

Cognition on Landscape Spatial Pattern and Landscape Intention of Taikoo Li Commercial Block

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Abstract: Taking Taikoo Li commercial block in Chengdu as the cognitive object, this paper studies the landscape spatial pattern and spatial intention of the block. The results show that the layout of Taikoo Li commercial block is staggered grid, with the lane structure of crisscross space of streets and alleys. The block landscape is rich in picture esthetic sense. Most pedestrians memorize the images in this block through the spatial sequence of the landscape; space nodes with large areas and the symbolic sculptures, fountains and the Ziku tower are the identification points in people's memory. The integration of traditional western Sichuan dwellings and the modern materials provide people with the impression of the block environment. The research results can provide a reference for the design of outdoor landscape space of commercial blocks.

1. Introduction

In cities, commercial blocks are public spaces with the most social interactions and functional layouts. As an important part of urban public space, the landscape space of historical commercial block is closely related to the historical and cultural environment, as well as the personality and the social form of the city; it is the carrier of the city's characteristics and features. Street features can reflect the quality of life of citizens. Environmental psychology is a subject that studies the relationship between human and environment. Landscape pattern plays an important role in the construction of landscape space. The landscape space environment has a certain stimulating effect on people's perception. Strong stimulating effect can produce a deeper landscape impression. Therefore, the landscape impression can directly reflect the feeling of the landscape space environment and generate landscape intention. This paper takes Taikoo Li commercial block in Chengdu, Sichuan Province as the research object, studies people's cognition on urban landscape spatial pattern and landscape spatial intention from the perspective of landscape relationship. The research results play an important role in improving the quality of urban public space design.

2. Overview of the Taikoo Li Commercial Block

From 2005 to 2014, with the Daci Temple scenic spot as the center, Chengdu Taikoo Li Commercial District was built as a commercial block on the basis of old residential blocks. The theme of its outdoor landscape space is to integrate the historical features of the old and new blocks, and to highlight the cultural backgrounds as well as the modern fashion trends. The district is north to Daci Temple Road, south to the East Street, west to the Shamao Street and east to the South Street and Bitie Street of the Dongshun City. It is next to the Chunxi Road Business Circle, and can be accessed through Metro Line 2 and Line 3. After completion, the block covers an area of 70800 m², and is connected with the Chunxi Road Business Circle.

3. Research Contents and Research Methods

The spatial pattern of Taikoo Li Landscape: the plane space of the block is cognized through the theory of "figure ground relationship" in Gestalt psychology; the elevation space of streets and lanes is cognized through the one-point perspective.

Taikoo Li Spatial Landscape Intention: Based on Tolman's Cognitive Map Theory and Kevin Lynch's Urban Intentionality Theory, 15 pedestrians (aged from 20-50 years old, male-female ratio 1:1) who often walk in Taikoo Li Commercial District were consulted to draw a sketch of this block by memory. All sketches were overlaid. Through a sampling survey, researchers studied people's cognition on the elements of urban image (road, edge and region). The map of Taikoo Li was drawn according to Gould's Map Theory. Then 10 pedestrians who often walk in the neighborhood were selected from July 25 to July 26, 2016. These people are from 20 to 45 years old; the ratio of male to female is 1:1. Their preferences on the node space were collected to study the responses of individuals to the map and analyze pedestrians' perception on the satisfaction degree of the block space. Brunswikian Lens Model theory was applied to establish a cognitive lens model of Taikoo Li. Taking one entrance of Taikoo Li Street as a sample point, the lens model was used to study the impression of environmental characteristics.

4. Research Results and Analysis

4.1 Environmental perception and the cognition of Taikoo Li spatial patterns

4.1.1 Plane space of the block under the "Map-bottom Relation" of Gestalt psychology

Gestalt is a German word which means "integrity or form". In the process of cognition, some objects become the target of attention, while others become the background; the selective perception produces the "figure-ground relationship".^[1] The analysis of the figure-ground relationship of Taikoo Li block shows that when the architectural group is regarded as the main perception object in the plane layout, the surrounding street space becomes the background, which clearly reflects the figure-ground of the building texture and block space (Figure 1). On the contrary, if the outdoor space such as streets, squares and courtyards is regarded as the main perception target, then the architectural group distributed among them will become the background. This relationship is clearly reflected as the outline of outdoor space and the direction of streets and lanes (Figure 2). If the gallery and corridor space on the second floor of Taikoo Li commercial block are regarded as the main objects of perception, the corresponding figure-ground relationship is different (Figure 3). The three types of figure-ground relations show the grid staggered layout of Taikoo Li commercial block. The buildings are almost the same, but with different densities in distribution. The street space presents a crisscross lane inner structure; large square spaces can gather people flow, the traffic flexibility is relatively good. The nest and gallery of the second floor can distinguish the grey and white space of the street space from the plane angle, and form grey space of the pedestrian space in the first floor.

4.1.2 Perception of the sizes, depths and distances of the elevation space of streets and lanes in Taikoo Li

The space of streets and lanes changes with people's walking distance. In the street space, an one-point perspective is the main perspective. When people walking in the district, they can find the obvious changes of the street and lane space in size, depth and distance perception. The building in front is close and has large volume; the building in the rear is far away and has small volume. It produces the perceptual change of "big in the front and small in the rear"; the distance between the front and the back forms a deeper "depth of field". The closer the subject is, the shallower the field is. The background in the rear is mysterious and ambiguous. Different distances create different pictures; the effect of "varying sceneries with changing view-points" is more obvious, which leads people to walk toward the rear of streets and alleys.

From the perspective of the horizontal spatial changes of streets, there is a perceptual comparison on the size of buildings on the left and right sides of streets; the big and small buildings always serve as the reference of each other. However, the difference in sizes of buildings is not obvious; their volumes are basically the same. In the gallery space, there is also a perceptible horizontal depth that can be measured; a concave gray space composed of the top interface, bottom interface and external façade is formed when walking from the space without the top interface into the

space with the top interface.

4.2 Cognition of the spatial image of Taikoo Li landscape

4.2.1 Lynch's Image of the City and Spatial Cognitive Map

Cognitive map is the recognition of location information. The environment is identifiable and can form a certain impression on the subject of cognition, while “road, edge, region, node and sign” are the elements of urban image. The road is dominant; the main traffic road is the main traffic characteristic.^[2] By drawing and overlapping the memory sketches of research objects, it was found that pedestrians mainly depicted wider streets with nodes and signs; their memory for narrower roadways was not clear.

4.2.2 Gould Map and the responses to spatial map

On the map of spatial layout, the environmental characteristics are processed based on Gould's evaluation dimension (familiarity, the satisfaction degree, the comfort degree, attractiveness, etc). It is found that areas attracting pedestrians are the public space nodes of the three squares, and street nodes with different architectural styles. People prefer landmark landscapes such as sculptures, fountains, vegetation and the Ziku Tower in the node of the large area. There are also preferences for different architectural styles of street and lane intersections.

4.2.3 Lens Model and spatial imprint

Brunswick believes that the process of perception is similar to a lens. The external environmental stimuli are focused and perceived through perceptual efforts. The long-range stimuli are the sources of input sensory modes; the short-range stimuli are the actual reflection of light projection on the retina.^[3] According to the environmental characteristics of Taikoo Li, the following lens model is constructed (Figure 4). According to this lens model, the environmental characteristics of an entrance of one lane in Taikoo Li are studied. It is found that pedestrians cannot clearly recognize the far-reaching location of the entrance space and the overall function and features of the street. However, by collecting close-range clues to the entrance based on individual experiences, they can see low buildings, spacious grey brick streets, modern sculptures and advertising signs on the street. Buildings at both sides of the streets are not exactly the same. Architectural design here takes the traditional folk houses in western Sichuan as the framework, adopting elements like slant roofs with grey tiles and protruding eaves; but it also integrates modern elements to achieve the simple design. Thus, pedestrians can have a preliminary cognitive impression on the environment through the preliminary connection of the overall style and functions of streets and lanes: it is a low-density, open commercial block that integrates the elegance of traditional folk houses in Western Sichuan with the simple texture of modern materials.

5. Conclusions

Taikoo Li is located in the crack zone between Daci Temple, an ancient Temple scenic spot and the busy area of Chengdu, a central city of Western China. It was transformed from old residential blocks into a developed commercial block. The area combines commercial culture, religion spirit and folk culture. Fast-paced modern life and the spirit of religion collide and intersect here, which determines the diversified styles in the construction of its outdoor landscape space. The study on landscape pattern and the landscape intention of Taikoo Li indicates that, the grid staggered layout of Taikoo Li commercial block presents a crisscross structure of lanes and alleys; most pedestrians memorize images through the spatial sequence of the landscape in Taikoo Li block. Distinctive symbols of sculptures, fountains, vegetation and the Ziku Tower in large squares and public space nodes are the mark points in people's memory; they constitute the impression of the overall outline of this area and the overall impression of the neighborhood environment together with main streets. Plaza space node has strong traffic accessibility, attracting pedestrians and gathering people. The different architectural styles of street cross-sections form a sense of integration of the simple and elegant traditional folk houses in Western Sichuan and the simple texture of modern materials. The

corridor and gallery on the second floor of the building can form a concave gray space. It shows that Taikoo Li is a relatively good open commercial district with multiple functions.

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