

Research on the Landscape Design of Campus Based on the Theory of Environmental affordance: A Case Study of Jinan University in Shenzhen

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Abstract: The academic stage is an important period for the formation of outlook on life, values and world outlook. In recent years, some extreme events caused by college students' mental health problems have occurred frequently, causing social concern. The physical and mental health problems faced by contemporary college students urgently require the campus to provide a better healing environment. Based on the theory of availability, this paper focuses on the interaction between college students and campus landscape environment, and explores the availability of campus landscape environment. Taking the Shenzhen campus of Jinan University as the research object, from the perspective of healing, this paper proposes the renewal design strategy of the research object.

Keywords: Public space; Healing environment; Affordance; Public participation; Big data

1. Environmental availability

In 1977, American psychologist James Jerome Gibson put forward the concept of functional availability, which is the core of the theory of visual perception he supports. Gibson believes that availability is an attribute independent of human objects, but closely related to everyone's ability^[1]. Availability refers to the attributes that the environment can provide to animals, emphasizing the adaptive relationship between the environment and animals. This attribute is not necessarily good or bad. Gibson believes that organisms in the environment can identify the functions provided by the environment, and then produce appropriate behaviors to the environment, that is, "the availability of actions provided by the environment". This corresponding relationship forms the concept of availability. In 1988, Norman, an American cognitive psychologist, introduced the concept of availability. It is recognized that availability can also bring direct effect to design. Norman believed that availability is the perceived and actual attributes of an object, mainly the basic attributes that can determine how an object can be used^[2].

2. Research Scope

The research object is the Shenzhen campus of Jinan University in Shenzhen, Guangdong Province. The campus has about 1500 undergraduate students and only one college, covering a small area of about 4.43 hectares. Although all functions are available and basic living needs can be met, there are few public spaces available for college students' activities in the campus, which leads to great limitations in the forms of activities that college students in the research object can carry out. This puts forward higher requirements for the design of the landscape environment. The current landscape environment cannot meet the outdoor activities and exchanges of college students in the campus. How to improve the comfort of the campus landscape environment and provide a better healing environment for college students' psychology and physiology is the focus of this case study.

3. Renewal design strategy of campus healing landscape based on affordance level classification

3.1 Perceived affordance - add characteristic landscapes and create a five Sense park

College students hope that the perceived supply provided by the campus is more inclined to the guidance of psychology-

cal state and the pursuit of a better living environment. First of all, support the healing needs through greening landscape. The greening environment in the current environment is regular and has basic landscape characteristics, but it can not provide more healing feelings for college students. On the basis of the original, the plant configuration is reasonable to keep the green visibility at the best proportion. Set up a five-sense experience park, starting from the five senses of shape, sound, smell, taste and touch. For example, according to the color and shape of plants, the design of layered plant landscaping, the use of dynamic sound sources to make natural concert halls easy to wind and rain, the selection of plant varieties with pleasant fragrance, the adjustment of the height of the water body to create hydrophilic possibilities, the planting of edible or edible plants, and so on, can stimulate the attitude of college students to face the real natural world. This kind of stimulation on human perception gives full play to the rehabilitation and healing function of the natural environment. Secondly, take ecological nature and artistic freedom as the theme to implement the overall landscape color. Through the color and shape design of the retaining wall facade, public facilities, pavement and other elements in the campus, the user's mood is mobilized, the tension is relieved and soothed, and finally the purpose of promoting people's physical and mental health is achieved.

3.2 Used affordance - develop public space and enhance campus vitality

The current outdoor activity space on the Shenzhen campus of Jinan University is relatively small. The only public space available for students to rest is the lobby of the teaching building. Therefore, it is considered to add some healing public space with both activities and viewing functions. According to the collected ideal environment map, a large number of students desire to have a relatively hidden space in the campus to meet the needs of close friends and other exchanges; Some students are eager to optimize the use of facilities in the current space. And healing is not only individual rehabilitation, but also the mutual assistance of groups, so it is necessary to provide the possibility of healing in different ways in combination with the setting of open space, semi-open space, private space, and other areas and functions with different degrees of openness.

There are three areas in the status quo space that can be optimized and improved. The first is the green space between the dormitory buildings 3 and 4. The current road is broken and the greening is messy, which is basically deserted. Create a public space with artistic atmosphere and an open space with functions of sightseeing, rest and fitness. Build infrastructure in the style of Cyberpunk, or use other exaggerated and avant-garde styles. The goal is to provide students with a good place for short-distance activities around the dormitory building. The second place is the wooden platform next to the teaching building. In the current environment, only one set of tables and chairs can be used, which can carry fewer people. At the same time, because there is no sunshade facilities and there are many mosquitoes, the utilization rate is low. First of all, optimize the activity space, because the space is small and cannot be fully enclosed, and it should remain semi-open. On this basis, we first solve the current situation of the space here. By reshaping the overall structure and stimulating the vitality of the site, we set up landscape structures with sunshade effect here to avoid direct sunlight and improve the utilization rate of the space here by college students. The third is the tree-lined path next to the teaching building. The current situation can only meet the passing function, and the use efficiency is not high. Set up a private space at the turning point of the tree-lined road, arrange more plants and trees around the space and inside the space, select more soundproof materials for the structure, and the lighting design should be relatively dim, create a relaxed and free atmosphere, create an immersive experience, and the healing effect is more durable.

The overall design strategy, first of all, the design of landscape structures in these spaces should be convenient in addition to meeting the visual beauty. On the basis of meeting the needs of users, actively innovate and strive to achieve integration with nature. Through the design and pavement of structures and other landscape elements, the space is reasonably divided, so that the scale and function correspond, and the function and beauty are coordinated. Secondly, make full use of the combination of greening, structures and micro-topography to enrich the vertical changes in the campus.

3.3 Shaped affordance - create a beautiful landscape and improve the happiness index of campus life

The molded availability is difficult to be satisfied in the existing campus space environment. The college students are full of vitality, but according to the survey results, there are not many molded availability in the current environment, which is mainly subject to the current space size of the site. The sculpted availability has a high requirement on the site. The current space scale is small, so we should pay attention to the elaborate and creative design that can mobilize tactile perception in the site. For example, users can change the shape and orientation of public facilities such as seats in the park according to their needs, and complete the posture of sitting, lying down, chair leaning, etc. The contact with landscape elements in different

areas and different ways can obtain multiple tactile experience, and achieve the molded availability. Secondly, through environmental elements such as ground pavement, micro-topography and micro-climate changes, and landscape sketches, create some activity space with strong sense of atmosphere and interest to increase the richness of space to create more experience. For example, feel the texture change of the surface of different landscape elements through the change of ground pavement and micro-topography elevation difference, so as to achieve the purpose of decompression; Relying on the change of microclimate, for example, college students can walk freely in the corridor, listen to the sound of rain, watch the rain coming from the sky, and follow the natural dance in the "music" created by the sound of rain, which provides the possibility of shaping. Provide a good physical and psychological experience environment for people in this environment, and strengthen the landscape healing effect.

References

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