

Improvement of the Vitality of Public Space under the Background of Urban Renewal

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Abstract As an indispensable part of urban development, urban renewal plays an important role in terms of promoting urban society, economy, culture, etc., and has a profound impact on the sustainable development of cities and the happiness index of residents. Public space, as an important part of a city, plays a more critical role in urban renewal. The vitality of public space not only reflects the degree of urban cultural inheritance, but also shows the level of urban economic development, so it is an important issue that must be paid attention to in urban renewal work. In this paper, starting from the concept of urban renewal, public space and vitality, the influencing factors and methods of studying the vitality of public space under the background of urban renewal, as well as its advantages and limitations, were discussed, and some strategies for enhancing the vitality of public space under the background of urban renewal were finally put forward. It is expected to provide some reference and practical significance for the research and practice of urban renewal and the enhancement of the vitality of public space.

Keywords Urban renewal, Public space, Enhancement of vitality, Strategy

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With the acceleration of the urbanization process and the continuous existence of old urban districts and old industrial zones, urban renewal has gradually become an important measure to improve the quality of cities and social living standards. As an important content of urban renewal and an academic research hotspot, public space plays an important role in the social, cultural and economic development of cities. The vitality of urban space is an important way to enhance the enthusiasm of residents inside cities, and can promote the improvement of urban public space and inject new vitality into the sustainable development of cities. Therefore, in the context of urban renewal, how to improve the sustainable development of urban public space has become an urgent problem to be solved in the current urban renewal work. In this paper, the components, influencing factors and promotion strategies of the vitality of public space under the background of urban renewal are discussed to provide reference for the vitality of urban public space.

1 Definition of concepts related to the vitality of public space

1.1 Urban renewal

The concept of “urban renewal” was first proposed by the American Eisenhower, and included in the housing regulations of the United States in 1954, with the main purpose of rebuilding the houses in the decaying areas and the slums in cities during the urban expansion. Yu Jin believed that the content of urban renewal is not limited to the renovation of buildings, but

also needs to pay attention to the renovation and continuation of various ecological environment, spatial environment, cultural environment, visual environment and entertainment environment^[1]. In *Urban Renewal in Western Europe*, Yang Jianqiang proposed that urban renewal is a long-term and complex systematic project, and believed that the core goal of urban renewal is to prevent the occurrence of urban decay and revive the vitality of cities^[2]. In order to achieve this goal, it is needed to adopt a variety of means during urban renewal, such as adjusting urban functional structure, improving urban physical environment, and updating urban infrastructure. In urban renewal, continuous renewal and development are necessary to meet the needs of economic and social development. Urban renewal has a wide and far-reaching impact on the society, economy, culture and environment of cities, and is one of the important ways to promote urban development and improve the quality of life of residents.

1.2 Public space

The general public space pays the most attention to the people who enter the space and their activities in the public space^[3]. The research object is the public space in the narrow sense, and it mainly refers to the outdoor space used by the users in their daily life and social communication. The space is often characterized by openness, sharing and interaction. It includes parks, squares, streets, residential green spaces, intermediary space, etc^[3]. Public space includes but is not limited to outdoor space (such as parks, children’s playgrounds and sports fields),

places of entertainment (such as business districts, shopping centers and bars), cultural and educational facilities (such as public libraries, schools and universities), urban infrastructure (such as roads, sidewalks, plazas and municipal facilities), electronic space (namely virtual space provided by television, radio, newspapers, and other media organizations), and virtual space like social media and the Internet. The above public space promotes the development of social connections and cultural exchanges, and play an important role in the social and economic development of cities. The main function of public space is to provide a place for urban residents to carry out cultural, entertainment, leisure and other activities, and it is also an important place for urban social life and economic activities. The quality and functional level of public space are directly related to the quality of life of urban residents and the economic development of cities.

1.3 Vitality

In the *Dictionary of Contemporary Chinese Neologisms*, the word “vitality” refers to the vigorous life force of things and their ability to maintain survival and development^[4]. In the book *Good City Form*, Kevin Lynch believes that a good city form should contain vitality and diversity^[5]. These two qualities are key building blocks for urban development, and can promote innovation and inclusiveness of cities, creating better and more beautiful communities and living spaces in cities. Jane Jacobs believes that it is the interaction and activity between people that creates vitality through diversity^[6]. Public

space provides users with a variety of activity opportunities, so that it has certain vitality. Therefore, it shows a higher level of vitality compared with other public space, which is also the connotation of vitality. People are the users of public space and the core of space. The ultimate standard to measure the quality of public space is always people's personal feelings in public space^[7]. To sum up, when considering the definition of public space is considered, the concept of the vitality of public space can be expressed as follows: public space can meet people's diverse life and spiritual needs. This concept not only emphasizes the diversity and flexibility of a place itself, but also focuses on the needs and psychological state of the people who use the place.

2 Influencing factors and research methods of the vitality of public space in the context of urban renewal

2.1 Influencing factors of the vitality of public space in the context of urban renewal

Factors affecting the vitality of public space in the context of urban renewal include space and scale, accessibility, mixed use and density, environmental quality, public facilities, street furniture and public cultural activities^[8]. The expression of space and scale in public space should pay attention to the presentation of "agreeableness", because the primary feature of the so-called "human place" is that the space must conform to the "human scale". Accessibility means that when new urban public space is built, the traffic connection between public space and other areas should be considered, including traffic flow and pedestrian flow, which is an important guarantee to make the public space full of vitality. Mixed use and density are reflected in the concentration of different land uses and human activities in space and time. When different people meet in the same public space, the public space will become complex, diverse and full of vitality. This is a prerequisite for vibrant public space. Environmental quality plays a vital role in creating vibrant public space. The space with poor quality will limit people's personal initiative, thus reducing the communication between people, and then restrict the vitality of public space. Accordingly, the public space with good environmental quality is more likely to attract people to enter and participate in activities. Sound public facilities are the basic premise of creating good public space. In addition to helping to

highlight the personality of public space, the organizational quality of street furniture is also one of the basic standards to measure the quality of urban public space. Public cultural activities full of diverse interests are one of the effective ways to create the vitality of urban public space, and also an important way to highlight regional cultural characteristics.

2.2 Research methods of the vitality of public space under the background of urban renewal

The research methods of the vitality of public space under the background of urban renewal include questionnaire survey, field investigation, literature review analysis and model prediction. Questionnaire survey means obtaining the public's views on the vitality of public space mainly through questionnaire survey, focusing on the subjective evaluation of the vitality of public space. Field research is to obtain objective and quantitative data through field investigation. Literature review analysis means drawing conclusions and suggestions through comprehensive analysis of existing literature. Model prediction is to predict and study the vitality of public space by constructing models.

2.3 Advantages and limitations of research methods of the vitality of public space in the context of urban renewal

In the context of urban renewal, it is very important to study the vitality of public space, and different research methods have their advantages and disadvantages. Through questionnaire survey method, the public's opinions and needs can be quickly obtained, and it is an economical and effective method. By field investigation and observation methods, objective and real data can be collected to provide strong support for analyzing the vitality of public space. The relevant theories and research results of the vitality of public space can be deeply understood through literature review analysis method. Model prediction method is mainly used to predict and simulate the vitality of public space and make up for the limitations of other research methods. However, there are limitations to these approaches. For example, questionnaire survey method may lose its accuracy due to sample bias. Field investigation and observation method will consume a lot of time and expense. Literature review analysis method will be limited by the quality and quantity of existing literature. Model prediction method needs mathematical and statistical basis. Hence, in order to achieve different research purposes and solve related problems, an appropriate research method of

the vitality of public space should be selected to overcome its limitations to obtain the most accurate and detailed data and then help urban planners and designers better improve and optimize urban public space.

3 Strategies for enhancing the vitality of public space under the background of urban renewal

3.1 Improving the accessibility of public space

Much public space is poorly connected to the surrounding transportation network and lacks effective traffic guidance, making it difficult for residents to easily reach the space. Narrow or absent sidewalks, casually parked bicycles and private cars make people face safety and convenience issues when they travel to public space. In addition, some public space lacks accessibility design, making it difficult for people with reduced mobility (such as the elderly and disabled) to access and use the space. In order to improve the accessibility of public space, the following measures can be taken. Firstly, transportation network should be optimized. In urban planning, it is needed to strengthen the connection between public space and major transportation arteries, solve the connection problem between subway and transfer transportation, and improve the convenience of public transportation, so as to shorten the travel time of residents to reach public space, and significantly increase the attraction of public space. Secondly, pedestrian and non-motorized transportation facilities should be improved. It is necessary to increase the width and quality of sidewalks, provide safe crossing facilities, add parking points of bike lanes and bike-sharing, and encourage residents to access public space by walking and non-motorized transportation. Finally, barrier-free design should be conducted. In the design and renovation of public space, full consideration is given to the setting of barrier-free facilities, such as ramps, barrier-free access and dedicated parking space, so that all groups of people can easily use them.

3.2 Enhancing the environmental quality of public space

The environmental quality of some public space has problems of air pollution, noise pollution, insufficient greening, aging facilities and lack of cleaning and sanitation management, which affects the overall environmental quality of public space and residents' use experience. In order to improve environmental quality, three aspects of measures should be adopted. First of all, it is needed to make full use of public space

resources, excavate micro-space by removing illegal buildings and cleaning up debris, and supplement pocket parks and fitness venues in combination with the needs of surrounding residents and regional features, which not only improves resource utilization efficiency but also alleviates environmental pollution. Secondly, the quality of public space facilities and services should be improved. It is necessary to update and maintain public facilities to ensure their safety and comfort, provide adequate seating, leisure facilities and children's play facilities, and set up adequate garbage bins and separate waste disposal facilities to ensure the cleanliness and hygiene of public space. Finally, the appropriate spatial scale of streets should be continued to create an intimate space experience, thereby improving the vitality of space. For streets with large spatial scale, visual openness can be adjusted by setting parking space, tree pools and rest and activity space on one side of a road to create cohesive street space. For compact streets with limited space, the scale of outdoor furniture and node facilities should be controlled to avoid debris stacking.

3.3 Integrating functional formats and spatial forms

Some public space only provides a single function, such as leisure or sports, lacks a diversified business combination, and can not meet the needs of different groups of people. Scientific and reasonable division of functional space is helpful to build a good spatial relationship of blocks, organize various functions in an orderly manner, and bring residents a comfortable experience. For example, the playground for children, the playground for the elderly and the public area can be distributed from north to south. While the elderly exercise, play cards and rest in the playground, they can take care of the children in the playground for children. The surrounding tree pool also provides space for parents to rest and communicate with their children. This not only provides space for original activities, but also attracts more groups to participate in diverse activities and inject vitality into the space. At the same time, the new and old spatial forms should be integrated under the premise of continuing the original texture. According to the requirements of the business format, the new functional space is replaced into the existing space, and the connection between new and old space should be made to ensure that the function of new space is not limited, avoid the influence and erosion of old space, realize the organic integration of new and old space, and form a new spatial order.

3.4 Encouraging public participation

The implementation of public space planning is mainly a top-down process led by the government, in which the public's participation awareness is insufficient and participation channels are limited. Public opinions and suggestions are crucial to the planning and transformation of public space. Through multiple participation and integration, public needs are taken into consideration in the planning and design of public space to improve the inclusiveness and interactivity of public space. Firstly, public consultation and participation activities should be conducted. It is needed to organize public consultation sessions and invite residents, community organizations and stakeholders to discuss the planning and transformation of public space. Their opinions and suggestions are collected to ensure that the design scheme reflects the real needs of the community. Secondly, digital platforms should be created to allow residents to share their views, suggestions, and activities on public space, facilitating online and offline interactions. Besides, it is necessary to publicize events and developments in public space through social media, encourage more people to participate, and create a good community atmosphere. Finally, the responsibility of responsibility planners should be strengthened. Responsible planners need to take long-term roots in the community, diagnose community environmental problems, provide consultation services for residents and participate in the formulation of renewal plans, ensure that the design of public space meets the actual needs of the community, and promote the vitality of public space.

3.5 Promoting cultural activities in public space

Cultural activities in public space are often less and single, lack inclusiveness to different cultural backgrounds and interest groups, and cannot meet diverse cultural needs, resulting in the failure to attract residents to participate. Through the holding of cultural activities and the construction of cultural atmosphere, the integration of cultural and artistic elements in public space is promoted, so as to improve the cultural quality and cultural value of public space. According to the characteristics of local customs and historical and cultural accumulation, different communities have their own unique regional customs and historical culture. Preserving the original culture contributes to the development of local characteristic activities, produces the vitality of unique local characteristics, and creates unique spatial memory points. Meanwhile,

diversified activities targeting different cultural and artistic elements, such as exhibitions, performances and cultural exchanges, are held to promote the integration and development of cultural elements in public space. In terms of creating a cultural atmosphere, public space should become a concentrated embodiment of cultural ideas and artistic displays through public art, creative design and cultural relics, constantly expanding its function and charm.

4 Conclusion

In order to further enhance the vitality of public space, tailored strategies are established according to the situation of specific cities. By improving the accessibility of public space, improving the quality of the environment, integrating functional formats and spatial forms, encouraging public participation and promoting cultural activities, the quality of cities and the quality of life of residents are effectively improved. In practice, the geographical, historical, cultural and social characteristics of cities, as well as the needs and expectations of residents, should be fully considered to enhance the vitality of public space according to local conditions. In the process of urban renewal, attention should be paid to the connection and coordination between different public space to form an organic whole and enhance the overall image and attractiveness of cities.

In general, in the context of urban renewal, enhancing the vitality of public space is not only of great significance in theory, but also requires multi-party cooperation to achieve it. In the future, it is necessary to further study the enhancement of the vitality of public space and the further development of urban renewal, so as to make positive contributions to the sustainable development of urban construction and residents' life, and make a city a more livable and sustainable living space.

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to fulfill its original function within the contemporary urban framework, the site, which embodies the memory of the city's former prominence, can not be easily disregarded. In the process of renovation, the preservation of these original landscapes and forms is crucial for maintaining the site's historical memory and for shaping its spirit. Concurrently, retaining the wild and desolate atmosphere that has emerged following the site's abandonment enables individuals to reflect on the rise and decline of the railway, thereby sustaining the historical narrative associated with the location. The transformation of Qijiang Park exemplifies the successful integration of industrial and natural elements, highlighting the aesthetic value of their symbiotic relationship through the repurposing of natural features and structures.

5.2 Extracting the essence of the elements of railway culture

As urban development and modernization continue to progress, numerous traditional structures and historical sites are gradually vanishing, resulting in a phenomenon often referred to as "amnesia". Abandoned railways serve as historical witnesses, and it is essential to communicate their historical narratives through the preservation of associated facilities, structures, and other remnants present at the site. Consequently, it is essential to distill the core elements of railway culture from the remaining landscape and adeptly integrate them into landscape design. This can be achieved through artistic techniques such as reproduction, endowment, metaphor, and symbolization, thereby ensuring the continuity and promotion of local characteristics and cultural heritage.

5.3 Building emotional ties between culture and people in the landscape

In the field of landscape design, cultural

connotations are often intangible and qualitative, yet they profoundly resonate with individuals on an emotional level. Designers must adopt a people-centered approach, fostering connections between cultural elements and emotional experiences. Through the incorporation of specific elements and atmospheres, this approach stimulates individuals' associations and resonances, thereby intertwining the present with the past and effectively perpetuating the cultural lineage. The Fifth Day Gangchon Rail Park Project in South Korea represents a renovation of the Gyeongchun Line, which was decommissioned after 70 years of operation. This line traverses picturesque landscapes, including rice paddies, mountains, forests, and rivers. The renovation process retained the original railway tracks on the site, repurposing them for sightseeing cars. This initiative revitalizes the railway, enabling visitors to evoke profound memories and experience the intimate relationship between culture and community in an interactive manner.

6 Conclusions

In recent years, the pattern of urban spatial development has shifted from expansion to a focus on intensification and efficiency. Consequently, cities must pursue strategies for intensive land utilization, rejuvenate underutilized areas, improve land use efficiency, and create additional space for urban development. In this context, abandoned railways within urban centers have emerged as potential development areas for cities, warranting a thorough exploration of their rich historical significance. The examination of landscape transformation strategies can serve not only to revitalize urban areas but also to perpetuate cultural heritage and augment the aesthetic appeal of the city. This is of considerable importance in advancing the public

space landscape and contributing to the overall development of the urban environment.

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