it even more effective in Chinese markets. When designing spaces, designers need to know the general rules of color psychology and understand the cultural background of the people they are designing for.



Fig. 4.1 – Cultural color associations: the same hue carries different meanings across global cultures.

V. ANALYSIS

The synthesis of scientific research and case study evidence reveals that color operates across three interconnected dimensions in commercial interiors: neuro-physiological regulation (arousal versus calm), psychological response (emotion, mood, comfort), and behavioral outcome (decision-making, dwell time, interaction patterns). These dimensions are simultaneous, not sequential—all three are immediately engaged upon entering any colored environment, shaping the occupant's experience from the first moment of spatial perception.

Effective color design must therefore be multi-dimensional in its approach. A palette chosen solely for aesthetic merit may