

# Analysis of Color Application in Modern Urban Public Environment

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**Received:** 31 July 2022; **Accepted:** 16 August 2022; **Published:** 21 September 2022

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## Abstract:

Urban color is an important part of the quality of urban living environment and an important embodiment of urban aesthetic feeling. It is also the vitality of the city, and affects the sustainable development of urban economy and culture. Concise and harmonious colors give people a pleasant feeling, which constitute a part of elegant and civilized life. We must attach great importance to urban environment, urban color, planning and control, and constantly optimize the quality of modern urban living environment.

## Keywords:

City Color, Color Law, Public Environment

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## 1. Introduction

With the development of social economy and the continuous acceleration of human civilization, modern cities have become highly dense areas where people live in, work and live. While people live in cities, they are also creating and changing the image of cities on a large scale. With the continuous development of urban construction concept, the concept of “urban color” has been applied to urban construction. [1] Studies show that among the two visual elements, shape and color, human’s sensitivity to color reaches 80%, which is the first factor affecting human sense. City color directly affects the visual perception of citizens, thus producing corresponding psychological effects.

## 2. Literature Review

### 2.1. *The Concept of Urban Color*

Urban color refers to the sum of colors perceived outside all exposed objects in urban public space, including natural environment colors (land, vegetation), artificial colors (buildings, advertising, vehicles, etc.). In the construction of urban artificial color, it can be divided into fixed color and flowing color, permanent color and temporary color according to the nature of objects. All kinds of permanent public buildings, bridges, streets and squares in the city form a fixed permanent color; In the city, vehicles and other vehicles, pedestrian clothing form flowing color; City

advertisements, street signs, newsstands, neon lights and window displays form temporary colors. [2]

Color is closely related to form, but it has stronger impact and attraction than form to some extent. As long as all elements of urban landscape appeal to vision, it must have color. Therefore, city color is the main factor of urban landscape, and also one of the main means to improve the urban environmental function, to create a harmonious and beautiful, unique city color image, and further improve the city grade. Only by paying attention to color, understanding color and using color can we create a pleasant and vivid color environment for the audience of urban landscape.

### ***2.1. Literature Analysis***

The author consulted the relevant literature of urban color at home and abroad, and summarized the composition, importance and implementation principles of urban color.

## **3. Results**

Urban color refers to the comprehensive color panorama of all external color elements of objects in the urban environment perceived by the public. City color mainly includes artificial color and natural color, which is the most intuitive feeling of people's impression of the city. Urban color design is based on the full analysis and planning of urban color and is the visual integration and creation of all perceived external color elements in the urban physical environment. The elements of urban color are as follow:

## **4. Artificial Decorative Color**

### ***4.1.1. Architectural Color***

Architecture is the main part of urban landscape and the most conspicuous attraction, so architectural color is the protagonist of urban color accordingly, and whether its color is properly handled or not directly affects the beauty of urban color. Architectural colors include residential buildings, commercial buildings, office buildings, entertainment buildings, education buildings and so on. The color selection of these buildings with different functions is also different. In addition, the selection of architectural colors should make full use of the commonness, contrast, sequence, primary and secondary characteristics of colors to make architectural colors varied and distinctive. In addition, the color of the roof of a building is the most easily overlooked place. In fact, the color of the roof can fill the blank of the color of the city, enrich and beautify the city's bird's eye view, avoid the single and dim gray urban landscape when you climb up and look far, so as to enhance the attractiveness of the city.

### ***4.1.2. Road Square***

Color road is the landscape corridor of the city, with the dynamic landscape sequence of changing sceneries, is the channel to show the charm of the city. [3] Beautiful road colors make pedestrians more energetic and comfortable, especially in some commercial pedestrian streets, paved pavement with colorful floor tiles coordinated with the buildings along the street will become a colorful scenery line. Color management for the highway is also very important, scientific deployment of

color, which can give drivers a good psychological impact, reduce traffic accidents. Reasonable and scientific color selection of underground streets can reduce the feeling of dark and cold. [4] Square is the node of urban space and the gathering center of urban citizens' social life. Good color effect will make citizens more willing to stay and play, and create a space recognized and accepted by the public for the city.

#### ***4.1.3. The Environment Sketch Color***

It includes city signs, signs, stop, telephone booth, sculpture, chairs, light, etc. The color of auxiliary facilities, the essay not only has a variety of functions such as conveying information or instructions, at the same time is also a good material of creation and rich urban color, although such facilities sketch is not the main body of urban landscape, However, if it is not properly handled, it will not only damage the image of urban environment, but more importantly, it will cause obstacles in the recognition of citizens, which is not conducive to the effective transmission of information. In short, the color design of environmental sketch should seek the unity of function and beauty.

#### ***4.1.4. Light Color***

In the daytime, there is not a bright image of the color, at night if the lack of light lighting will be eclipsed. In addition to providing lighting function at night, lighting also reflects the urban buildings, structures, urban pieces, lawns, trees and water bodies, constructing a colorful world, integrating practical and aesthetic functions. [5] The color at night is mainly expressed in the form of artificial lights. With the dark night sky as the background, the color sense is stronger than in the daytime, thus creating a rich and changeable environment.

#### ***4.1.5. Clothing Color***

Clothing color is the most humanistic characteristics and humanistic temperament, it constitutes a flowing and jumping color of the city, is a dynamic landscape. The clothing color of city citizens reflects the social and mental state of the time and place from the side, and it has strong characteristics of The Times and regions. [6] With the development of society and the change of times, people begin to pay attention to the colorful and bright colors, reflecting the change of people's ideas and the active social spirit. It is impossible to adopt hard and fast rules for dress color, but on the basis of improving the cultural cultivation and spiritual temperament of the citizens, we should advocate healthy and scientific dress culture through the media, so as to subtly guide the citizens of the city, so as to achieve beautiful dress color.

### ***4.2. Natural Colors***

Natural color compared artificial adornment color much a true and vigor, the longing that returns to nature makes natural color has stronger attraction. To this kind of color the most important is not to suffer pollution, maintain ecological balance.

#### ***4.2.1. Vegetation Flower Color***

Plants are living organisms with different colors, and they will change their colors with the change of their growth stages and seasons, which is the best choice for urban landscape to create dynamic colors. [7] For example, the leaves of trees change from light green to dark green, from green to yellow, and from green to red. Plant flowers are colorful, red, white, yellow, lavender, black and so on, colorful. All sorts of plants

and flowers are reasonable collocation can use their hue, lightness, Chroma composition rhythm, rhythm, can produce different result as the change of the four seasons.

#### **4.2.2. Sky Color**

The sky is the background of urban landscape, but also a flowing picture. The color of the sky is constantly changing, sometimes a cloudless, gradual blue sky; Sometimes a combination of blue sky and white clouds; There are colorful, blue, purple, gray, green, red, orange, yellow and other rich colors of the morning glow, sunset, clouds, mist and so on. So the color of the sky is unpredictable, the city should borrow from the sky, do not let tall buildings block the line of sight of people watching it, the height and density of high-rise buildings should be appropriate, must not drown people in the city of tall buildings.

#### **4.2.3. Water Color**

Natural scenery water is the lightest and most aura. Although water is a transparent colorless body, it can play the role of dotted color and breaking color. For example, the atrium of Guilin Great Falls Hotel is surrounded by a pool of clear water and a waterfall, which breaks through the depth of the environment. Water can also bring the color of the surrounding environment and landscape into its own field, showing a seemingly illusory tone. Although it is rare to have such water color in cities, fountains and lights can be used in some areas to activate the aura of water. The most important thing for rivers, lakes and other water bodies is to maintain the natural primary color. The hue of polluted rivers is disgusting.

### **5. Discussions**

#### **5.1. Color Effect**

##### **5.1.1. Physical Functions**

Color has certain physical properties, different color absorption of solar radiation is different, thermal absorption coefficient is also different, so it will produce different physical efficiency. For example, in hot summer, people always like to wear light-colored clothes to feel cooler; in the cold winter, they prefer to wear warm colors such as red and orange. Similarly, for buildings equipped with full air conditioning, its paint color should be selected light colors, with the effect of energy saving. And if the color of the wall is not chosen properly, the wall temperature is high, which causes the external wall to produce telescopic deformation stress, and sometimes makes the external wall paint fall off, and affects the beauty. In addition, different colors have different reflection coefficients of light, such as yellow, white and other light colors have the highest reflection coefficient, while purple, black and other dark colors have the lowest reflection coefficient. Therefore, using high reflection coefficient colors on the exterior walls of buildings can increase the brightness of the environment. [8]

##### **5.1.2. Visual Beauty**

Color is the most sensitive element that visual senses can perceive. Color experiments have proved that when observing objects in normal state, the first thing that causes visual reaction is color. If the color of the object is harmonious and beautiful, it will give people a strong aesthetic stimulation, cause visual excitement,

and then affect the psychological feeling. For example, the buildings of the Han and Tang dynasties in China all use the combination of vermilion and white, producing bright and pleasing to the eye, concise and lively color beauty. Another example is the endless color changes of clothing, reflecting the aesthetic taste of the public in different times, giving people different visual impact of beauty.

### ***5.1.3. Psychological Effect***

Different color to the person's psychology to stimulate is different, make the person produces color changes in temperature, light and heavy, expansion and contraction, lively and melancholy, excitement and stillness, lenovo and symbol, emotion and other complex psychological feelings. The whiteness of snow and icebergs is cold; the red orange of the sun and fire makes people feel warm; the blue of the sea is calming; the flowers of colorful profusion make a person cheerful, this is a kind of intense psychology that the person is right natural color reflects. Colorific weight feeling basically depends on lightness, for instance the building of daylight, darkness makes a person feel messiness, and the building with bright light appears lightsome however. Color lively and melancholy feeling, usually with red, orange, yellow and other warm color as the center of the bright pure color make people feel happy, and see blue and blue green these cold dark cloudy color becomes depressed, this is in the rainy weather people often depressed reason. So the psychological effect of color is varied, and this kind of effect cannot be ignored when choosing or using color.

### ***5.1.4. Cultural Significance***

Color not only has its own characteristics, but also expresses concepts such as religion, rank, orientation and national culture. [9] For example, in The Wei and Jin dynasties of China, golden color was a necessary color in Buddhist architecture, and its religious belief was expressed through color. With the emergence of class, environmental colors also became the representation of class and rank. For example, slave owners in the Western Zhou dynasty used colors to "distinguish rank and inferiority" and defined the "positive colors" as blue, red, yellow, white and black, and the "negative colors" as light red, purple, green, cyanosis and sulfur. In tang Dynasty, yellow became a special color for the royal family. The palace temples used yellow and red tones, while green, blue and blue were used for the royal government officials. Civilian houses could only use black, gray and white colors to safeguard the interests of the ruling class. In the theory of Yin and Yang and the Five elements, five colors represent the location: turquoise symbolizes the green dragon (East); To symbolize rosefinch (southern) with the color of vermilion; White for white tiger (western); Black symbolizes basaltic (north); Yellow symbolizes dragon (center). In addition, color also reflected the mainstream culture of the society at that time, such as the song Dynasty preferred to use steady and simple, light and elegant colors, which were caused by the rationalism of Confucianism and the philosophy of Zen.

### ***5.1.5. Economic Effects***

Economic effect is still contained in color. Successful color choice can bring good economic benefit. In terms of physical properties, reasonable color selection can reduce the energy and material consumption of the city to a certain extent, and reduce the operation cost of the city. More importantly, beautiful color environment will set up a good image of the city, tourists and investors behavior and decision making, indirect influence the development of urban tourism industry and attracts ability to

attract investment, so the color environment improve must also will attract more tourists, investors, and talents, promote the increase of economic benefits.

## ***5.2. Design Principle of Urban Color***

Due to the composition of urban color elements, and by nature, society, history, culture, and other factors, but also eye-catching, sustainable, extensive and other characteristics, so the design of urban color must be extremely careful, color processing should follow the following principles.

### ***5.2.1. The Principle of Holistic Harmony***

City buildings, roads, Bridges, sketch, green land, flower and so on has all sorts of color, must consider from overall urban color, the color is together harmoniously, deal with artificial decoration between color and artificial color and natural color, monomer and environment between the color relations, to achieve harmony. [10] To the city to determine a unified style, emphasis on the selection of main colors, in different functional areas in one or a few appropriate auxiliary is tonal make the urban color changes, and color also gradual transition between functional areas, coordinated, color of partition to suit the characteristics of urban spatial structure, to form a beautiful urban landscape.

### ***5.2.2. People-Oriented Principle***

The color of the city should conform to the physiological, psychological and cultural characteristics of the citizens, take humanity as the core of the design, and be consistent with the aesthetic taste of the public, and put an end to the color environment without considering humanity, publicity and exaggeration, chaos and disorder, and color stimulation. [11] Attention should be paid to human nature and human visual psychology, and at the same time, people's color visual characteristics should be used to enrich the color effect and modeling level of the city.

City color has a more obvious effect on people's psychological state and mood. Different color environment will give people different feelings, beautiful color can adjust people's psychology, pleasant. For example, urban greening, according to psychological research, when the green of nature reaches 75% in people's vision, people will feel comfortable mentally and their psychological activities will be in the best state. Therefore, the planting of various green plants is strengthened in the city color, and different shades of green ocean are created. Color if handled improperly will damage people's physical and mental health, such as some cities, many citizens in the face of gorgeous, high color buses, taxis, color changes flashing neon lights, colorful advertising, dazzling glass curtain wall, feel dizzy and agitated. [12]

### ***5.2.3. Principle of Local Characteristics***

Urban people have been tired of thousands of city appearance, the pursuit of culture, history, rustic flavor, the return of nature. [13] The color of visual objects in the city is combined into the unique style of the city, and the color reflects the maturity of each regional culture to some extent. In the development process of every city, due to social and natural conditions, there will be a special color collocation favored by local residents. In the construction of urban landscape, we must consider the local color, conform to the local climate environment, respect the local people's color preference tradition, pay attention to the continuation of local historical context and climate

characteristics, use color to reflect the city's style and cultural temperament, and create a personalized city.

## 6. Conclusions

Urban color is an important factor in the composition of urban public space, which profoundly affects people's perceptions of the living environment. [14] In the urban landscape construction in the future should be more attention from the public, the urban color planning in the current reform of the urban planning, the design of the systematic, scientific, unified, outstanding character, and vivid and rich living environment.

## Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

## Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

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