

Experience——The Research Of Landscape Space Design Based On The Environmental Behavior-Studies

NanNan^{a*}, Pin Liu^b, Zhen Teng^c and PeiGen Li^d

Xuzhou Institute of Technology, XuZhou, JiangSu, China

^a24850282@qq.com, ^b2568667672@qq.com, ^c438911007@qq.com, ^d1321377109@qq.com

*Corresponding author

Keywords: Experience; Environment-Behavior Studies; Humanized Design

Abstract: In this article, through the relevant theories of environment-behavior studies, it begins with the level of spatial experience, based on the Behavior Patterns and Humanistic landscape design, try to explore the city landscape space design strategy with human caring over sight experience and emotional memory experience

As the aesthetic consciousness of landscape design has shifted from the aesthetic and aesthetic feeling of the image to the space experience and emotional care of the human subject, Sustainability has become a high frequency word and has attracted much attention. But do we really understand the meaning of sustainability? What should we do in solving a design problem? Even with good ideas, how can we grasp the lasting relationship between tourists' emotions and landscape Spaces?

1. Environment-Behavior Studies

Environmental behavior is also called environmental psychology^[1], but it seems to be narrower than the research scope of environmental psychology. As a part of psychology, it emerged in the 1960s, and psychology has a history of more than 100 years. It is rooted in part of the basic theory of psychology, and pays more attention to the relationship between the environment and the explicit behavior of people, that is, the relationship between human behavior and the city, architecture and environment, so it has a stronger application in guiding the design of urban garden space.

Any behavior is produced in a certain material environment, which more or less has a certain influence on behavior^[2]. People's behavior in the environment has a certain purpose, and attention in the environment is directly related to people's behavior motivation. For example, the attention and behavior patterns of nearby residents and tourists may be completely different. For the natural environment, people can adjust their behavior patterns to adapt to the environment, but for the material environment created by thinking in the garden space, if it is not appropriate, people first consider changing the place of activity. Therefore, if the same behavior pattern of people is repeated Appearing in the same place also proves that the place must have factors that conform to people's behavior, that is, a successful garden space.

In 1912, the German psychologist Theodor Lipps^[3-5] put forward a theory that the appreciation of works of art depends on the observer's thinking that his own personality is added to the works of art, that is, he feels that he is invested in objects. . Lips calls this process of human brain analysis "empathy". From the perspective of garden landscape design, Chinese classical gardens have effectively completed the task of conveying emotion, that is, the creation of artistic conception.

Since people and the environment are in an interpenetrating system, space design should continuously meet the changing needs of this system. It is a dynamic evolution process. The designer is not only involved in the birth of a landscape plan, but should penetrate the entire process of change. So the designer should pay more attention to the time element, and make it clear that he is not only a landscape designer, but also a predictor of time. A successful spatial relationship is like a successful lover relationship, which will transition from the honeymoon period as time progresses. When it comes to the calm period, you will enter the emotional attachment.

2. Analysis of garden space based on behavior mode

According to the research of environmental behavior, people's perception of garden space is centered on themselves, through elements that have continuous qualities such as terrain, ground paving, and plant outlines, as a prerequisite to support perception, build a sense of space. , Garden space design is a combination of multiple modes, each mode is a combination of space mode and behavior mode. Environmental space is not simply a container for behavior, but also an inseparable part of behavior mode. Therefore, the theory of environmental behavior has a strong guiding role in the organization of garden space.

2.1 Behaviour mode and path

In the process of people's perception of garden space, accessibility is the most basic tourist requirement. Therefore, the design of road space, as a basic design element and structural frame, bears the role of organic combination and organization of traffic among various regions. The crossing is accompanied by visitors' experience of the garden space, and the designer's intention is to organize and unfold along the road. Therefore, an in-depth grasp of human behavior patterns can not only ensure the realization of road accessibility, but also improve the quality of the landscape and people's tour experience in terms of scale, color and form.

2.2 Detail space and experience

The rich garden space is an organic combination of various design elements such as terrain, roads, plants, water bodies, and architectural sketches. The communication of many design languages is often accomplished through detailed and characteristic garden spatial landscapes, such as small slope landscapes, Flexible resting spaces, vivid life scene sculptures, finely cut paving or carefully trimmed modeling plants, these detailed spaces and landscape details design convey a certain emotion and can resonate with visitors. However, when designing garden space, designers usually focus on large-scale landscape space and large-scale event space design, while neglecting the main activities of people in outdoor spaces such as chatting and walking.

2.3 Landscape Space of Emotional Mapping

As the famous German philosopher and founder of existential philosophy, Heidegger's "existence" view expressed, the "non-objective" way of thinking enters the "operational meaning" of "object". Therefore, a series of experiences of users in the garden landscape can be regarded as real existence. The garden space is not an isolated object of artistic appreciation. It should be the purposeful form that visitors feel the spatial sequence and landscape objects through the sensory system, forming the initial landscape concept and perceptual aesthetics, and then through the deep processing of the physiological senses, that is, vision and hearing. Sense of smell, sense of touch, etc. are the aesthetic basis, combined with experience and landscape experience, to rise to the aesthetic appearance, through reflection to judge the dual identity of spirit and emotion, and finally reach the emotional commonality with the landscape space and the designer as shown in Figure 2.1. In the process of emotional communication between visitors and space, certain spaces can inspire strong positive emotions, such as love, attachment and happiness, and memories.

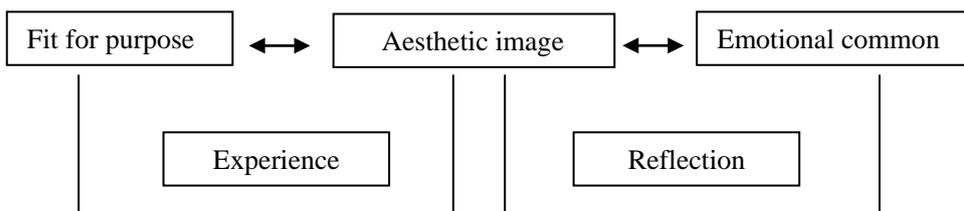


Figure 2.1 The sequence relationship between space and emotion

3. Instance of landscape design

Regarding the spatial layout, the Capeland couple^[6] told us that people like landscapes that they can understand and can blend into. In terms of content and spatial layout, people's response to the landscape is natural, usually without a lot of conscious thinking. People's behavior patterns in the public environment can be basically divided into four types: walking mode, staying mode, resting mode, and entertainment mode. From the perspective of environmental behavior, these four behavior modes are analyzed and the garden space is refined. They can basically be divided into two types. : Visual experience space and emotional experience space.

3.1 Visual experience space

People's movement in the environment is accompanied by visual experience. In the past, the design of garden space focused more on functionality and neglected people's visual experience. People's perception of environmental information is 80% derived from visual experience and visual space experience. Mainly relying on the boundary, the visual experience space not only affects people's overall evaluation of the garden landscape, but also more importantly affects people's spatial feelings and walking routes.

For example, two roads with basically the same width are set at the entrance plaza of the park. Most visitors will choose the road with wider road width and better view, or the road with clearer and clearer view ahead, or from other tourists. According to the study of environmental behavior, when people enter an unfamiliar environment, they first initiate empirical cognition, which is similar to perceptual stereotypes, that is, the way of behavior is determined based on line of sight analysis and empirical analysis, so scale, color, and vision Suggestions and sounds will guide people's walking routes very well.



Figure F3.1 Entrance to a park

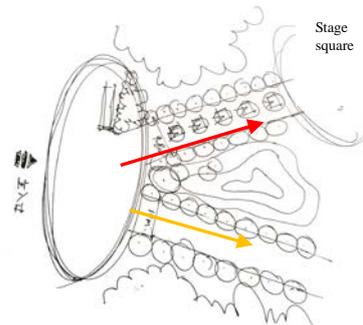


Figure 3.2 Sketch of a park entrance

As shown above, the two roads at a certain main entrance have basically the same scale according to the line of sight analysis, but according to the survey, most tourists choose the red arrow road, because the zodiac sculpture at the stage square at the end of the road is very attractive to tourists, and the stage The sound of music in the square and the sound of people's activities also played a role in guiding the tour. For nearby residents, it is possible to choose the yellow road, because the yellow arrow road is the original main passage of the park, and according to the way of thinking, many residents still think that this is the widest road, so everyone will follow their habits to choose the route.

Similarly, at the intersection of roads, local space enlargement is often carried out or iconic flower beds, landscape sketches, special road paving, etc. are set up. This can not only be used as a walking mark for tourists, but also has a certain degree of next tour route. Psychological hints, because intersections are often the transition of two different spaces, visitors will unconsciously look for landscape hints at intersections, such as characteristic plant designs or wider roads, or eye-catching sketches and sign systems. There is also the impact of sound on people.

3.2 Emotional experience space

People's demand for environmental space includes both material and spiritual aspects. The designer's thinking can be realized through design, turning the plan into a real landscape. Similarly, in the garden space, people's perception of the spatial environment is not limited to three-dimensional space. It is a four-dimensional space accompanied by emotional experience. At the same time, people's memory of space is also changing with the migration of time. Then how to construct people's emotional space in the design of garden space has become the focus of design. The primary condition for landscape space to resonate with human emotions is to understand human needs.

According to American Donald, a cognitive psychologist and industrial designer. A . Norman's research^[7-10], based on people's objective experience, divides emotions into three progressive cognitive methods: instinct level, behavior level, and reflection level. This classification method also conforms to the analytical method of phenomenological philosophy, and is a progressive relationship on the cognitive level. This has the same characteristics as the study of Maslow's hierarchy theory, that is, in the development of human beings, the needs of lower levels must be properly met before the needs of the latter higher level fully emerge. Each low-level need does not necessarily have to be fully satisfied, the higher-level needs only appear, it is more like a wave-like evolution.

Connecting this hierarchy of needs theory to the garden space design, after satisfying the basic physiological and safety needs, people began to have emotional needs such as love, respect, and self-realization. Space has a strong guiding effect on people's emotional experience. In the environmental design, try to create a space for people to communicate with each other to make people feel cared and respected.

3.2.1 Emotional experience space

People have three characteristic requirements for space: territoriality (security), publicity and privacy. Among them, publicity and privacy are the basic needs of people. The gathering places of all garden spaces are the balance of contradictions between the two. Embodiment.

People need not only privacy, but also contact and communication with others. Indifference and excessive contact are equally destructive. According to C. Alexander (Christopher Alexander) in the book "A Pattern Language" on the distance of the spatial pattern people are willing to stay, people are more willing to start activities from the edge of the square, which is not only a manifestation of human behavior patterns, It also reflects people's need for safety and privacy, which urges us to create "corner space" and "edge space" as much as possible in the design, such as curved flower beds, use of corners to set tree pool benches or set along the edges of the space Rest facilities, etc., and people's needs for emotional communication and activities require the design of large functional spaces to meet. Large functional spaces should not create too many enclosed spaces. The design of enclosed spaces is usually realized by plants and architectural sketches. This will undoubtedly attract more people to gather and stay, which will not only affect the transparency of sight, but also affect the function of large spaces.

Take the design of a stage plaza in a park as an example, as shown in Figure 3.3. As a plaza space for activities, it not only needs activity space, but also considers the design of appreciation space and walking space. People are sometimes willing to observe and pay attention to others, but are watched by the public. You will feel uneasy^[4], using the design of trees or architectural sketches to create "edge space", which not only creates a stopping space to stay, but also provides a space for appreciation with a better sight; people are likely to appreciate other people's activities Will be attracted and become part of the activity, so the effective way to reach the activity area from the edge of the square is the walking space.



Figure3.4 Zodiac sculpture in a park square

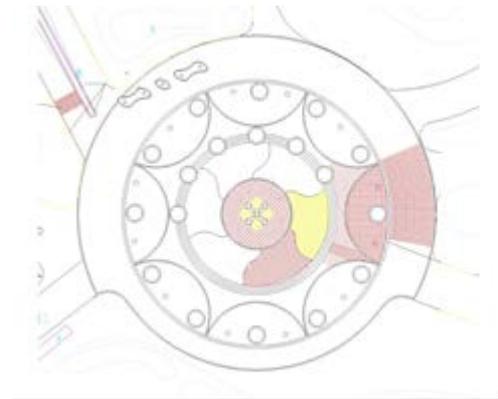


Figure3.5 Plane Sketch of Zodiac Square

Around the stage square are bronze sculptures of the Chinese zodiac and the circular tree pond create a rich and interesting "edge space" and appreciation space. At the same time, a 9m walking space is reserved between the raised stage and the zodiac sculptures to ensure that visitors can enjoy The bronze sculptures and stage activities do not affect the crossing activities of other visitors; and the distance between each bronze sculpture is 12m, and visitors spontaneously form a small activity group centered on the bronze sculpture. The 12m distance ensures the privacy of each small group. The layout of the space ensures the centripetality of the space, so that the sight of visitors can be effectively concentrated on the stage space without drifting away.

3.2.2 Memory space

The most intuitive material manifestation of memory space is the cognitive map, which is the response of spatial environmental information in the human brain ^[5]. It was originally applied to the "path finding problem" and "addressing problem" in psychology. In recent years It is also widely used in learning and memory research. The study of cognitive maps in the field of urban planning began with Kevin Lynch's research on urban morphology. According to Lynch's research on urban imagery, the image sketches drawn by most people emphasize the road and what they see as they move along the road. The sequence of objects indicates that the spatial sequence of urban road systems and node landscapes (squares, road intersections, etc.) have a great impact on people's spatial cognition.

As an important element of people's description of urban form, garden space can also be simply evaluated with the help of cognitive map research methods, which has important practical significance for the design, construction and improvement of garden landscapes.

This study conducted a questionnaire study on the campus environment of a university, and the drawing of cognitive sketches, and contacted the specific drawing process of the students. It can be found that more than 80% of the students are aware of the location, function and main landscape of the main roads and buildings on the campus. The layout of the campus is relatively clear, but about 60% of the students do not know the names of the roads and squares; there is no particularly unified conclusion about the central landscape of the campus, and there are big differences between the faculty and students, which is also one of the campus landscape design Highlight the problem; at the same time, there is also an interesting phenomenon. The outdoor space with the most beautiful campus landscape, the best environment, and the most complete facilities is recognized by students as the least places they go, because there is a lack of intersection between these scenic spots and the normal walking routes. Therefore, in the process of drawing cognitive sketches, most students did not clearly depict detailed landscapes such as sculpture, paving, and garden architecture.



Perform statistical analysis on the cognitive maps of different individuals, use percentages to indicate the appearance rates of all personal cognitive maps of different elements, and combine the legends to draw a plan that reflects the statistical results to obtain a "public cognitive map".

Figure3. 1public cognitive map

Through the analysis of the results of cognitive maps and questionnaires, it can be seen that with the migration of time, people’s perception of the landscape will gradually change, and the cognitive model will appear mixed and fluid, whether it is a road space or a small garden space, all important links that constitute a complete tour experience. The clear road space layout plays an important role in the overall perception of the landscape. At the same time, the rich and unique small garden space design will leave a deep impression on people, but to increase the depth and level of experience requires careful arrangement of buildings, roads and landscape nodes and overall control of the walking flow.

Conclusion

Focusing on experience makes the construction of garden space based on a full understanding of people's environmental behavior and emotional needs, and comprehensively constitutes the elements of the space. Paying attention to experience requires the integration of all aspects in the process of garden design: first, the combination of landscape and emotion can produce a special and unforgettable experience; second, not only focusing on the material level of landscape design, but also from people Starting from the spiritual needs of, to achieve the combination of spiritual level and landscape level; third, the combination of different levels of needs, including the landscape needs of adults, the elderly, and children.

In general, there are still many areas for further study and research due to the creativeness and emotional uncertainty of space design for emotional sustainability. Therefore, it must maintain an open attitude to new possibilities and deeply resonate with the viewer's understanding of the value of the design space.

Funding

The Research project of Xuzhou University of Technology (Nos: XKY2017236, XKY2019222), the Science and technology Project of Jiangsu Construction System (Nos: 2019ZD001297, 2019ZD001139)

References

[1].Li D.Z., Introduction to Environmental Behavior[M], Tsinghua University Press, 1999
 [2].Li B. Environmental Behavior Theory of Environmental Behavior and Its Extension[J], Architecture Journal, 2008.2
 [3]. Theodor Lipps, Empathy, Inner Imitation,and Sense-Feelings, A Modern Book of Esthetics, trans Max Schertel and Melvin Rsdar,fifth Edition New York:Holt Rinehart and Winston, Inc, 1979.

- [4].Albert J. Rutledge Public Behavior and Park Design [M] China Architecture Industry Press, 1990
- [5].Dai F., Zhang J.H. Survey Method 5 in Planning and Design——Cognitive Map Method[J] Chinese Landscape Architecture, 2009
- [6].Kaplan R., Kaplan S. The Experience of Nature [M]. Cambridge: Cambridge University press, 1989B:340
- [7].Donald A. N. Design Psychology 3—Emotional Design[M]. CITIC Publishing Group, 2015.
- [8].Sasaki Associates, ORO. Sasaki Intersection and Convergence. Gordon GoffPublisher, 2009:124
- [9].Bridget Vranckx. Modern Architecture in the Garden. LOFT Publications, 2009:8-100
- [10]. Christopher T. Three garden by Tophher Delaney refresh the body while allowing the spirit to soar, House & Garden, 2004 (4):178