Discussion on the Design Strategy of Urban landmark Space Based on Multi-perception Level

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Abstract. The paper is divided into three parts, at first, it discriminates the concepts about the landmark, urban landmark and urban landmark space. The author analyzes their design quality by three ways, on-the-spot survey, case analysis and questionnaire survey which contains a variety of urban landmarks space elements such as layout and structure, theme landmark, space accessibility and other aspects of cognitive meaning. This research is conducive of design and development for urban landmark space, and the conclusion of this paper is real significance of establishing the city image, creating the urban business cards, attracting the outer investors and improving the city’s comprehensive competitiveness.

1. Introduction

The city is a specific space environment; there is a progressive relationship between “landmark space”, “path space” and “layout space” in the city; then, the landmark space reflects the individual’s most intuitive and initial understanding of a city's morphological texture. The concept of landmark space is different from landmark. The landmark defined in Kevin Lynch's "Urban Imagery" is a cognitive environment which only refers to the reference point of landmark. the observer does not enter the interior, but only recognizes it externally and uses it to identify the direction. However, the landmark space itself also includes the peripheral plot where it is located and the sky space it occupies; it can be seen that the landmark space should be a further three-dimensional concept of the landmark[¹].

2. Conceptual Analysis

2.1. Landmark

The concept of the landmark has broad and narrow senses. In a broad sense, the landmark is a thing that has a certain identification in space; in a narrow sense, landmarks refer to fixed physical entities that have a certain spatial role, ie, those that are not fixed and spiritually significant[²].

2.2. Urban landmarks

Urban landmarks are also divided into general and narrow senses. In a broad sense, urban landmarks refer to those urban landmarks that are material, spiritual, fixed, non-fixed, natural, or artificial in the space of the city.

In a narrow sense, urban landmarks refer to buildings or structures that have a certain spatial role in the city[³]. For example, the Louvre in Paris and the Wuhan Yangtze River Bridge are important urban landmarks in the city and symbols of the city.
2.3. Urban landmark Space
The urban landmark space is generated by relying on the physical entity of the urban landmark. With a certain part of the elements and characteristics as a premise, which allows people to be recognized and perceived outside a certain distance, the urban landmark space in turn is a spatial environment that provides reference and guidance for pedestrians. The urban landmark space exists in a flexible form, which can be divided into the existence forms of buildings, squares or streets, and which is usually given spiritual meaning and formed a broad and common psychosocial cognition under human involvement and design[4].

3. Design Principles for Urban landmark Space
The particularity of the landmark space in city space will give feedback on the landscape and structure of the city form. This feedback is a powerful tool for adjusting the structure of city space and controlling disorderly changes. This kind of feedback makes the status quo and history, the city and the foreign domain, the old state and the new look balanced here. In this way, excellent design can effectively stimulate the vitality of the old city and enhance the attractiveness of the new city.

3.1. Act through the Figure-ground Relation of Material Space
As mentioned in the previous section, the characteristics of the landmark space are first derived from the strong contrast of the figure-ground relation, which gives a clear visual effect. It is based on the organizational principles of Gestalt psychology. For example, in a site with a certain configuration, some objects emerge and form figures, and some objects retreat to the background and become the background. The greater the contrast between the figure and the background, the greater the chance of being identified and perceived; on the contrary, conversations between people on the noisy city street are not easy to hear. Therefore, the mechanism of action of the landmark space should first be achieved by comparison with the surrounding environment, and this contrast can be reflected in the volume, color, style and combination of spatial elements.

3.2. Act through the Cognitive Process of Perceptual Space
Spatial cognition is an important part of cognitive theory and an important field of cognitive research. People living in the city need to complete the road search process through the landmark space, which is commonly known as the reference object[5]. The visual cognition provided by the landmark space allows people to accurately locate their own position in the environment. It provides a way to transform the “homogeneous space” into a “central space” in the region, so that people can realize the experience of the place through spatial positioning. The landmark space is usually combined with the surrounding road network and provides people with a sense of the domain as their master.

3.3. Act through the Symbolic Symbols of the Meaning Space
In addition to the physical and perceptual characteristics, landmark spaces often have special meanings and symbols, and these elements work together to distinguish them from other spaces in the city. These symbols can be historical, political, and customary, and they provide a dynamic mechanism for the role of landmark space[6]. The real problem with the design of the landmark space is that today’s designers are not necessarily future users, so mastering the working principle of the landmark space will help to better resolve the differences between design and use.

4. Design Strategy of Urban landmark Space
The use of sections to divide the text of the paper is optional and left as a decision for the author. Where the author wishes to divide the paper into sections the formatting shown in table 2 should be used.

4.1. Design Strategy of Material Space
(1) Use of the geographical advantage and flexibly use of the figure-ground relation.
With the clear figure-ground method, the landmarks can be easily highlighted in the area. There must be some main elements and city-level landmarks in the urban landmark space that can emerge from the background environment to draw people's attention; ultimately, the dominance of the control space is achieved, and spatial cohesion and recognizability are enhanced.

The advantage is that the urban landmark space can be harmonious and unified as a whole, and a good landscape order and a complete space experience can be produced; however, the drawback is that the renewal and expansion of the city has always been accompanied by the development of the city, and the original pattern is difficult to maintain. If the urban landmark space is in a mixed area with a large construction time span, it is especially important to focus on the integrated base area. Therefore, in the point of clearing the figure-ground, the old and new levels and the scale of the surrounding environment should be considered as the key factors.

(2) Multiple "Points" Aggregation, and building a network system with "Points" and "Lines"

A single landmark space is difficult to have the appeal of a strong space unless it is dominant, and it needs to be recognized by uninterrupted attention. However, if the landmark spaces are formed in a "line" shape or a "surface" shape, the superposition of the individual is exceeded by the mutual strengthening. Observers who are familiar enough with space will be better at using things in the environment that are not noticed, and they can easily complete the cognitive process.

The advantage of this polymerization strategy is that it greatly improves the spatial identifiability and continuity, but it is easy to cause the monotony of the landmark system. As the city's scope continues to increase, it is difficult to apply a design method to the entire city, so it is necessary to combine several methods when designing the landmark space. Each region can use different methods to distinguish the regional characteristics of each region and increase the diversity of the city.

(3) Improving the quality of the landscape environment and improving public service facilities.

The role of soft landscapes in urban landmark space is self-evident. Most of the subjects in the landmark space are mainly hard landscapes such as buildings or structures, and their affinity is limited. The plant landscape combined with the seat and streetlight configuration can effectively block the sunlight and relieve the pressure of the physical objects in the space.

4.2. Design Strategy of Perceptual Space

(1) Coordinating changes in height difference to create a visual high point

This is a design strategy for selecting or designing a main body in the urban landmark space, and focusing on its height, scale and shape to create the overall visual structure of the space. A single building or structure is inversely proportional to the spatial control relationship between 2D and 3D. The stronger its ability to control the three-dimensional height space, the weaker its ability to control the two-dimensional ground space. Therefore, it should be "limit height" instead of "no height". The space around the base should be rich enough, otherwise it will have a sudden feeling, so the high point of the vision should be based on conditions that can be reasonably contrasted with its height.

(2) Enlarging the reserved area of space to ensure the viewing angle

Environmental perception is the process by which people feel the external environment. Human environmental perception is a combination of vision, hearing, smell, touch and taste. Humans have two types of receptors, one is a direct type of receptor and the other is a distance type receptor. The direct type of receptors are skin and muscle, and the distance type receptors mainly are eyes, ears and nose. According to the relevant research, the perception obtained by the feeling occurs in the following proportions: Vision accounts for 78%, hearing accounts for 13%, olfactory accounts for 3%, touch accounts for 3%, taste accounts for 3%, touch and taste require direct contact to perceive[7]. Due to the orientation and representative role of urban landmark space, the identification of urban landmark space is mainly based on the visual experience in the perception system. Therefore, the design of the theme landmark of the city landmark space and its spatial location can be used to improve the design quality of the urban landmark space.

(3) Clearing obstacles to keep your eyes open
The rational placement of various elements in the urban landmark space can improve the cognitive efficiency of pedestrians and make the cognitive process free from unnecessary factors. Urban landmark space or surrounding environment often has private construction and chaos, and some space sculptures or landscape buildings are improperly placed, which have seriously affected the quality of the landmark space and easily brought negative impacts on the image of the city and the pedestrians. One of the design strategies for improving the environment is to clearing obstacles to keep your eyes open.

Building shadowing relationship evaluation formula:

\[ h = \frac{(H \times J)}{(L \times X)} \]

Figure 1. Building shadowing relationship evaluation

Deformation of the formula can be obtained: if it is necessary to achieve certain opening and closing parameters, the height index of the building shadowed is:

\[ X = \frac{(H \times J)}{(L \times h)} \]

When X=1, the reference object is completely shielded, and the building shadowed takes up all the space, which is expressed as the building's swallowing reference.

When X=2, the reference object occupies the upper half of the space, and the building shadowed occupies the lower half of the space, which is expressed as the reference object absorbs the building shadowed in the semi-opening.

When X>3, the reference material occupies most of the space, and the building shadowed is almost non-existent.

Thereby, the shadowing coefficient between the building shadowed and the reference building is obtained, and the shadowing property of the building shadowed is evaluated.

(4) Referring to urban color planning and focusing on design.

When observing an object under normal conditions, the first thing that causes visual reflection is color. For example, people can't clearly recognize the shape of an object beyond a certain distance, but can recognize its color. With the cooperation of colors, the urban landmark space can be distinguished from other public spaces. The color in space can change people's understanding of architecture and the environment, and memory. Then this requires that the elements in the landmark space have good color characteristics and recognizability[8].

Among them: h is the height of the relative viewpoint of Building shadowed; H is the height of the reference object relative to the viewpoint; J is the horizontal distance from the viewpoint to the building shadowed; L is the horizontal distance from the viewpoint to the reference; X is the opening and closing parameter (Figure 1).

4.3. Design Strategy of Meaning Space

(1) Extracting feature symbols and adding conceptual logo design

The comprehensive performance of urban landmark space symbols mainly refers to a comprehensive expression method of expression, reproduction or pure symbolic form after refining and recombining multicultural symbols and important feature forms in the city context. City history and cultural style have never lacked connotation, but some landmarks do not abstract this connotation very well. The specific design countermeasures can be embodied in the symbolization of the elements in traditional ancient buildings[9]. For example, extracting architectural symbols from traditional
Chinese wooden structures, Baroque, Romanesque, Byzantine, Renaissance, etc., and reorganizing these symbols into new buildings, can not only express the rich cultural connotation of the new landmark space, but also reflect the intrinsic relationship between the city context and the modern urban landmark space.

(2) Focusing on the combination of history and modernity, and actively introducing new materials and new ideas

With the improvement of people's living standards, people's requirements for quality of life are getting higher and higher. Completing dialogue with urban society through travel is the first choice for pastimes. The urban landmark space is the most convenient window for tourists or investors to understand a city. Some FRP, metal, stone, resin materials, etc. can be applied to the design of urban landmark space. Interpreting classical architecture through modern building materials is also an innovative approach, but it should also focus on its location.

(3) Designing public activities to realize the interaction between citizens, tourists and urban landmark space

Urban landmark space has the role of guiding its evolution direction and changing its shape layout, which is exactly the same as the “city catalysis” effect proposed by Wayne Otto. Public activities organized by iconic buildings, structures or block spaces can quickly and effectively add vitality, gather popularity, attract funds and shorten the start-up cycle of other construction projects. For example, the Christmas party event is held on the church square. The improvement of the value of the status quo element, the coordinated development of the surrounding space, and the enhancement of the identification of the city and the region will all make the design and development of the urban landmark space into a virtuous circle.

5. Conclusion

Urban landmark space design is not an isolated undertaking, and is often regarded as an important part of city design; and the urban landmark space has become the main body and the first space of practice. The landmark space must be based on the material form of the city; the positioning of the city's overall style makes the urban landmark space design have rules to follow and have evidence to rely on. The design of urban landmark space should follow the principles of coordination, progressiveness, innovation, and ecology. Grading, combination and detail design from the material space, the perceptual space and the meaning space are effective measures to guide the design of urban landmark space.

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