

## **Analysis of the influencing factors of the vitality of small and micro spaces in the old urban area of the city**

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**Abstract:** With the rapid development of the city, the old city has been faced with a shortage of land resources, environmental pollution, traffic congestion, insufficient supply of public space and other "urban diseases" prominent problems, the renewal of the old city gradually attracted widespread attention. Starting from the foundation of Chinese culture and sustainable urban development, how to excavate the potential available space resources in the limited urban space and use them reasonably and efficiently is the main way to promote the development of the old city. Micro-space is favored by the majority of residents because of its characteristics of wide distribution, small scale, close relationship with daily life and high accessibility. In the case of land shortage, the old city generally faces the challenge of declining public space function, quality and vitality. A systematic study of micro-space in old urban areas shows that the fluidity of micro-space stimulates the vitality of space, stickiness is conducive to creating a communication environment, micro-scale is easy to narrow the emotional distance, and strong embeddedness is conducive to retaining urban culture. In the process of its development, there are some problems, such as the limited use of material space subjects, the inhibition of people's communication in social space, and the fading of cultural memory in spiritual space. Based on the relevant theoretical research on micro-space at home and abroad, this paper discusses the influencing factors of micro-space vitality construction in old urban areas from the dimensions of material environment, social culture and space use, and provides basic indicators for the research on spatial vitality construction strategy.

### **1. Introduction**

After rapid urbanization, some Asian cities, mainly in China, have gradually shifted from incremental expansion to a new development model of stock optimization, which has basically formed a broad consensus in the society. This not only means that the development of cities in various countries has entered a new stage, but also means that the value measurement standard of urban space has changed significantly. Both the quality improvement of the built environment in urban renewal and the new construction in urban areas have put forward higher requirements for the social benefits in the construction effect. In order to further enhance citizens' sense of gain, the space physical construction matches citizens' growing needs for a better life.

In the process of urban development, urban old "old" is relative with the new urban area, the urban development process, the planning and construction of the old time mainly concentrated in the 70s and 80s of 20th Century, has experienced more than 40 years of rapid development, on the one hand show disfunction, old facilities, the phenomenon such as space form mixed and disorderly, It is difficult to adapt to modern urban development and space quality requirements; On the other hand, as the starting point of a city's construction and development, the old city witnesses the complete process of the success or failure of a city, records the context of urban development, and forms the history and culture of a city [1]. However, with the continuous renewal of the city, residents in the old city have a convenient life, with more complete educational, medical, commercial and cultural supporting facilities and more abundant resources. Most of the old city has become the central area of the city, which is an important place for the construction of urban vitality. Because of its comfortable space scale, micro-space has become an important social node connecting individual citizens and forming an important social node that is not restricted by the type

of place. It is not only an important place with practicality, but also a spatial carrier of urban culture. It carries social production, life and human transcendental experience. Material and spirit coexist, and play a role of spatial link in promoting interpersonal communication and enhancing the vitality of cities.

## **2. Research status of micro space at home and abroad**

### **2.1. Research status of micro space in China**

For micro space research in China from the perspective of urban renewal, in 1927 the capital plan, its core content is mainly based on the special rich cultural relics and historic buildings concentrated piece, clear historical style and features, the traditional pattern of large scale based on the protection of historical and cultural block of modern urban renewal and reform. Represented by the idea of "organic renewal" put forward by Liangyong Wu, it is pointed out that the relationship between present and future sustainable development should be properly handled on an appropriate scale and scale according to the renovation content and requirements, so as to realize the overall improvement of the environment of Beijing old city and achieve the purpose of organic renewal [2]. Around 2000, with Mingwei Wu, Jianqiang Yang by the modern urban renewal, systematically summarizes the theoretical research and development trend of the old city renewal, reflecting on problems in Chinese urban renewal research, summarizes the characteristics and problems of the urban renewal, put forward the thinking, integrity and systematic update and trying to theoretical construction. Along with the reform and opening up and the transformation of economic development, the introduction of foreign urban update ideas, combined with the practice of domestic success, to extend the concept of the urban renewal, appeared with the ancient Chinese philosophy of "urban regeneration" and "urban renewal" concept, in order to protect the old city renewal, into micro update mode[3]. After 2010, with the popularization of the concept and practice of urban renewal, comprehensive research on urban renewal has been very extensive and in-depth. Baoxing Qiu proposed the theory of "rebuilding microcirculation", namely the view that "small is beautiful and small is ecological", and advocated improving the quality of micro-space to realize urban renewal. Nearly 10 years, our country related to micro space research mainly using the hierarchical analysis, factor analysis and cluster analysis methods for quantitative analysis of basic research, statistics, geography, meteorology and other subjects crossover technology application research, as well as to the micro space policy, system and reconstruct the system of the space property rights, etc. Generally speaking, the process of urban microspace research in China is from large-scale demolition and construction in the early stage to cyclic gradual micro-renewal and then to the improvement of spatial quality.

### **2.2. Research status of micro space abroad**

The development strategies of public space in foreign cities Barcelona, Copenhagen and Stuttgart have important research significance for the revival of micro-space. Barcelona pays attention to the "fragmented" renewal mode of small public spaces, and adopts "acupuncture" to cut in at a single point. During the war, a large number of green spaces and parks were destroyed, and the environment was seriously polluted. People lacked enough green space and fresh air. Because of this demand, the government explicitly requested to build a "pocket park", a public green space, at or near the grass-roots level of high-rise buildings for daily use by citizens during the post-war reconstruction period[4]. Lack of creativity in goods and services. How to find a way out of urban renewal in the old urban area with limited development space is an important aspect of promoting the benign development of the city. As the carrier of social culture, micro space has bred countless urban stories and formed a readable urban text. Although their goods and services have certain characteristics, they have not yet formed a mature and unique cultural product with symbolic color. The functional structure of a city plays a vital role in shaping the image of urban space. In the process of old city renewal, we should reasonably analyze and demonstrate the functional status of the old city, so as to accurately locate it. After World War II, with the massive increase of urban

population, the British government tried to build satellite cities in the periphery of big cities to solve the problems of traffic congestion and environmental damage in urban areas. With the population spreading to the peripheral satellite cities, the industry and vitality of the central city declined to some extent, so the focus of urban renewal shifted from slum improvement to the revitalization of the main city (old city)[5]. With the deepening of the complexity and contradiction of urban development, the research angle of urban renewal not only pays attention to architecture and planning, but also begins to show multiple perspectives and directions, and has made some explorations from the aspects of economy, culture and policy.

### **3. Influencing Factors of Micro-space Vitality in Old Town**

#### **3.1. Material environmental factors**

Street and lane space is an important component connecting various functions such as commerce and residence. According to its different spatial forms, it is divided into bottom interface and side interface. The designation of transformation and utilization opportunity area is to sort out the space resources with great development demands and transformation potential in the near future according to the construction status and development needs. Even though the spatial interface seems to be continuous, it can not preserve the complete form of the overall space of the original old urban area, and the inherent soil use mode is slowly disappearing. Due to the different geographical location, spatial characteristics and functional requirements of micro space, the ways of space activation and utilization are also different. Set up high wall newspaper kiosks and other facilities to separate the open space and block the cold wind, so that they have the opportunity to chat, walk, bask in the sun, fitness and other activities[6]. The use of micro space should develop in the direction of diversification in function. Due to the particularity of some micro spaces, it is not suitable to change their functional attributes. At this time, micro intervention can be used to optimize only the base elements without changing the spatial characteristics, maintenance surface elements and facility sketch elements. One of the attributes of the micro-space in the old city is the fuzziness of the space, which also provides it with the function of buffer space for the alternation of new and old buildings in the city. The key point of upgrading micro-space is to enhance the perceptibility of micro-space by improving the environmental quality of space, so as to stimulate the potential functional value of space. Compared with the new city, the public space and facilities in the old city are backward and outdated. However, from the perspective of environmental culture, the old city has the familiar and indispensable fireworks atmosphere in daily life. China's old urban areas are rich in historical relics and features, and most of the residents are elderly people. Large-scale demolition and reconstruction will inevitably lead to the destruction of regional culture and social form. Therefore, the change of user's living environment will also delay the process of adaptation. The spatial optimization strategy combining culture with ecology is an important method to accelerate adaptation[7].

#### **3.2. Social and cultural elements**

From the social point of view, the residents of the block are the participants in various activities of the block, which directly affects the vitality of the historical block. Neighborhood residents are roughly divided into three categories: indigenous residents, renters and merchants. When we walk in the streets, we always feel *deja vu* when passing through the urban micro-spaces, large and small. These urban micro-spaces are often similar in arrangement with simple plants or small pieces of facilities, and their design seldom takes into account the regional cultural background of the space location, such as the urban topography, special cultural details and regional customs. The spiritual level lacks guidance, and residents' activities in micro-space are mainly walking, chatting and exercising, and the activities are relatively simple. Due to the large number and various forms of micro-spaces in the block, it is impossible to design and transform all micro-spaces due to energy and time reasons. In the old city reconstruction in the past, there was no concern about the distance between waterfront buildings and the blue line of land. In the actual transformation process, if the

building is close to the river, it will give people a sense of depression visually, and there is no corresponding waterfront activity place, such as river, water related amusement park and Ecological Square, so it can not really achieve "hydrophilicity". Micro space is a cultural carrier similar to urban catalyst. It promotes the optimization and growth of space through effective cultural transmission channels, so as to help users get familiar with the environment and produce adaptability. Cultural cultivation and cultural adaptation are the two most important theories in cultural ecology. Applying them to the optimization and creation of micro space is an important prerequisite for integrating regional culture and forming a virtuous ecological cycle[8]. Micro space plays the role of a common stage, but the population differentiation brought by population mobility is accompanied by the differences of social background, lifestyle and cultural level. It is usually difficult to achieve a balance in the unorganized material space communication. Although the emotional communication needs of residents can be met to a certain extent. As shown in Figure 1 below, the cultural gene analysis mode in the old urban area:

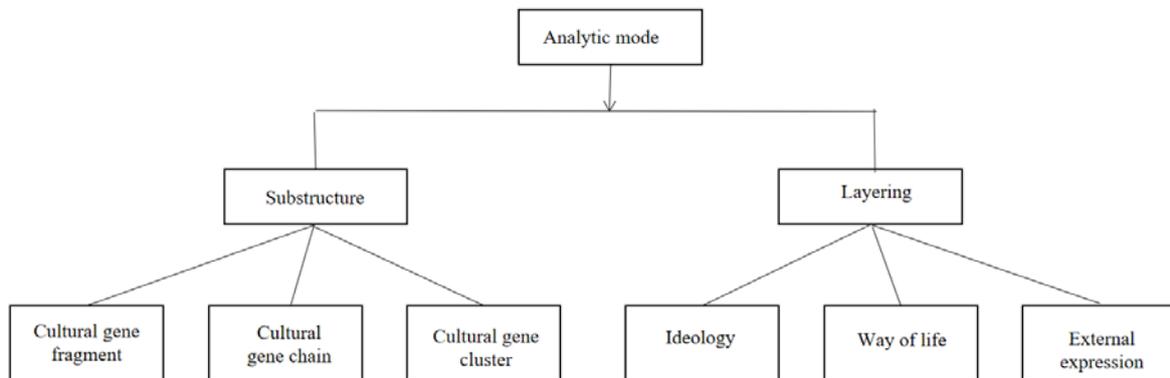


Figure 1 Cultural gene analysis model in the old urban area

### 3.3. Factors of space use

The vitality of urban public space is a comprehensive expression of spatial attraction, diversity and sharing. Micro-space is scattered in every corner of the city. From the type of surrounding environment, there are micro-space of residential area, corner space, micro-space of commercial square, micro-space of road walking and so on. Different types of micro-space have different needs of users, different types of activities, and different degrees of spatial vitality. Micro-space in old urban areas is mainly composed of residential micro-space, supplemented by some corner space and supplemented by a small amount of pedestrian micro-space in big cities in China. The characteristics of users are divided into two levels, with retired people and school-age children as the main group, and female as the main gender. Leisure activities and cultural activities are the main types of activities. Due to the small scale of micro-space, only part of the needs of sports activities can be realized. Specific activities mainly include walking, walking the dog, chatting, rest, scenery, chess, cards, playing, singing, dancing, pulley, rope skipping, playing ball, running, fitness, etc. The selection of different activities is determined by individual attributes and temporal and spatial differences, but the selection of activities at different times has periodic repeatability characteristics [9]. The choice of micro-space used by residents in old urban areas is actually the demand to be met by activities, which will be different due to the different comprehensive attraction of spatial functions, facilities and forms. Thus, it is manifested as the high repeated use of space by activity participants, which is the external expression of spatial vitality at the level of individual behavioral characteristics. In addition, due to the dense population, diversified activity types and limited spatial scale of the old city, it is necessary for the functional diversity and mixing degree of micro-space. Therefore, from the space sharing of users' activities, different periods of time and different groups can share, and space users can only "stay" to produce effective social and entertainment activities. The realization of such effective activities is the comprehensive embodiment of micro-space vitality construction[10].

#### 4. Conclusions

Based on the relevant research on urban renewal at home and abroad, and based on the current situation of the built environment of the old city, this paper analyzes the factors of creating micro-space vitality from three different dimensions: material environment, social culture and space use. Among them, the dynamic of physical environment and the variability of functional facilities are created by utilizing the vitality of micro-space in the old city. Meanwhile, the spatial representation with rich cultural connotation is the empathy between urban culture and residents' cognition, and the internalization of spatial vitality. Both external material environment factors and internal social and cultural factors need to be comprehensively reflected through the process of space use. The influence factors of urban public space dynamic intricate, old city space research object is more unique, but from the physical environment, social culture, and analyzed the different dimensions of space use is not enough, need from the cross between different dimension analysis, optimizing affecting factors of the old micro space dynamic build, better service to the space dynamic promotion strategy research.

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