

# “The Role of Color in Urban Public Spaces: Psychological, Behavioral, and Environmental Impacts”

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**Abstract** - Urban public spaces are more than just physical voids between buildings. These are the stages where human life unfolds every day. One factor that subtly but powerfully shapes the experience of these spaces is colour. Beyond aesthetic preferences, colour influences how people feel, behave, and interact with their surroundings. This study examines how colour affects psychological responses, behavioural patterns, and environmental factors in urban public spaces. Drawing on recent systematic reviews and studies in architecture and environmental psychology, this paper frames colour as a measurable design variable that interacts with context, culture, visual perception, and place identity. This emphasizes the need for systematic colour strategies in urban planning and offers insights into design decisions that improve human well-being and urban legibility.

**Key Words:** Urban Public Spaces, Colour in Urban Design, Environmental Psychology, Place Identity, Behavioural Response; Wayfinding, Cultural Expression, Urban Heat Island Effect

## 1. INTRODUCTION

In urban design, colour is frequently regarded as a secondary decorative element. However, it significantly influences how individuals perceive and interact with public spaces. Since humans primarily gather environmental information through sight, colour is among the first aspects noticed in any setting. In the realms of architecture and urban environments, colour impacts emotions, thought processes, movement, and social interactions. It also enhances the clarity, identity, and cultural significance of an environment. Despite its importance, decisions regarding colour in planning and design are often made late in the process and lack systematic guidance. Recently, researchers have started to view colour not merely as an aesthetic choice but as a design factor with quantifiable psychological, behavioural, and environmental impacts. This paper

compiles evidence from various research fields to explore how colour influences the experience and functionality of urban public spaces. It seeks to provide insights that promote evidence-based colour strategies in urban design practices.

### 1.1 PURPOSE OF THE STUDY

This research aims to investigate how colour influences the design of urban public spaces and affects human experiences. It seeks to comprehend the impact of colour on psychological reactions and user behaviour in city settings, while also examining its role in cultural expression and the identity of a place. Furthermore, the study assesses the environmental effects of using colour in urban design, with the goal of promoting evidence-based colour strategies that improve the quality, clarity, and functionality of urban public areas.

### 1.2 SCOPE AND LIMITATION

#### SCOPE

- Focuses on the role of colour in urban public spaces, including streets, plazas, parks, and pedestrian areas.
- Examines colour application on building facades, pavements, and other urban elements.
- Emphasizes psychological, behavioural, cultural, and environmental impacts of colour.
- Limited to exterior urban environments.
- Oriented toward design-related outcomes rather than technical or material studies.

#### LIMITATION

- Based on secondary data sources without primary field investigations.
- Variations in cultural and climatic contexts limit the generalization of findings.
- Relies primarily on qualitative evidence with limited quantitative performance data.

- Does not account for other sensory factors influencing urban experience, such as sound or texture.

## 2. METHODOLOGY

This research utilizes a qualitative approach based on literature analysis. It examined peer-reviewed journal articles and systematic reviews from the disciplines of architecture, urban design, and environmental psychology. The studies were reviewed thematically to uncover the psychological, behavioural, cultural, and environmental impacts of colour in urban public spaces. An analytical framework was employed to synthesize the findings, interpreting colour as a design element that affects human reactions and environmental performance.

## 3. LITERATURE REVIEW

### 3.1 The Perception of Color in Urban Contexts

Colour is a crucial aspect of visual perception. People do not just observe colour; they interpret it through emotional, cultural, and cognitive lenses. In cities, the colours of buildings, sidewalks, street furniture, and art shape how we perceive and understand spaces. These colours can make areas feel inviting, perplexing, serene, or energizing. Urban colour affects not only how we aesthetically appreciate spaces but also influences visual clarity, movement perception and spatial comprehension.

Colour perception involves three main attributes.

- Hue (the basic colour, such as red or blue),
- Saturation (intensity of the colour),
- Brightness (lightness or darkness of colour).

These attributes interact with cultural codes, lighting conditions, surface materials, and the surrounding context to shape human responses.

### 3.2 Psychological Effects

Psychological research suggests that colours affect mood, emotional states, and cognitive load. Warm hues, such as red and yellow, are often invigorating and capture attention, whereas cooler shades, such as blue and green, are linked to tranquillity and relaxation. These effects are generally observed across various cultural settings, although the specific meanings might differ.

Studies have demonstrated that colour can:

- Alleviate stress and foster a sense of safety in public spaces.

- It influences arousal and alertness, thereby affecting social interactions and engagement, and impacts visual comfort and perception of spatial dimensions.

### 3.3 Behavioral and Social Impact

Colour also affects pedestrian movement, wayfinding, and place identity. Contrasting colours can improve visibility and help people navigate complex spaces more easily. Distinctive colour accents or patterns can serve as visual landmarks, aiding in the orientation and cognitive mapping of the city.

In spaces designed for recreation or social gatherings, vibrant colours attract more users and encourage social interaction. Conversely, monotonous or overly muted urban colour schemes are associated with lower engagement and perceptions of insecurity or boredom.



**Fig -1:** Paint Drop, By 100architects, Shanghai, China

### 3.4 Cultural Expression and Place Identity

Colours convey cultural meaning and historical identity. Certain urban areas become recognizable because of their characteristic colour palettes tied to local traditions or historical materials. For example, vernacular architecture in some regions uses earth tones linked to local materials and climate, becoming part of the city identity.

Colour choices that ignore cultural and historical contexts risk disrupting place identity and alienating local communities. In contrast, sensitive colour strategies can strengthen residents' sense of belonging and affinity for place.

### 3.5 Environmental and Sustainability Considerations

Colour significantly influences human perception and behaviour, as well as the physical conditions of the environment. Lighter colours can reflect a greater amount of sunlight, thereby reduce heat absorption and contribute to the formation of cooler microclimates in urban

settings. Conversely, darker surfaces can elevate the surface temperature and exacerbate the urban heat island effect.

Although this environmental dimension of colour is less frequently addressed in architectural practice, it is gaining increasing relevance in the context of climate change and strategies for mitigating the urban heat.

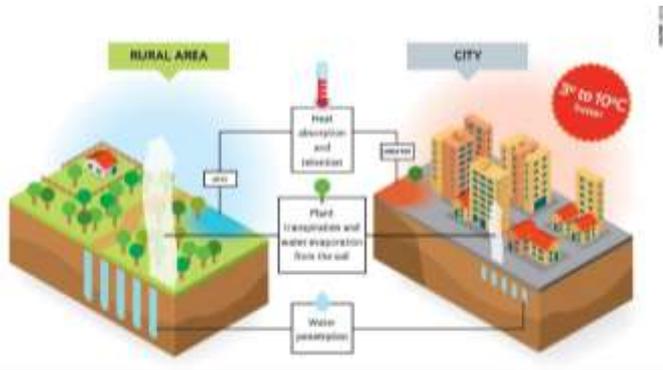


Fig -2: The Urban heat island effect

#### 4. Frameworks for Understanding Colour in Urban Design

A recent systematic review organized the effects of colour into four functional domains for urban design:

1. **Psychological and Physiological Effects**
2. **Cultural Expression and Place Identity**
3. **Functional Zoning and Wayfinding**
4. **Sustainability and Environmental Adaptation**

This framework highlights how colour can be treated as a quantifiable and strategic design variable, rather than an afterthought. It connects design objectives to measurable outcomes, such as visibility, contrast, heat reflectance, and emotional response indicators.

#### 5. Psychological Impacts in Urban Public Spaces

Colour affects how people feel and think in urban environments.

- Warm and saturated colours tend to stimulate activity and alertness, making spaces appear lively and energetic.
- Cool and muted hues often support relaxation, reflection, and calmness.
- High-contrast combinations contribute to better visibility and cognitive clarity, reducing confusion, and improving spatial orientation.

These psychological effects can influence visitor choices, duration of stay, and emotional responses to a space, contributing to well-being or stress.

#### 6. Behavioral Responses and Social Interaction

Colour influences what people do in a space. For example:

- Bright and cheerful colours can attract people to public plazas and recreational areas.
- A clear colour contrast in pavements and street markings improves pedestrian flow and safety.
- Colour accents on buildings and landmarks aid in wayfinding, making cities easier to navigate.

In places meant for social gatherings, colour strategies that enhance comfort and visibility can foster community interaction and prolonged engagement.

#### 7. Environmental and Practical Considerations

Beyond human psychology and behaviour, colour affects environmental conditions.

- Light-reflective colours reduce heat absorption, contributing to cooler street surfaces in hot climates.
- Darker tones can exacerbate heat buildup but may be suitable in temperate regions to maximize warmth in cooler months.
- The texture and finish (matte vs. glossy) of the materials also modify colour perception and environmental performance.

Designers must consider the local climate, lighting conditions, and material properties, in addition to colour selection, to optimize environmental performance.

#### 8. Challenges in Applying Color Strategies

Despite the clear evidence of the impact of colour, several challenges arise.

- **Subjectivity of Perception:** Individual and cultural differences mean that colour effects are not universal. What is welcoming in one culture may feel energetic or chaotic in another culture.
- **Late Design Decisions:** Colour is often decided after major design elements are finalized, missing opportunities for deeper integration.
- **Lack of Quantitative Guidelines:** Architects and planners often lack measurable standards that link colour strategies to performance outcomes.

These challenges highlight the need for interdisciplinary collaboration among designers, psychologists, and urban researchers.

## 9. CONCLUSIONS

Colour is more than just decoration in urban public spaces. It shapes how people perceive, behave, and feel in their environment. Colour interacts with psychological, behavioural, cultural, and environmental dimensions, making it a powerful design tool when used consciously and strategically in the design process.

By treating colour as a measurable design variable, planners and designers can enhance urban legibility, promote positive social interactions, reinforce place identity, and support environmental performance. Thoughtful colour strategies should be integrated early in the design process and informed by research, context, and cultural sensitivity.

Embracing colour not only as a visual expression but also as a performance-driven design element can improve the quality and experience of urban public spaces for all users.

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