

Study on the Strategy of Creating Spatial Vitality in the Water System of Sanhe Ancient Town

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Abstract

With the development of urbanization in China, the harmonious coexistence of human and nature has become a topic of contemporary research. The ancient town, as a hub connecting the countryside and the city, has an important position in the urban structure. At the early stage of ancient town construction, the relationship between the site selection and the distribution of the water system is taken into consideration, and the water system is also one of the key points in the spatial composition of the ancient town. By analyzing the relationship between the ancient town of Sanhe and the water system, deciphering its connection with social history and culture, elucidating the ecological wisdom in its creation principles, and actively exploring its relationship with human settlement and ecological principles since ancient times, we provide references and lessons for the development of contemporary towns and the construction of human settlement in harmony with nature.

Keywords

Three Rivers Ancient Town; Ecology; Water Landscape; Vitality.

1. Introduction

Sanhe Ancient Town is an ancient water town with more than 2,500 years, historically known as "quezhu", a national civilized village and town, a famous Chinese historical and cultural town, a key town in national small town construction, the best tourist township in Anhui Province, a town with beautiful environment in Anhui Province, and one of the "New Ten Scenes" in Hefei City.

Water system space as an ancient town in the most beautiful scenery, can best reflect the regional characteristics of the ancient town area. Water is the source of life and soul of the body, is the fundamental of the residents' life and production, three river ancient town water system landscape space is not a simple superposition of single elements, but make full use of the natural geographical conditions, take advantage of the situation, the layout of the group organically combined to achieve a balanced development and continuation of the landscape environment, the harmonious and unified order of life gradually evolved into the ancient village landscape generation and development of the law. According to social psychologists, domainality emphasizes the essential changes made by human sociality to the use and state of space, and shows obvious hierarchy, forming private space - semi-private space - semi-public space -- public space sequence.

2. Literature Review

Peng Yao and Xu Feng in "Study on the Spatial Structure of Chengdu Ancient Towns Tourism under the Natural Landscape Pattern" classify Chengdu ancient towns into plain, river and landscape types according to the characteristics of natural landscape pattern, from which

Anren, Pingle and Wufeng towns are selected as research objects. From the field research and map data, the spatial scope of tourism in the town area is identified; the quantitative method is used to conclude that the natural landscape pattern plays a significant role in the formation of tourism space in ancient towns; the division of historical relics, development and construction and functional reconstruction space is conducive to the protection and construction of ancient towns; the centrifugal, network and centripetal patterns of ancient towns present different planning points[1]. Fu Liting and Sun Leilei in the "study of the water system landscape space form based on behavior analysis of the Lingtang Bay section of the ancient town of Sanhe" proposed that the design of space should all be people-oriented, to meet the functional needs of people for places, in the process of mutual influence of the water system space of the ancient town and human behavior in these spaces, the protection of the water system landscape space of the ancient town should be based on the analysis of the behavior subject and behavior pattern, pay attention to the relationship between people and the environment, the spatial form of the ancient town water system is inherited and protected.[2] Burns, et al. The investigation of the traditional ancient town of Culellar in the interior of Spain shows that the government's guidance on the development of emerging tourist sites and tourist activities is conducive to the sustainable development of traditional ancient town tourism.

3. The Association between the Spatial Behavior Pattern and the Spatial Environment of the Water System in Sanhe Ancient Town

Three rivers ancient town along the river market is mostly located in the center of the town, along the river development, generally parallel to the river and built on both sides of the river, is a unique form of street water town, the typical linear space in the growth of ancient towns because of the convenience of transportation and commercial advantages and has a unique advantage, also known as the "water street". Three rivers in the ancient town of the river street is mostly built parallel to the river extension, parallel to the land and water, long and narrow, along the river on both sides of the building to commercial functions, such as grocery stores, teahouses, inns, etc.. Such a river street, to meet the traffic, trade and interaction of people's multiple needs, the formation of a parallel space with the river, the proportion of this space is in the long-term historical evolution of the shape. There is a difference with the ordinary commercial street, which does not depend on the river. There are also streets along the river that are distinguished from the markets along the river, which are also externally oriented, but are mainly lifestyle-oriented and smaller in scale compared to the markets along the river. In general, there are stores on both sides of the river street, bridge plazas with crowd gathering and dispersal where the river street is connected to a bridge, and waterfront plazas where the river street is wide, and these spaces meet a variety of behavioral needs such as transportation, trade and interaction, and scenic views. [3]

On the one hand, the spatial behavior pattern and the spatial environment of the water system of Sanhe ancient town have a close connection with each other and dynamic development: on the one hand, the spatial environment of the water system of Sanhe is built by the actors according to their life experience and life needs, and its formation and development are also closely related to people's living style, behavior, activity content, interaction pattern, consumption behavior and local cultural heritage, social life and other aspects. Reflecting the psychological activities and behavioral requirements of people, the degree of utilization of space by users also reflects the level of vitality of the space. On the other hand, the update and iteration of the material space form of the landscape environment of the three rivers will in turn affect the psychological behavior of people and lead to the adjustment and change of the path of behavioral activities, the environment through the perception of human subtle change of human psychological patterns and behavior. Based on a variety of needs, the behavior of the

subject also constantly on the water system landscape space environment transformation, so that it is more suitable for their own habits, aesthetics and customs and culture. It can be said that the ancient town water system landscape space environment is a complex behavior under the role of the complex, the analysis of the ancient town water system landscape space form and other aspects can explore its interaction with human psychology, behavior. In addition, the analysis and study of the behavior pattern and spatial correlation of the landscape space of Sanhe ancient town also found the limitations of its spatial vitality: firstly, the unbalanced behavior intensity of the local space distribution and the unreasonable behavior subjects lead to the impact of the nature and function of the space, such as the daily space of local residents or work space occupied by tourists. In addition, there is a phenomenon of underutilization of some waterfront spaces, and a small number of spatial form elements are not valued and left unused or placed with miscellaneous objects, resulting in a waste of space.

4. Analysis of the Spatial Vitality of the Water System in the Ancient Town of Sanhe

In recent years, the study of spatial vitality has gradually become hot, and the perception of spatial vitality has gradually become unified, and more and more people in the academic field have started to accept the "duality" of vitality, that is, urban spatial vitality can be understood as a kind of spatial activity influenced by spatial morphology[4]. It can be understood that spatial vitality is a kind of isomorphism that combines the background of social activities and spatial characteristics, and can be measured by the morphological characteristics of space and the intensity of activities of actors. [5]The analysis of the spatial vitality of the water system of Sanhe ancient town includes: spatial coordination, spatial diversity and spatial publicness to analyze the vitality of the water system landscape space of Sanhe ancient town.

4.1. Spatial Coherence

The town layout, spatial scale, architectural style and detailed decoration of the ancient town have a great unity, people walking through a variety of imagery together constitute the "Jiangnan water town" this imagery, the usual spatial construction means and formal processing techniques caused the similarity of space form vitality. The coordination of spatial appearance is the prerequisite for the creation of spatial vitality, which is reflected in the similarity and unity of spatial form, spatial sequence and façade, etc. A well-coordinated space often has a pleasant scale of comfort and a high degree of support for activities.

Coordination contains both physiological and psychological aspects of comfort, reflecting the requirements of human-centered design, from the physiological aspect, the coordination of space scale affects the evaluation of the comfort of the space by the actor subject, thus affecting the frequency of use of the space and the vitality of the space benefit, people as the actor subject of public space, the scale of space should also be consistent with in the landscape space of the ancient town water system, people are the subject of all public activities. The scale of the market along the river should also be adapted to the human scale and basic physiological perception, with full respect for people, so that space humanization; from the psychological aspect, the spatial scale and its place characteristics such as the ancient town's river street interface, scale and proportion, rhythm and rhyme are affecting the human spatial experience and spatial aesthetics, thus affecting the shaping of space. [6]Although the ancient town has a good sense of order and regularity, presenting a high degree of unity of the elements of spatial form composition, but each region also needs to have its own characteristics, in the important spatial nodes with a unique form or the use of spatial enclosure method makes the space of the shape, pattern and connection has greater potential, so that the space has differentiation and identity.

4.2. Spatial Diversity

First of all, the diversity of spatial activities is reflected in whether the activity function is complete. Behavioral activities can also be classified due to their multi-functional nature, and the types of behavior in Sanhe Ancient Town can be classified under its functional differences: (1) commercial activities: commercial shopping is an important part of the multiple activities of the actors in Sanhe Ancient Town, which generally occurs in the main commercial streets on both sides of the street and at the entrance of the ancient town. (2) Cultural activities: There are many cultural public buildings in Sanhe Ancient Town, including museums, antique museums, art galleries, etc. Cultural activities regarding visits, exhibitions, and exchanges occur. (3) residential activities: is also the main activities occurring in the ancient town, mainly residential activities of residents, according to the survey of tourists will be about 35% will live in the town to stay overnight. (4) recreational activities: three river town has good natural ecological conditions, recreational activities mostly in the waterfront, to the river street in the waterfront pavilion space and the entrance square of the small garden. (5) sports activities: sports activities can occur at any time, the town's sports activities are mainly based on the exercise activities of the town's residents, mainly in the leisure and cultural square at the entrance of the ancient town.

Secondly, the diversity of spatial activities is reflected in whether the scale of activities is diversified. According to the scale of activities can be divided into four categories: (1) individual activities: single person behavior activities, less purposeful, mostly passing, walking, often using public space for a short break, favoring the space of better privacy, less susceptible to outside interference, shorter stay. (2) Group activity: It is manifested as groups of people carrying out activities in public space, such as taking photos, shopping in pairs, etc., with stronger purpose and relatively longer duration, favoring public space with higher support and better view. (3) group activities: manifested as purposeful and organized mass gatherings, such activities require a large area with a wide field of view and easy access to open space, relatively long duration of use, such as celebrations, commemorations and other activities, mostly occurring in the leisure and cultural square at the entrance of the ancient town. (4) activities of special people: Such users usually use the water system landscape public space as a working residence, a place for them, such as selling, sketching, etc.

4.3. Spatial Publicity

The primary and basic characteristic of public space is publicness, and the publicness of the space studied here is more public in the water system landscape space, as the most beautiful scenery in an ancient town, the most reflective of the regional characteristics of the ancient town area, the primary principle in planning is to ensure the sharing of the water system space, that is, openness and publicness. In the analysis and evaluation of the public space, we can start from the spatial location, spatial scale, spatial accessibility, spatial form and the current situation of the use of space. As an established water township, Sanhe is relatively short of building land, so the public space of the water system should be paid more attention to and protected, and the principle of publicness is also reflected in the continuity of the river walkway, i.e. the street along the river, in the water system landscape space of Sanhe ancient town.[7]

5. Optimization Strategy for Creating Water System Landscape Space Vitality in Sanhe Ancient Town

Through the analysis, we can see that the overall vitality of the water landscape space of Sanhe ancient town is good, but the local space lacks vitality due to single, lack of function or low accessibility, which lowers the vitality of the overall space, how to improve the vitality of these spaces to prevent the continued decay or decline of these spaces, how to meet the needs of

foreign tourists behavior vitality at the same time to improve the daily vitality of local residents, we need to from "Therefore, this chapter proposes a conceptual optimization design and renewal concept for the areas with serious lack of vitality in the previous chapter, and proposes a practical optimization strategy for the sustainable development of spatial vitality creation.[8]

5.1. Strengthen the Sense of Spatial Direction

Establish a complete walking space sequence and hierarchy. The establishment of spatial sequences can establish a unified spatial order for different activities, and can also achieve specific purposes through different spatial form changes, and trigger more spatial experiences through the perception of order and hierarchy by the actors (including local residents and foreign tourists), enhancing the regional space The attractiveness of the place. The weak walkability of the local space of Sanhe Ancient Town, the existence of cut-off roads and the lack of guidance directly affect the satisfaction of foreign tourists and the convenience of local residents, so we should sort out and improve the signage guidance system. [9]In addition, the three ancient river town water system landscape space in the northernmost east-west direction of the oil car port on both sides of the river street space vitality is very low, because of its relatively remote location, relatively poor scenery, less ancient buildings, less green, but more quiet, can be based on this feature to build a green-based leisure walkway, pay attention to the greening design on both sides of the river bank, through the plant to create a green channel, so that space and function, landscape and aesthetics have become It provides an ecological recreation trail space for local residents, and also establishes a more energetic green space intention of Jiangnan water village for foreign visitors, thus realizing a harmonious integration between people and space and creating a new vitality of lost space.

5.2. Strengthen the Sense of Spatial Identity

Space identity is a kind of recognition of space by the actor subject, is a kind of emotion after the space environment to meet the psychological needs of human behavior. [10]Place more emphasis on space, the spiritual connotation behind the form, the construction of people and the ancient town of the water landscape space system, in addition to strengthening the sense of space direction, but also to strengthen the user's sense of identity of space[11] , including cultural and functional identity, improve the user's sense of identity of the ancient town water landscape space, guide the actor (local residents and foreign tourists) to recognize the function of the water landscape space. To enhance the sense of spatial identity is ultimately based on the recognition of spatial functions by the actors, the water system landscape space of Sanhe ancient town in the process of evolution over time, how to integrate the needs of modern users with the traditional characteristics of space, moderate inheritance and innovation of historical culture is particularly important for the creation of the vitality of its waterfront public space, so for the spatial function of the confusion of the area to optimize, such as resting pavilions become Therefore, the optimization of areas with confusing spatial functions, such as the resting pavilion becoming a parking place, and the lack of activity space due to the daily activity space occupied by tourists, should be taken into consideration when optimizing, and the renovation and utilization of historical relics and the construction of public space can be well combined to enhance the vitality of the original space and increase the number of public spaces in the ancient town, and make it continue the urban culture and promote functional public space with cultural vitality.

5.3. Enrich the Diversity of Water System Landscape Space and Stimulate Spatial Vitality

Organization of a variety of mixed functions of the water system landscape space to create a functional water system landscape space can be involved: according to the different functions of the space can be divided into the water system landscape space for sightseeing space, rest

space, interaction space, activity space, etc., function in the restoration and development of the ancient town water system is the inherent requirements of its vitality, whether the functional positioning has characteristics, whether the functional configuration is perfect, whether the functional layout is appropriate to the local conditions will directly affect the overall vitality of the ancient town water system landscape space, in the face of the functional arrangement of space, first of all, we must combine the existing resources according to local conditions, fully consider the different audiences that pay attention to the differentiation of the layout of each space, to meet the social needs and economic needs to go down to organize a variety of mixed functions of the water system landscape space, combined with the distance from the water, internal space characteristics, surrounding environmental characteristics, etc., the spatial form, facility configuration, interface form, etc. to make a diverse layout. Interface form and so on to make diversified layout, in order to meet the needs of different resident population.

5.4. Improve Traffic Design and Increase Spatial Accessibility

The accessibility of space is one of the main principles for evaluating the vitality of space, only a good accessibility of space can be used quickly and easily by the actors, and the space has the opportunity to trigger a deeper level of communication and more behavioral vitality. The number of entrances and exits is closely related. Generally speaking, most of the spaces with good accessibility will be accompanied by good physical space elements and attract more people to go there, while spaces with poor physical environment are difficult to enhance the behavior of the subject and have low accessibility, so we need to enhance the accessibility of the subject's behavior through the beautification of its physical environment. Another situation is that the accessibility of the space itself is weak due to poor road access, such as cut-off roads or remote areas without space signs, etc. In this case, we can improve the accessibility of the space by optimizing the road space system and increasing space guidance signs. In addition, the walking distance also affects the behavior ability of the subject, usually for most people, 500m is a relatively acceptable behavior distance, if the walking distance is too long, it is easy to make people tired, too short, it is difficult to mobilize the behavior of the subject's enthusiasm, which helps to enhance the behavior accessibility of the subject.[12]

6. Conclusion

The water space of the ancient town is the key field and spatial prototype for experiencing the regional culture and characteristics of Jiangnan water town, while the behavioral activities of the spatial subjects are important and basic factors in constructing the human values and human characteristics of the water landscape space, both of which share the spatial vitality of the ancient town. However, the rapid development of urbanization and globalization as well as the rapid development of tourism economy in ancient towns has brought many problems to the protection and renewal of water landscape space in Sanhe ancient town and other ancient towns in Jiangnan. From the perspective of vitality creation, this paper explores the characterization and influencing factors of spatial vitality, conducts an in-depth study on the spatial vitality of the water system landscape of Sanhe ancient town, and finally proposes relevant optimization strategies for the creation of spatial vitality of the water system landscape of the ancient town.

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