

The Study on Spatial Interventions for Aging Communities in Tourism-oriented Historic Districts from the Perspective of Spatial Territoriality

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Abstract: Aging-in Place represents the primary model of elderly housing in China. The current rapid urbanization has impacted the center city of Suzhou, one of China's most important historic towns, and its elderly communities. The populations have changed under this circumstance. The city has witnessed the influx of new migrants from other cities and provinces for economic opportunities and tourists from all over the country for its historic legacies on the one hand, and the outflow of young adults to the new districts and other cities surrounding Suzhou on the other. As a result, the elderly residents have accounted for nearly 45 percent of the total population in the Old City.

This paper examines the issue of spatiality for aging population using both qualitative as well as quantitative methods, and focus on Suzhou's historic district of Pingjiang. It reveals that the rapid commercialization and the increase of the tourist has squeezed the urban and community spaces of elderly populations, and the spatial ambiguity and disorder have created further conflicts between different demographic groups. All these are challenging the original Aging-in Place model. The paper analyzes the behavior logics behind these phenomena, and proposes several urban design strategies at the micro-scales related to different aspects of the current situation including place identity, territorial division, and symbiosis of population that are intended address, which hopefully could restore the environment for Aging-in Place.

Keywords: Spatial Territoriality; tourism-oriented historic districts; Interventions for Aging Communities

1. Introduction

The central historic districts in Chinese cities are full of tourist attractions, resulting in the mixed functions of tourism and residence in these communities. However, the increase of tourists in these historic districts has impacted the living function, which significantly hurts the interest of local residents.



Affecting by traditional concepts of providing support for the elderly and the reality of the facilities shortage for the elderly, Aging-in Place plays the dominant role in the life of city elderly in China. The current rapid urbanization has impacted the center city of Suzhou, one of China's most important historic towns, and its elderly communities. The populations have changed under this circumstance. The city has witnessed the influx of new migrants from other cities and provinces for economic opportunities and tourists from all over the country for its historic legacies on the one hand, and the outflow of young adults to the new districts and other cities surrounding Suzhou on the other.. For example, the aged residents in Suzhou Pingjiang district already reached 45% in total population. Their daily life, especially the quality life in public space, is negatively affected by the tourism development, becoming worse and worse.

In terms of the perspective of spatial interventions, this paper studies the living space for aging population in the historic district of Pingjiang, Suzhou. It focuses on following issues: 1) the public spatial living needs for the aged group in Aging-in Place model; 2) the evolution of public spatial characteristics in Pingjiang district and its influence to elderly residents; 3) the improvements of elderly's public space in Pingjiang district.

2. Research Subjects

Suzhou has more than 2500 years of history. As a famous historical street in Suzhou, Pingjiang Historic District sits in the north-east of Suzhou with outer city moat in the east, Lindun Road in the west, Ganjiang Road in the south and the East Baita Road in the north. It approximately covers a gross area of 116.5 hectares.(See as Figure 1) .This area, with traditional city layout, original local architectural style and the living habits, is the best preserved zone in ancient city of Suzhou so far(Wen Huachuan,2009). The core value of this region lies in the integrated preservation of the double-chessboard layout of Suzhou, with the streets and rivers going side by side while the water and land routes running in the parallel, making the true embodiment of Pingjiang Map of Southern Song Dynasty (1229 AC).

Pingjiang Historic District is abundant treasures of Chinese classical gardens and historical relics. Both Humble Administrator's Garden and Lion Grove Garden are the UNESCO World Cultural Heritage. Moreover, there are many museums, including the famous Suzhou Museum designed by I.M. Pei and the national cultural relic protection unit, Palace of King Zhong of Taiping Heavenly Kingdom. There are more than 40 ancient dwellings which have been put on the list of control and protection by local government. Some of them are the former residences of bureaucrats, rich merchants, or cultural celebrities, showing particular architectural features, such as the carving building in North Zhangjia Street and the Pan Mansion. With the remains of rivers, bridges, lanes, traditional dwellings, ancient memorial archways, old trees and wells, Pingjiang Historic District presents a charming picture of waterside town style, with small bridges over the flowing rivers



Figure 1 The location of Pingjiang Historic District



Figure 2, The distribution of Historic Preservation

and white walls and dark tiles. (See as Figure 2 and Figure 3)



Figure 3 The scenery of Pingjiang Road and Canal

In 2001, the overall protection of Pingjiang Historic District started, which aimed at the preservation of the original appearance of Pingjiang Street and preventing the destroy of environment. After 3 stages of protection work: the testing project (2001~2004), the environmental renovation project (2004~2006) and vitality cultivation and regeneration project (2006~now), the population density of Pingjiang Historic District reaches 16.1 thousand/square kilometers. The proportion of residents aged beyond 60 within the district turns into 45% in total population. These senior residents became the protagonist and their life style constitutes unique cultural features in the historic district. Most of them are low income families and Ageing-in Place model became their only choice for pension. However, the success of historic and cultural tourism in this area brings large amount of visitors in, which negatively impacts the local residents, especially senior residents. The most serious contradiction between tourists and elderly residents was caused by spatial ambiguity and disorder, because the increase of tourist has squeezed the public street space of elderly population. Hence, the elderly feels seriously threatened due to the spatial sense of belonging and domain has decreased continuously.

Before the tourism development in Pingjiang Historic District, an interdependent balance exists between the original district and the seniors who are living inside. On the one hand, local residents ensure the preservation of cultural inheritance and life style, promoting the level of preservation in historic districts. On the other hand, a livable district can provide elderly equipped infrastructure and cultural and culturally psychological dependence. Unfortunately, this kind of balance was gradually broken by the tourism development.

3. Research Perspectives and Methodologies

3.1 Territory

Territory is viewed as space occupied and defended by animals, where there are particular defensible resources. The act of possessing and defending territory from appropriators can be regarded as territorial behavior. Territory includes three types: Primary Territory, Secondary Territory, and Public Territory.(Zheng Ying, Gu Kouyuan, 2011)

Territorial Behavior is a very universal phenomenon in our society. J. Edney points out, “ This involves exclusiveness, marking, individualization and identity of physical space, possession, protection , exclusiveness, mark, personality and role.(J. Edney, 1990)

3.2 Alienation of Territory and Public Space

Territoriality is behaviors and cognitions embodied by individuals or groups, which is based on cognitions of the real spatial ownership. Different types of territories meet different motivations and needs. Therefore, people will select specific territorial types of public activities according to types and needs of participated activities. For tourism-oriented historic districts, territoriality refers to right statements of fictitious territories by residents, tourists and businesses that freely use or occupy the space. Territoriality can differentiate justifiable users and unjustifiable users in the area, allowing justifiable users relate each other to form a regional community.

Oscar Newman points out: Residents are willing to protect the space they feel they belong to and take some measure to control it from unauthorized intrusion.(Oscar Newman,1972)Being user entities in historic districts, residents, tourists and businesses always declare their rights for certain territories of public space. Such kinds of right announcement lead to different territorial behaviors and various ways of spatial use. Different territorial behaviors are the games among the three groups indeed and will engender the alienation of spatial usage. The group of residents is in a disadvantage position because of the capital power and government’ s guidance.

For these reasons, it is necessary to straighten out the mechanism of the interaction between space and behaviors, as well as to understand types of territorial behaviors and spatial characteristics of seniors in tourism-oriented historic districts. By moderately spatial interventions, the guidance of territorial behaviors will be set up, which ensures the transformation from spatial alienations to spatial justifiable usages by different groups and improves the spatial quality for aging communities in tourism-oriented historic districts.

3.3 Research Methodologies

This study applies with three research methods to investigate senior residents’ activities in Pingjiang Historic District, including behavior maps, questionnaires, and interviews. The survey checks out the public spatial utilization and population distribution in Pingjiang Historic District from 2013 to 2018. The research steps are as follows: A. Use degree of spatial satisfaction to evaluate the needs of space by questioning the public spatial needs of 361 senior residents randomly in Aging-in Place model within 6 years. B. Conduct the investigation on public spatial nodes in Pingjiang Historic District as observation points by using the method of behavior maps and observation approach, which helps understand the change of the public spatial utilization for elderly.

4. Research Results

4.1 The Changing Needs of Public Space for the Elderly

The water and land routes running in the parallel is the most important feature in Suzhou spatial pattern. The Chinese traditional public space composes of a series elements of street-lane-courtyard. Four levels of spatial composition exist in the daily living space of elderly residents: main street-lane-courtyard-building. Different degrees of spatial control lead into the unique spatial system for elderly residents: public-semipublic-semiprivate-private. Spatial elements, main streets, lanes and courtyards, together build the public space for seniors.

There are six public spatial needs for elderly residents in Aging-in Place model: spatial amount, spatial safety, environmental comfort, spatial accessibility, spatial separate and spatial diversity. From investigations on the public spatial utilization and population distribution in Pingjiang Historic District from 2013 to 2018, seniors shows different levels of satisfaction to six public spatial needs. The results of investigation demonstrate: the satisfaction degree of spatial amount declined from 3.56 in 2013 to 2.19 in 2018; the satisfaction degree of spatial safety decreased from 4.21 in 2013 to 2.08 in 2018; the satisfaction degree of spatial separate degraded from 4.64 in 2013 to 2.97 in 2018; the other three aspects of public spatial satisfaction almost stay the same during these 5 years.('As seen in Table 1)



year	amount	safety	comfort	accessibility	separate	diversity
2013	3.56	4.21	3.93	3.39	4.64	3.25
2014	3.23	3.56	3.77	3.47	4.52	3.23
2015	2.98	3.41	3.41	3.48	4.14	2.86
2016	2.21	2.34	3.48	3.25	3.31	2.95
2017	2.13	2.33	3.57	3.27	3.00	3.75
2018	1.93	2.08	3.31	3.00	2.79	2.92

Table 1 Public Spatial Satisfaction Degree for Elderly in Pingjiang Historic District

Above results show that spatial amount, spatial safety and spatial separate become the significant criteria for evaluating elderly’s public spatial quality. Therefore, this paper mainly concentrates on reasons of survey results:

A. the increase of tourists

The elderly’s daily public space has been continually invaded by increasing tourists, causing the decline of elderly’s public spatial quality in spatial amount and spatial safety. According to the statistics, the visitors in

Pingjiang Road are over 4 million per year. The peak daily reception reached 60 thousand people during typical peak seasons and weekends. Huge amount of visitors has squeezed the public space for elderly residents, leading the sense of crisis for spatial safety.

B. the enlargement of commercial area

The commercial space spreads all over the Pingjiang Historic District, from streets and lanes to courtyards, which seriously disturbs the regular daily life of senior residents in their public space. From 2013, the commercial space keeps expanding from two sides of Pingjiang Road to those small lanes that are perpendicular to Pingjiang Road. Furthermore, the local homestay also increased dramatically every year. These commercial activities interfere with local residents' daily life space. Thus, those semiprivate spaces, such as lanes and courtyards, are totally exposed to visitors. Elderly lost their public spatial safety and spatial separate.

Those node spaces that can accommodate varied activities became the favorite places by retailers for business usages. Such kind of commercial behaviors also occupy the seniors' recreation space, which left many unsatisfied.

C. the tourism needs for local experience

Being the best preservation district in Suzhou, the original life style and local spatial experience are important factors in attracting tourists in Pingjiang Historic District. Visitors' curiosity about traditional living space causes more and more troubles to elderly. The spread of tourists to every corner around the district persistently disconcert those public space and life style for elderly residents. The original residential function was replaced by the homestays and hotels, leading tourists into the most private space for elderly and disturbing their daily use for public space. Hence, tourism not only causes problems of environment pollutions and noises, but also lowers the life quality in the community.

4.2 Territory Behavior of Public Space under the Co-existence of Diversified Groups

Tourism expansion in historic districts takes huge impact on locals. The composition of population turns from solely residency status into diversified groups, including residents, retailers and tourists. The usage of public space also transformed from fully owned by local residents to share by residents, retailers and tourists. Consequently, all kinds of behaviors in varied territories occur in space.

The territorial behaviors of different groups in public space present four types of "Occupation" on street and lane spaces: Space Possession, Space Occupancy, Space Invasion and Space Defense. Space Invasion and Space Defense are a set of relative concepts, representing the acts of declaring domain territory by a group people. Space Possession and Space Occupancy describe the ownership of space sovereignty in different time duration. The former one is a long term and permanent behavior to occupy space, which privatizes the space. The long-term outdoor storage of private stuffs or expansion of buildings will take over parts of public space. Although they still belong to public properties, others cannot use them anymore. For example, some retailers transformed the street space into parking lots or outdoor



Figure 4 Space Possession

teahouse. Space Possession becomes the main reason for breaking the continuous of elderly spatial public system, resulting in the space privatization and fragmentation.(See as figure 4)

Space Occupancy refers to those behaviors of stay in a short period, such as a rest taking, chess playing and Tai Chi playing. These temporary stay activities usually avoid public spaces using by others, which means current public spaces are difficult to be shared with others. Space Occupancy can either be the proper use of space, or be the alienated use of space. Thus, spatial ambiguity and disorder were created for elderly, which became the primary reason for those elderly residents who lack spatial belonging. The conflicts generated during the spatial use process among local senior group, the commercial group and the tourist group. This spatial use process represents the Space Occupancy process of different groups.

Space Invasion means someone enters into others' functional space and uses the space temporally. This is an injustice behavior for space occupancy, such as seniors have their daily activities in commercial outdoor teahouse, and tourists intrude into elderly's' private courtyards.

Space Defense is spatial restrictions for preventing others' Space Invasion, which represents a behavior of justice. For example, the installation of fence by retailers avoids non-consumers entering into the teahouse area. Local residents place temporary obstacles or markers to prevent the entering of visitors.

Through long-term observation on territorial behaviors in public space of Pingjiang Historic District, the typical territorial behaviors of different groups are shown as Table2:

Table2 Typical Territorial Behaviors of Different Groups in Public Space

Groups	Space Possession	Space Occupancy	Space Invasion	Space Defense
Seniors	<ul style="list-style-type: none"> ● Enclosure activity spaces 	<ul style="list-style-type: none"> ● Playing chess ● Playing Tai Chi and squaring dancing ● Having a rest ● Airing the clothes 	<ul style="list-style-type: none"> ● Non-consumers entering into the retailer's seats area for resting 	<ul style="list-style-type: none"> ● Placing temporary obstacles
Retailers	<ul style="list-style-type: none"> ● Delineation of parking lots ● Enclosure spaces with fences ● Arrangement of outdoor seats 	<ul style="list-style-type: none"> ● Placing merchandises temporarily ● Mobile booths 	<ul style="list-style-type: none"> ● Homestays entering into residential living space 	<ul style="list-style-type: none"> ● Placing fences
Tourists		<ul style="list-style-type: none"> ● Shopping ● Resting 	<ul style="list-style-type: none"> ● Entering into private courtyards 	

Above four territorial behaviors is the process of long-term interest game and district autonomy, causing the difference in usage of district public spaces by different groups. In this process, the power of capital is often stronger than that of society. The seniors in districts take in a disadvantaged position so that their activity spaces are squeezed and intruded. Finally, the loss of public space became the decline of satisfaction degree of public space and life qualities. Thus, the public spatial intervention for the aging group also decreased in this kind of historic districts.

4.3 Public Space Transformation for Aging Group Caused by Territorial Behaviors

After the rising of large amount of tourism and commercialization in historic districts, public space for aging group delivers the characteristics of fragmentation and ambiguity. This lowers the safety and belongs of public space. The main features are as follows:

A. the Change of Space System

The communication space among the elderly has shrunk sharply, which develops from early three-level spatial system (main street-lane-courtyard), to two-level spatial system (lane-courtyard). Some seniors only have courtyards as semiprivate space.(See as Figure 5)

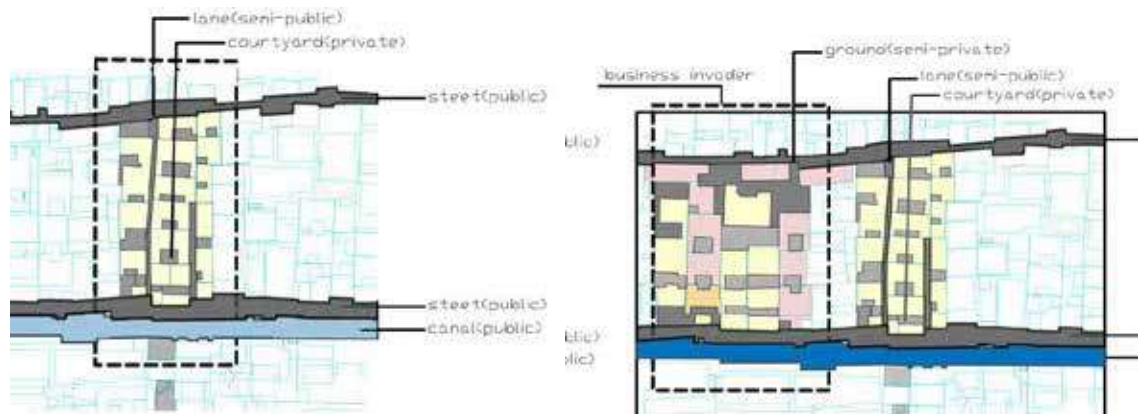


Figure 5 the Change of Space System

B. Decrease in Spatial Scale

The commercial space keeps expanding along main street and river sides that are originally part of the public space for seniors. Behaviors of Space Possession and Space Occupancy turned the residential space into commercial space, reducing the amount of public space for the elderly.

C. Lack of Node Spaces

Most traditional street spaces are linear spaces and are short of node spaces. These existing node spaces are essential activity space for the aging group for the usage of morning exercises, evening exercises and squaring dancing. However, the massive influx of visitors caused the occupation of node spaces by retailers and tourists. According to the statistics, the node spaces for the elderly have reduced 50% since last 6 years.

D. the Competition for the Spatial Usage in Periods of Time

The investigation shows seniors transit trip rule in Pingjiang Historic District differs from other districts. Aging residents like morning activities from 7:00-9:00 and mostly they lack of public activities at night. Seniors in China love strolling and squaring dancing. These excises take in both morning period and night period. However, due to the Space Possession and Space Occupation by tourists and retailers for whole day in the historic district, the aging group in Pingjiang Historic District cannot enjoy the night public activities like seniors in other residential districts. 60% elderly dissatisfied with this phenomenon..('As seen in Table3 and Table4)

Table3 Statistical Analyses of Public Space Users (Weekends)

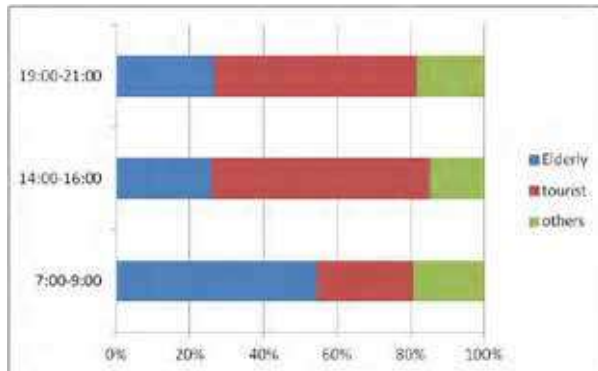
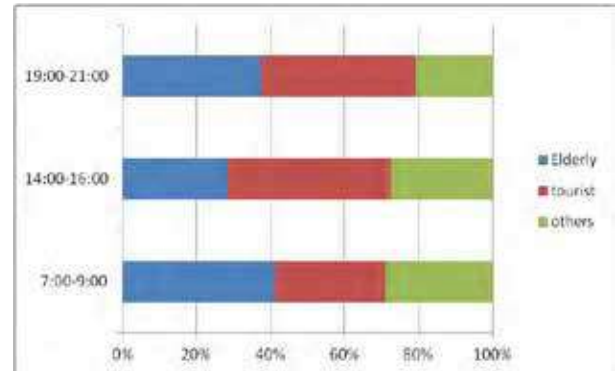


Table4 Statistical Analyses of Public Space Users (Work Days)



Above researches reveal that effective methods can be applied to restrict Space Possession and Space Occupation by tourists and retailers. The appropriate ways help reduce the Space Intrude to public space for the aging group, which also become the main approaches to improve spatial interventions for the elderly in historic districts. These effective strategies and methods will be discussed in what follows.

5. Urban Design Strategies from the Perspective of Territoriality

5.1 Separate Managements in Different Territorialities with the Spatial Limitation for Commercial Development

The expansion of commercial spaces is the main reason for contradictions and conflicts. Therefore, commercial spaces should be limited within certain areas, such as spaces along Pingjiang Road and Pingjiang River. This centralized layout not only maintains the existing organic culture style and residential space, but also improves the spatial performance and balances the economic development and local residential life. It's also necessary to restrict the commercial development in secondary lanes and original living spaces. Special development areas can be designed to enhance the vitality of districts, as well as to realize the economic performance. Spaces used for homestays and hotels can look for complete courtyards for adaptive design so that the fragmental interventions of space usage can be avoided. Moreover, this will reduce the interference with the elderly in semi-public and semi-private spaces.

5.2 Place Identification by Reintroducing Residential Life Style into Commercial Space

In most historic districts, tourism development becomes a necessary way to ensure the district vitality and economic development. Furthermore, it is also an important approach to share the tangible heritages. Urban design needs to consider the roles played by the elderly to maintain the exiting organic cultural style. Moreover, the design work should commit to create shared public places so that different groups can co-exist in different level of public spaces. Specific recommendations are as follows: Urban design should reduce the pursuit of maximum economic benefits in the main street and reintroduce life style of the aging group into commercial space; Lifestyle business can be moderately added into the street and lane spaces; Mixture of different businesses can accelerate the integration among residents, tourists and retailers, enhancing the place identity of the elderly.

5.3 Live Harmoniously by Accommodating Seniors and Tourists in Public Node Spaces

The participation of social activities is a significant way to improve the social capital of the elderly. Design work for active spaces can be achieved in primary node space in the district for providing public activities for the elderly, such as bridges, river banks and street pavilions. Meanwhile, activities can be planned within these spaces for the elderly and visitors to participate by community building, such as listening and singing the Pingtan, appreciating Kun drama and playing chess matches. By the end, the increase of public space participation behavior of the aging group can help achieve harmonious coexistence of different groups.

5.4 Enact Policies to Improve Social Responsibilities of Business Practitioners

The act of urban administration policies not only clarifies the spatial attribution, but also encourages the social responsibilities of business practitioners. In terms of different spatial needs for different groups, urban design methods can be applied to identify the public space attribution, especially spaces along Pingjiang Road and Pingjiang River. Thus, the design can reduce unjustifiable Space Possession and Space Occupation so that each group is in their proper place. Those business practitioners, who are willing to offer public space to the aging residents, should be rewarded in spaces, as well as give tax incentives. This kind of policy can guide businessmen to take social responsibilities.

6. Conclusion

Aging-in Place model within tourism-oriented historic districts is the important carrier to ensure the cultural inheritance. It promotes cultural connotation and realizes the harmonious coexistence of residence and tourism. This model builds an ideal life style in tourism-oriented historic districts. From the perspective of spatial territory, this paper analyses life style and public spaces in historic districts, which provides design and management ideas for urban planners, architects and government. The study not only improves the spatial interventions for aging communities, but also promotes the tourism quality in historic districts.

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