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# A study on renewal strategies for historic communities based on spatial ternary dialectic theory: a case study of Xuejiawan area in Suzhou

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**Abstract:** Historic community is a historical lot with mainly residential function, which retains the material space of local historical style characteristics, is the material container of local residents' urban life, and is also an important spatial carrier of local cultural heritage. Based on the perspective of spatial ternary dialectic theory, the historical community is disassembled into three major spaces, namely physical space, spiritual space and social space, and the concept of balanced development of the three major spaces of the historical community is proposed to achieve the overall renewal of the historical community. This paper takes the historical community of Xuejiawan in Shantang Street, Suzhou as an example, and summarises the current situation and problems of the three major spaces in Xuejiawan, initially explores this experimental renewal concept and proposes a detailed renewal strategy.

**Keywords:** spatial triadic dialectic theory; historical community; spatial production; Suzhou

## 1. Introduction

Historic community is a residential historic site that preserves the historical remains of a certain period of time, reflects the real life of a certain period of time in a relatively complete manner, continues the traditional residential function, and has the attributes of a community<sup>[1]</sup>. Compared with commercial or industrial communities, historical communities have their own characteristics, with a stronger living atmosphere, significant spiritual and cultural characteristics, more purely reflecting the local regional characteristics, national



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characteristics and the style of the times, and are the spatial places that carry the spirit of the city, so the issue of preserving and renewing the historical communities has received more attention from the government and all sectors of the society. However, the wave of capital has flooded all aspects of urban space, prompting it to produce profits every moment. Driven by the profit-seeking and value-added nature of capital, various kinds of profit-producing urban spaces have been formed. When the power class dominates the urban space, the preservation and renewal of historical communities is often subject to the phenomenon of "gentrification" in urban renewal and renovation. For example, the forced relocation of low-income aboriginal people and the replacement of the original industries have led to the development of local traditional culture into the trap of consumer symbolism, destroying the original cultural atmosphere and social relationship structure of the community. Therefore, in order to achieve a balance between the protection and renewal of the historic material environment, the shaping of the spiritual space of the historic community and the comprehensive development of the historic community, and to break through the shackles of the past urban renewal that only favoured the material space, so that the texture of the streets and lanes of the historic community, its traditional features and ethnic and local characteristics can be preserved, the traditional culture of the local community can be sustained, developed and flourished, and the community structure and social relations can be continued and developed, this paper is based on a case study of the Xuejiawan historic community in Shantang Street, Suzhou. This paper takes the experimental exploration of the renewal planning of Xuejiawan historical community in Shantang Street as an example, and strives for the integration and symbiosis of traditional culture and capital-led commercial operation with the daily life of local residents, and expands the idea of protecting and developing the social space and spiritual space, so as to achieve the balance and sustainable development of the material space, spiritual space and social space of the historical community.

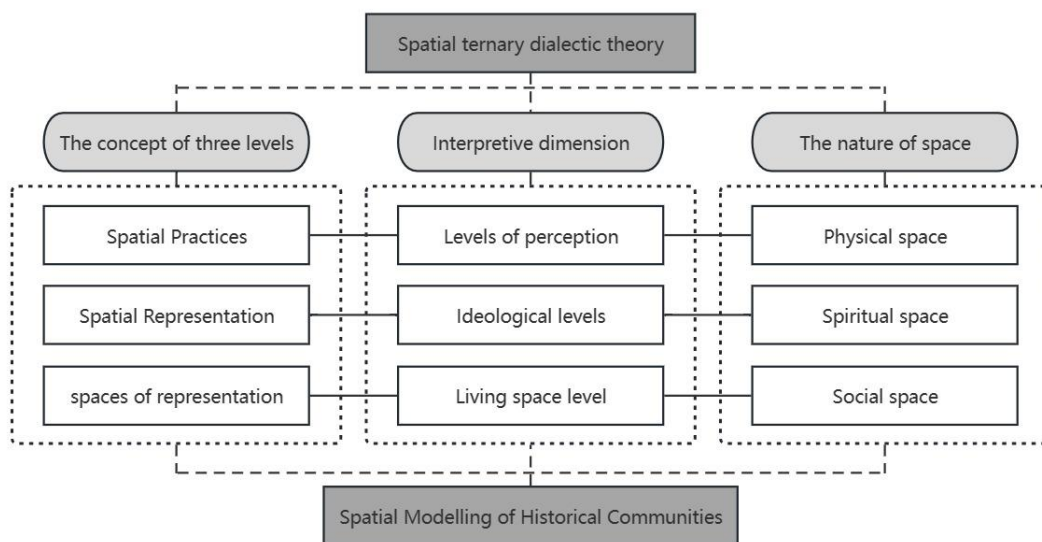
## **2. A theoretical analysis of the triadic spatial dialectic of historical communities and the mechanisms of interaction**

Due to the long-term survival of capitalism in contemporary times and its continuous colonisation of everyday life, Henri Lefebvre, a famous French philosopher, began to construct a critical theory of urban space in the 1960s. He first proposed a triadic dialectic of space consisting of "spatial practices," "spatial representations," and "spaces of representation." [2]. According to Lefebvre, in a situation where the object of capital production jumps from concrete commodities to the entire social space, the abstract power of capital is transmitted through the capitalised social space, and the daily life practices of the masses are reduced to the appendages of capital's spatial planning [3].

In Lefebvre's view, the process of reproduction of relations of production is completed in every social action, which includes both direct material production activities and aspects such as leisure, everyday life, residence and habitat, the use of spatial places, and the subject of globalization [4]. In other words, the spatial production of capital has strengthened the "spatial representation" into a conceptualised space with spiritual power, and has successfully

manipulated the process of "spatial practice" based on everyday life. A prominent example of this is the social regulation of the inhabitants of historical communities that are planned and constructed according to the rationality of capital. At the same time, "space of representation" is closely related to "spatial practices" and "spatial representations" because the reproduction of capitalist social relations is "not only manifested in the form of everyday life, family and home, but also in the form of the "spatial practices" and "spatial representations". is not only expressed in the spatial reproduction of the realisation, distribution and consumption of surplus value in the coordinates of everyday life, the family, the city, and even the globe; it is also reflected in the reproduction of the arts, culture, science, and other spheres that determine the functioning of society".

The three dimensions of this theoretical model proposed by Lefebvre can be corresponded to the spatial dimension of historical communities (Figure 1).



**Figure 1.** Relationship of spatial triadic dialectic theory and spatial modelling of historical communities. Image Source: Self-drawn by the author.

First, space practice refers to perceived space, social production and reproduction and daily life. Spatial practice belongs to the level of perception and is material space in nature, which is the actual space that can be perceived and really exists in real life. For example, in a historical community, material space includes material entities such as roads, landscaping and greening, historical relics, traditional landscape features, artefacts and infrastructure in the historical community.

Secondly, spatial representation is a conceptualised space, a field constructed by ideology. Spatial representation belongs to the conceptual level and is spiritual space in nature, showing the production in the space through conceptualised symbols, and the historical culture hidden behind the historic district, which records urban changes and shows the local landscape, is the important content of the spiritual space of the historic district. The spiritual space represented by the historical community space is creatively designed by the

social subject represented by the government and the designer represented by the planner and architect through the use of the mainstream symbol system for the conceptual space.

Thirdly, the representational space is a reproduced living space, social space in nature, which is a fusion of spatial practice and spatial representation, a review of the daily reality of the space, and a display of the content of the conscious imagination<sup>[6]</sup>, for example, the representational space of a historical community carries daily life as its main function, and day after day, it stages the daily life and social interaction activities of the residents, and at the same time produces a new space.

To sum up, in the process of actual conservation and renewal of historical communities, spatial practice, spatial representation and representational space interact with each other, and the material space, spiritual space and social space corresponding to the three are intertwined with each other, so as to realise the goal of renewal of historical communities as a whole. Firstly, spatial practice refers to the perceived space, social production and reproduction, and daily life. Spatial practice belongs to the level of perception and is material space in nature, which is the actual space that can be perceived by people in real life and really exists. For example, in a historical community, material space includes material entities such as roads, landscaping and greening, historical relics, traditional landscape features, artefacts and infrastructure in the historical community.

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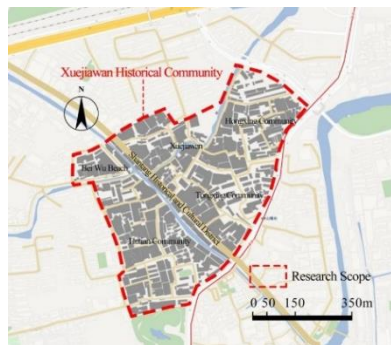
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### 3. Analysis of three major spatial status quo problems of Xuejiawan historical community in Shantang Street, Suzhou

#### 3.1. Site overview

The scope of this study refers to the historical community consisting of Hongxing Community, Tongxing Community, Hutian Community, and Beiwujingbang within the Shantang Historical and Cultural Neighbourhood, with a total area of 0.369 square kilometres (Figure 2). As a vertical extension of Shantang Street, the Xuejiawan Historic Community has a large number of well-preserved traditional Suzhou residences, waterways, piers and markets, and is rich in historical and cultural resources and active in social activities.



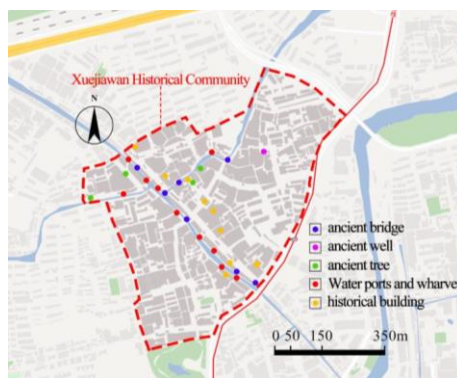
**Figure 2.** Scope of the study. Image source: self-drawn by the author.

#### 3.2. Analysis of the current situation and problems of the social space of Xuejiawan historical community in Shantang street, Suzhou

##### 3.2.1. Material space: the current situation and problems of the spatial practice level in Xue Jiawan

The buildings on both sides are mainly 1~2-storey typical Jiangnan houses; (3) Historical relics: there are rich historical relics in the Xuejiawan Historical Community, including historical buildings with different social attributes in different periods, such as the Shantang Carved House and the Republic of China's residential buildings, etc., as well as characteristic historical elements such as the ancient wharf, ancient trees, ancient wells and ancient bridges, etc. (Figure 3); (4) Functional space: the functional space of the Xuejiawan Historical Community is divided into architectural space and public space, which includes the traditional white space of Suzhou, and the public space. space, which includes traditional houses with traditional white walls and grey tiles in Suzhou, newly built modern multi-storey district units, individually constructed public commercial-type buildings, and shop-houses in the style of front-shop-back-house or down-shop-up-house. However, the functional attributes of some buildings are no longer in line with the living needs and psychological expectations of modern Xuejiawan residents, and the quality of some residential buildings varies, while there are self-built unauthorised construction on the site, the original architectural texture and style suffered damage, the lack of attraction of people's flow of the

vitality of the place, the waterfront buildings and the relationship between the water is more closed and single, the commercial form is relatively single, and the existence of commercial buildings with a high vacancy rate and the occupation of the stalls. The commercial buildings have high vacancy rate and the stalls occupy the traffic roads and other problems. (5) Environmental space: Due to the limitations of the planning layout, it is difficult to form a large area of public space in Xuejiawan, and the activity space in the community shows a general pattern of fragmentation and fragmentation. The fragmented public space often consists of edge space or crevice space formed by enclosure between buildings, such as the open space between residences, the gathering space at the entrance, the banded green space on both sides of the street, and the recessed space at the street or corner, and so on. As a result, the crowded distribution of buildings and the fragmented spatial status make systematic site design difficult (Figure 4). In addition, the overall habitat of the community is poor, with problems such as a lack of space for activities and interactions within the community and a single function, insufficient maintenance of community green space, damaged infrastructure, declining street functions, mixed pedestrian and vehicular traffic, and traffic congestion.



**Figure 3.** Historic Properties in the Historic Community of Xuejiawan Historic Community. Image source: self-drawn by the author.



**Figure 4.** Crowded and Fragmented Spatial Conditions in Xuejiawan Historic Community. Source: author's own photographs.



### 3.2.2. Spiritual space: current situation and problems of the spatial representation level in Xuejiawan

The spirit of place in a historical community comes from the community spirit generated by the historical and cultural heritage as well as the past social practices of the residents, as well as the contemporary residents' strong sense of identity and belonging to the community's physical space, the spirit of place, and the social space [1]. Residents of Shantang Street and its surroundings have long been imbued with historical elements and traditional culture, including but not limited to the following: (1) allusions: the Seven Beavers of Shantang, Dong Xiaowan, Chen Yuanyuan, etc.; (2) historical buildings: the Yuhan Hall, the Tonggui Bridge, the Bai Juyi Memorial Court, the Ancient Theatre, the Baimu Bridge, etc.; (3) traditional activities: the Mid-Autumn Festival Moon Festival, the God of Fortune, the Walking on the Three Bridges, etc.; (4) traditional cultural events: the commentary on the opera, the Kunqu Opera, the boat cruise and handicraft display, etc.; (5) Cultural heritage: Wu culture. Although the physical space of the area is relatively dilapidated, the unified architectural style and the integration of historical buildings with the modern tourism model of Shantang Street constitute the unique historical and inclusive regional personality of Xuejiawan area.

### 3.2.3. Social space: current situation and problems of the spatial dimension of representation in Xuejiawan

The age structure of social relations in Xuejiawan shows a deep aging trend, according to statistical data, 58.3% of the elderly population within the study area is over 60 years old, which is much higher than the average level of Suzhou City. This may be related to the problems of insufficient community vitality, low residential suitability and serious loss of young adults. At the level of social relations, the community population consists of the local population, i.e., aborigines and migrant workers, and is dominated by local residents, forming a relatively close social network. According to the interview survey, the majority of residents believe that they often participate in community exchanges and walk along the streets, and that residents have a relatively close relationship with each other. More than half of the residents are satisfied with the community life in Xuejiawan, and the main reason for this is mainly due to the harmonious neighbourhood relationship. However, more than half of the residents believe that the reason for the low level of living comfort is the stagnant development of the functional space and the shortage and dilapidation of the environmental space.

In addition, the historic community of Xuejiawan not only has to cater for a large number of residential needs, but also has to provide administrative offices and their supporting functions. On top of the higher residential density, the additional transient population has increased the load on the historic community. There is a significant divergence in the actual housing area under different ownerships, resulting in higher actual residential densities in some areas. At the same time, the elderly, minors, and migrant workers account for a significantly higher proportion of the population, with a relative concentration of disadvantaged people, and generally lower incomes and poorer quality of life for residents.

Similar living conditions and status identity have led to the creation of relatively closed social class groups. Due to the ageing and dilapidation of houses, high building density, narrow streets and lanes, many safety hazards, backward infrastructure, and lack of public space, the original single-family houses have become a "compound" in which a number of families live together. These problems have seriously constrained the spatial protection of historic districts, and the protection of traditional features and the improvement of the living environment are facing greater pressure.

#### **4. Renewal strategies for the historic community of Xuejiawan, Shantang, Suzhou based on spatial ternary dialectic theory**

##### *4.1. Physical space renewal strategy from residents' living scenes and social needs*

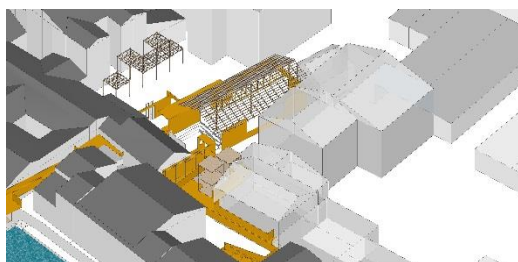
The renewal and transformation of the physical space of the historical community from the details of the residents' life and real social needs, through the repair, site integration and functional replacement of the buildings, node spaces and public facilities scattered in the Xuejiawan historical community, in order to better serve the community residents. In response to its specific situation and characteristics as well as the needs of the neighbouring residents, micro-renewal means of architecture and environment are added, and the design of "spatial practice" is closely guided by "spatial representation" to bring rich and diversified activity spaces and emotional ties to the community, so that a "spatial practice" with regional characteristics is formed. To form a "space of representation" with regional characteristics<sup>[7]</sup>. At the same time, the integration and upgrading of community public service facilities and resources, optimising the use of management and usage from multiple perspectives, integrating and regenerating the functions of culture, sports, art and elderly care with the original public service facilities, and sorting out and perfecting the existing community supporting facilities, and sorting out and supplementing the facilities according to the needs of the residents and the modernisation of the development.

The first is the regenerative design and reconstruction of abandoned buildings. Through an in-depth mapping and understanding of the existing public spaces in the Xuejiawan Historical Community, we identified abandoned or unused sites in the community that urgently need to be renewed and improved, and gradually reshaped them in order to improve the environmental conditions of the "lost spaces" in the community. Through the visit and research, there are many dilapidated and abandoned buildings in the site, such as the original Shantang Cultural Centre. This building can be rebuilt to ensure the safety of the surrounding residents and improve the utilisation of the site, firstly by opening up the original closed architectural interface on the ground floor of the building, placing in view corridors and recreational paths, and setting up more shops on the positive side, enriching the site's business format, improving the commercial environment, and enhancing the comfort of residents' shopping. At the same time, the shops are set back from the building to create a good grey space, returning the street to the pedestrians and alleviating to a certain extent the current situation of mixed pedestrian and vehicular traffic; on the first floor, the highly accessible staircase guides the flow of people upwards, either to the recreational platform or to the



corridor inside the building, and then to the functional rooms, such as chess and card rooms, reading rooms and other rooms, enriching the content of the community interactions and enhancing the exchange of neighbours. In addition, the large spatial volume of the existing old vegetable market has the potential to create a rich spatial experience. Considering that it is a place where human and fireworks flavours converge, a meeting point of residents' life trajectories, and a stage for the community life of the aboriginal and migrant populations, the market should be brought into play as a link to interpersonal relationships and a mending agent.

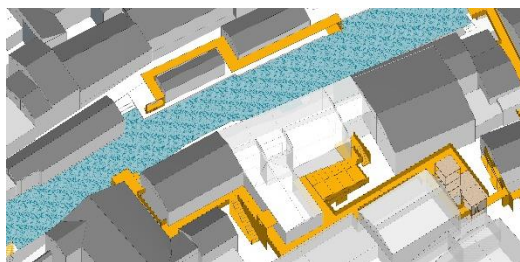
The second is the functional intensive replacement of inefficient public space. Because of the limited space for public activities in Xuejiawan, the public service facilities and public activity venues in the community can seldom survive in the community for a long period of time due to the insufficient number of facilities and the difficulty of management and maintenance, and the unused building space in the community is not fully utilised, so the residents of Xuejiawan and its surroundings tend to occupy the traffic roads randomly for activities such as parking, chatting and sitting, and piling up sundry things. This design integrates the original scattered distribution of unused sites and spaces through community micro-renewal, replacing and updating the functions of unused spaces in community micro-renewal to form public activity spaces that can be utilised; appropriately changing and adjusting the spatial form of such places, increasing their degree of openness, and carrying out refined in-depth design and decoration to create warm and harmonious communication spaces; and the original unused public spaces, such as Courtyards, streets and other small places in the existing low utilisation rate, more fragmented site, can be through the site of the overall functional integration and reconstruction of the landscape structure update, that is, through the investigation of the needs of the community residents, the collation of the original green, traffic, activity space, a small range of pedestrian, vehicular and parking space for detailed planning, abatement of the original negative unused space, the integration of which can be used as a Community public space (Figure 5).



**Figure 5.** Integrated and planned public space in Xuejiawan. Image source: self-drawn by the author.

Finally, it is the strategy of overlapping the functions of paths, landscape spaces, service facilities and public node spaces. Community environment is the stage of art and life, community paths, landscape space, service facilities and public node space are symbolic containers of residents' signs of life, repetitive and rhythmic functional space with which residents must be associated every day, and they will inevitably have functional overlap. Therefore, in addition to replenishing the cleaning module, non-motorised vehicle parking

module, drying space, resting module and other essential basic service facilities missing in the community in daily life, it is more important to implant and replenish them with the help of landscape nodes, superimpose landscape nodes with the original green space, node space, road space and courtyard space in the community, and introduce the landscape facilities with functional complementary functions, to target and supplement the missing functions in the community. The role of missing functions in the community, implanting new vitality points on the basis of the original structure of Xuejiayan, and enhancing the vitality of the community. According to the actual situation and needs of Xuejiawan, targeted spatial improvement is carried out in conjunction with the site conditions, integrating the original scattered and single-form flower beds and greening into small landscape spaces, and combining and linking the green spaces and open spaces in the community to form community landscape nodes with certain functions and characteristics. It can also be combined with the community street micro-renewal of pedestrian paths and corner space renewal for landscape design, supplementary landscape nodes, with the help of art, the introduction of cultural space and other means of community landscape path planning and design (Figure 6).



**Figure 6.** Shelter cove landscape trail planning and design. Image source: self-drawn by the author.

#### *4.2. Spiritual space renewal strategy from external display and consumption needs*

Spiritual culture is the connotation of a community, which on the one hand is preserved and conveyed through certain material carriers, and on the other hand exists in the consciousness of residents in an intangible state such as thoughts, memories and feelings<sup>[8]</sup>. The creation and continuation of a community's spirit of place requires the extraction of local characteristics, the formation of its own unique style, and the inheritance and manifestation of a community's historical and cultural heritage in a specific style. In the Xue Jia Wan historical community, based on the commercial culture of boat firewood and the historical lineage of Shantang Street, which is unique to the site, the scenes of the time are restored with new technology and traditional materials, which not only retains the collective memory of the site and creates more space for leisure and entertainment, but also attracts tourists to have an experience of the local culture and stimulates the vitality of Xue Jia Wan. The designer should organically combine the commercial culture of shipping firewood, cultural and creative design with commercial operations and the daily life of the residents, striving to find a balance between the multiple objectives of inheriting the history and culture of the

neighbourhood and improving the living conditions of the neighbourhood, stimulating the vibrancy of the neighbourhood and perpetuating the social relations of the neighbourhood.

Firstly, the quality of the old buildings within the Xuejiawan Historical Community is checked, and then the dangerous buildings are demolished and rebuilt. After the old buildings are repaired as a whole and regular maintenance is taken care of, they are either rented out to young people to run individual lodgings, hotels, teahouses, cafes, and cultural and creative shops, or the old townhouses with collective property rights are transformed into public buildings where exhibitions and small seminars can be held, which not only provide workplaces for the local craftspeople, but also show the public that the local craftspeople can work in the neighbourhood. This not only provides local craftsmen with workplaces, but also displays and disseminates traditional handicrafts and culture to the public, promotes the transformation and enrichment of spatial types, and diversifies various social networks, thus stimulating more dynamic interaction behaviours, and constructing the basis of a healthy and vibrant neighbourhood. At the same time, by transforming the functions of the old buildings to form diversified businesses, it will help to attract diversified groups of people to gather, moderately mixing the composition of the neighbourhood groups, and constructing a place where people with different backgrounds, cultures and interests can live together, which not only avoids excessive gentrification of the neighbourhood, but also prevents the lack of vitality caused by excessive ageing.

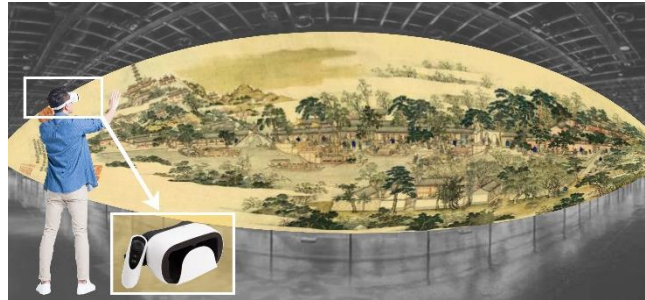
Secondly, based on the firewood culture of boating, the piers linking the water system with the land in Xuejiawan are restarted, and in the atmosphere of holidays and specific festivals, according to the old boating routes, colourful boating experience activities are held at each pier node, which passes down the memories and culture of Xuejiawan (Figure 7).



**Figure 7.** Boating Activities. Image source: self-drawn by the author.

Finally, relying on material cultural relics, excavating celebrities' deeds, related stories and other cultural backgrounds, recreating historical scenes through VR, AR and other technologies, and changing the time dimension while keeping the spatial location unchanged, Xuejiayuan can be seen in different periods of time, presenting a picture scroll in the form of a "Gusu Flourishing Picture", and introducing the community to the site. It also introduces community functions such as cultural exhibitions, leisure services, social recreation, art performances, commercial retail, etc., making it an important spiritual space for the daily community life of the residents, and attracting tourists to participate in it and have a real

cultural interactive experience, so as to show the unique spiritual culture of Suzhou and Xuejiawan historical community to the outside world through this window (Figure 8).



**Figure 8.** Recreating historical scenes of Xuejiawan through VR. Image source: self-drawn by the author.

#### *4.3. Social space renewal strategy from the co-operation of multiple rights subjects*

Due to the special characteristics of residential historical and cultural neighbourhoods, in the early stage of protection and implementation, the government alone invested in the work, and enterprises were less involved, but with the gradual maturity of the market and the gradual improvement of the system, the main participants in the current stage of the process of renewal and transformation are the government, enterprises and residents. Due to the inconsistency of the needs and demands of each participant, the process of conservation renewal needs to be completed in the game of each party. Each subject competes with each other, and there is a contradiction between the rights and interests of the aboriginal people and the main body of renewal promotion, and a contradiction between the complex property rights relationship and the clear protection responsibilities<sup>[9]</sup>. The spatial production of historical communities is a complex process involving multiple values and conflicting interests, and should constantly be in the shared creation of equality and negotiation among the subjects of rights. For this reason, the organic renewal model of cooperation among multiple subjects is particularly important. A wide range of cooperation involving the government, capitalists, designers, residents and other social actors is more suitable for the regeneration of the Xuejiawan Historic Community, which rejects the traditional approach centred on the government and developers, and focuses on creating an effective channel to reflect the public's demands for participation in the planning process, and incorporating community organisations and the general public into the field of neighbourhood governance. In this process, the planner is transformed from an elitist to a coordinator of multiple interests, the government is transformed from a decision-maker to a guarantor, the capital is transformed from a subject to an implementer, and the residents of the historical community are the main body with the right to speak on the planning and transformation of the historical community, and the public and civil society organisations, as a third force that is not a direct stakeholder, have the function of supervising the process, safeguarding the public interest and protecting the vulnerable groups, and should be given a certain voice as well. should also be given a voice. Such a renewal concept reflects the spatial production theory's demand for

the integrity of the triad of space and the pursuit of justice for the right to participate equally in the production of space in the city.

## 5. Conclusion

Xuejiawan historical community renewal and renovation practice is an exercise in applying spatial production theory to historical community renewal and renovation. The theoretical model of spatial production includes spatial practice, spatial representation and representation space, the spatial nature of which corresponds to physical space, spiritual space and social space respectively. The space of historical communities is both a resource shared and co-created by multiple rights holders, and itself will continuously produce new spaces and resources in the process of spatial reproduction. However, in the past, the wave of capitalism and the power of the upper class have resulted in problems such as the large-scale demolition and construction of material space, the scattering of spiritual culture, the loss of local cultural lineage, the mass migration of aboriginal people and the failure to guarantee the right of residence of the foreign population, as well as the disappearance of the space for public activities. Under such circumstances, the Xuejiawan historical community cannot form a triadic dialectical unity of material space, spiritual space and social space. Lefebvre's triadic spatial dialectic theory has changed the mainstream thinking of historical community renewal planning, which focuses on the protection and renewal of physical space, and emphasises the triadic comprehensive and balanced development of physical space renewal, spiritual space quality enhancement, and social space form protection and development. This paper takes Xuejiawan in Suzhou as an example, analyses the ternary relationship of material space, spiritual space and social space in the spatial ternary dialectic theory, summarises the current problems of the three major spaces in Xuejiawan based on the spatial ternary dialectic theory, introduces the concept of social space theory into the practice of renewal and renovation of the historical community, and, compared with the past generally popular renewal planning for historical districts, incorporates the spiritual space and the social space protection and development of the Innovative strategies, which are instructive for other urban historic community renewal planning work.

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## Conflicts of interests

The authors declare no conflicts of interest.



## Authors' contribution

Conceptualization, Zhang Luyi and Wu Yao; methodology, Wu Yao; formal analysis, Wu Yao, Zhang Luyi and Zirong Ding; investigation, Zhang Luyi; resources, Wu Yao; data curation, Zhang Luyi; writing—original draft preparation, Zhang Luyi; writing—review and editing, Wu Yao and Zirong Ding; supervision, Wu Yao; project administration, Wu Yao; funding acquisition, Wu Yao and Zirong Ding. All authors have read and agreed to the published version of the manuscript.”.

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