

Characteristic of Flexible Space of Traditional Urban Street under the Concept of Healthy City: Case Study of Muslim Settlements in Xi'an

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Abstract: Healthy city refers to a whole which is organically developed by healthy people, healthy environment and healthy society. It can improve its environment, expand its resources, and enable the urban situation to support each other so as to maximize its potential (Trevor Hancoc and Len Duhl). Xi'an Muslim Residential Area was formed after the Tang Dynasty and lasted more than a thousand years. Muslim settlements in Xi'an take mosques as the center and form a spatial pattern of Residence Around Mosques, which is continuing the traditional scale of urban street public life in China, and becoming an important carrier of people's emotions, life and communication space. Xi'an Muslims have a tradition of doing business, which the front of the house serves as a shop and the back yard serves as a residence. Therefore, the commercial activities there often extend from the first floor of the house to the street, forming an important public living space. With the extension of commercial activity space, this kind of place gradually becomes a functional medium, which softens the rigid boundary between the building and the street, thus forming a flexible space. This flexible space forms the event carrier of historical memory or the space field under the stack of daily life, which emerges a sort of reaction to space actors makes Muslim settlements have unique social and spiritual cohesion. It strengthens the stacking effect of historical information in urban space, then it constitutes the cultural information field of human-space-place. Taking Xi'an Muslim Residential Area as a case study, this paper analyses the types, attributes, characteristics and elements of these flexible spaces by the methods of typology, investigation data and Mapping, aiming at exploring the design method of traditional urban street flexible space based on the concept of healthy city as well as the healthy settlements.

Keywords: Healthy settlements, Street space, Traditional yardstick, Flexible space,



Introduction

Healthy city refers to a whole which is organically developed by healthy people, healthy environment and healthy society. It can improve its environment, expand its resources, and enable the urban situation to support each other so as to maximize its potential. The social value of flexible space originates from the pluralistic and complex nature of local residents, living places and public spaces, and has multi-functional adaptability. It is often manifested in the effect of space occupation and activity fields in pedestrian blocks. Investigations show that the flexibility of this space promotes the spiritual cohesion of local residents' society, strengthens the degree of social harmony, and further promotes the community health trends.

Since the Tang Dynasty, Xi'an Muslim Residential Area has been formed. It lasted 1300 years. With mosque as the center, Xi'an Muslim Residential Area has formed a spatial pattern of "encircling the mosque while living". It has continued the traditional scale of public living space in urban streets of China and become an important carrier of people's emotions, life and communication space. The social value of flexible space in Muslim neighborhoods (hereinafter referred to as "Muslim Square") is fully embodied and typical. Through the analysis of flexible space types, the spatial attributes, characteristics and elements of traditional street and lane public space are revealed, and the sociological value of flexible space in traditional urban neighborhoods based on the concept of healthy city is explored.

1. Research object and its background

Muslim neighbourhoods are located in the west of the Bell Tower in the old urban area of Xi'an, the central city of Northwest China. They cover an area of about 1.1 square kilometres (Fig. 1), starting from Shehui Road in the east, Zaozi Lane in the west, Hongbu Street in the north and West Street in the south.



Figure. 1 Scope of study and location map

Photo Source: Self-drawn by the author

The formation of Muslim residential space can be roughly divided into three stages: 1st, From the end of Tang Dynasty to Yuan Dynasty, Muslim settlements were formed and developed. The ancestors of Muslim settlements were mostly foreign nationals and their descendants. The

influence of Islam penetrated into all aspects of the lives of the ancestors of Muslim neighbourhoods.2nd During the Ming and Qing Dynasties, the basic pattern of Muslim settlements and a large number of historical relics and monuments were formed in the Ming and Qing Dynasties, and the spatial pattern of "Seven Temples and Thirteen Squares" laid the framework for the development of Muslim settlements.3rd Since modern times, the number of Muslim residents has increased significantly, forming a large-scale community. The infiltration of foreign culture and social fashion weakens the religious role of Muslim settlements, but the social organization form of mosque-Muslim community is still the basis of all kinds of relations in Muslim settlements.

The historical area of Beiyuanmen is located in Ming City of Xi'an. Drum-tower in the South and Beiyuanmen in the north and included the part of Xiyang Street and Huajue Lane, covering an area of about 9 hectares. Muslims are the main inhabitants. The section includes one of the key cultural relics protection units in the whole country - Drum Tower, and two of the key cultural relics protection units in Shaanxi Province - Huajue Lane Mosque and Gaojia Courtyard.



Figure . 2 Analysis and Investigation on the Current Situation and Publicity in Beiyuanmen Area
Picture Source: Drawing Based on Investigation Data by Author

The Muslims in Xi'an take business as their tradition and take family as the unit to form the space form of front store and back house or the space form of bottom store and upper house. Therefore, business activities often extend from the first floor of the room to the street, forming an important living space. With the extension of commercial activity space, this kind of place acts as a functional medium, softening the rigid boundary between buildings and streets, and forming a flexible space with social value because it bears specific public social activities. This

kind of flexible space forms the event carrier of historical memory or the space field under the stack of daily life, which reacts on the spatial behavior subject, makes Muslim dwelling have unique social and spiritual cohesion force, strengthens the stacking effect of historical information in urban space, and constitutes the cultural information field of human-space-place.

2. Medium Properties of Flexible Space

Jan Gehl put forward the concept of "flexible boundary" in his book *Communication and Space*, which wrote: Flexible

boundary is a transitional area which is neither completely private nor completely public. They often act as a connecting link, making residents and activities more relaxed physically and psychologically when swinging in private and public space.(Jan Gehl, 2002) , Flexible space, as one side of public space and directly connected area of buildings, plays a role in softening the interface between buildings and streets, and is an important container for attracting people to stay and promoting street life. According to spatial attributes, flexible space can be divided into three types: open, semi-open and introverted. The historical area of Beiyuanmen has abundant business forms and various stores, forming a flexible space with diverse forms and unique features. Flexible Space can be divided into public activity space, Street shared space, green leisure space and so on according to its spatial function. Its space has the property of medium space, which is the medium space of behavior transition, psychological transition and emotional transition.

Table 1 A List of Flexible Spatial Investigation and Classification of Beiyuanmen Historic District

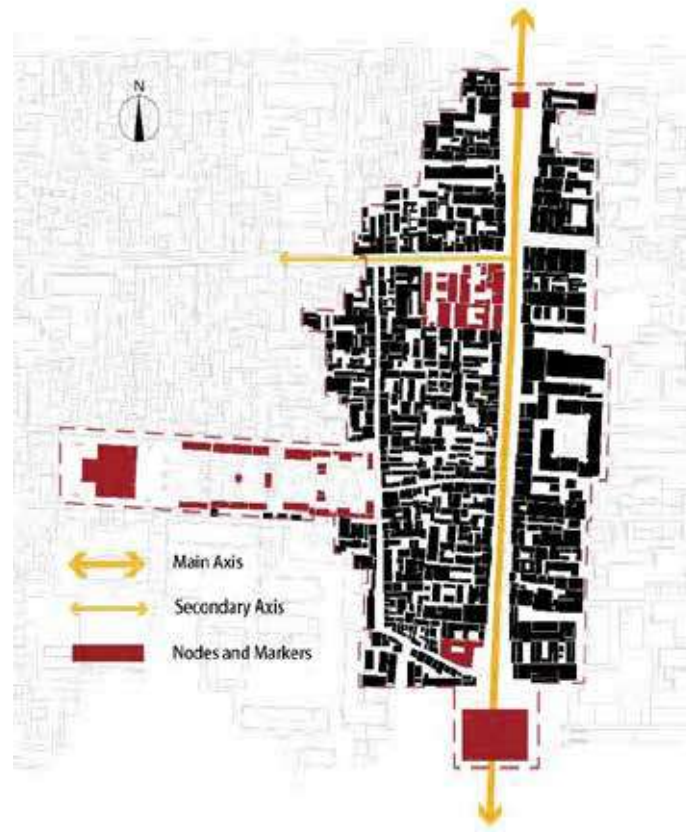
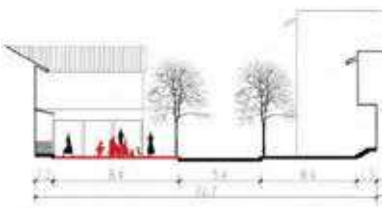



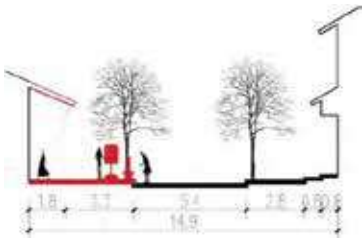



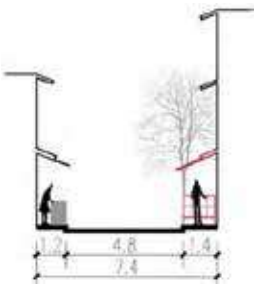

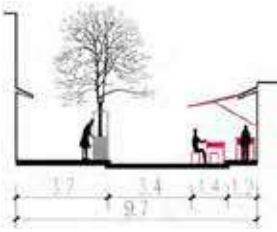

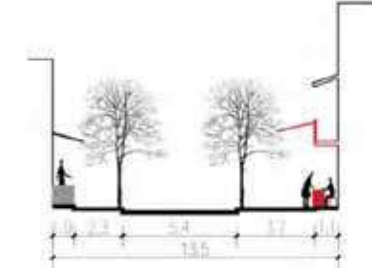

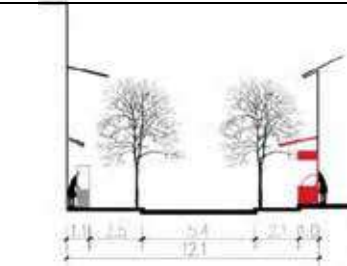

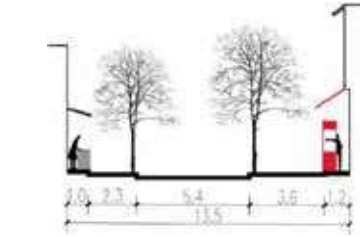

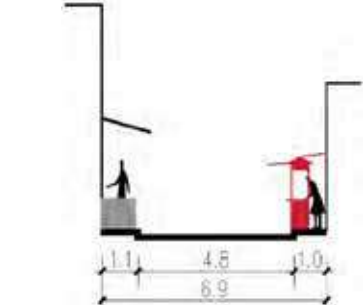



Figure.3 The Spatial Order of the Block and Its Node Elements
Picture Source: Drawing Based on Topographic Map by Author

Type	Space Form	Road Section	Photo	Elements
Open type	Small square space			open space, characteristic sculpture
	Street green space			stone bench, parterre, sculpture
	Entrance space of scenic spots			eaves, stone tablet, billboards
Semi open type	Outer court of Street Shop			canopy, fence, tables and chairs
	Pedestrian space			canopy, works display shelf

Type	Space Form	Road Section	Photo	Elements
	Street space			canopy, tables and chairs
	Outdoor space of shops			canopy, stool, bronze statue, console
Introverted type	Shop space			Canopy, Commodity cabinet
	Outdoor space of shops			Canopy, Outdoor Operator
	Sidewalk space			Canopy, Food stall

3. Space-time field properties of flexible space

3.1 Hierarchy of Spatial Communication

The public space of Beiyuanmen block has multi-level communication functions, including daily communication of local residents, anonymous communication of citizens and tourists, and multi-polar communication of socialization.

(1) Daily communication: normalized hierarchical, hierarchical, classified communication space, and frequency assurance of communication, which is one of the important characteristics of urban modernity.

(1) Anonymous Communication: Seeking first experience of communication and self-choice of communication

(3) Social intercourse: regional activities and contacts, beyond the needs of contacts across time, space and region, such as kinship, neighbourhood, geography and industry, to obtain more abundant communication information and the basic basis for self-decision-making.

3.2 Street and Lane Vitality Externalization

According to the survey, the current business types of Muslim settlements are mainly divided into four parts: Muslim food, jewelry and jade antique trade, flower-bird-fish-insect commodity business and trading. Among them, the operation of Muslim food is its leading industry. There are 223 shops in the survey area, gathering many well-known snacks in Muslim settlements, including 11 centuries-old shops, with a strong business atmosphere. Muslim catering and retail trade are the main types of business in the area. Details are as follows:

Commercial and retail trade: mainly distributed in Huajue Lane and Beiyuanmen accounting for 50.45% of the industry mix. In recent years, the market share has gradually expanded, mainly serving tourists. Retail is mainly Muslim food, such as Muslim salted beef and mutton, in addition to Shaanxi local products and various tourist souvenirs, which is related to the vigorous development of tourism in recent years.

Muslim catering industry: mainly distributed in Beiyuanman and Xiyang City, accounting for 31.08% . Special snacks include steamed beef and mutton, stir-fried, steamed beef and mutton, etc. It serves both residents and tourists, and is the main feature of Muslim settlements.

Non-Muslim catering industry: mainly distributed in Beiyuanman, accounting for 4.50%, mainly snacks and drinks, serving tourists, is driven by the development of tourism in Muslim settlements.



Leisure and entertainment and supporting services: mainly distributed in the Beiyuanmen, accounting for 6.76% and 7.21% respectively. The main types are hotels, cafes and supermarkets. It is also driven by the development of tourism in Muslim settlements.

At present, the internal management mode of the district is mainly family-style small workshops, with family as the main unit. Store area is generally small, about 30-300 square meters, there is no large number of commercial facilities and large commercial service outlets.

Street vitality is reflected in the following four points:

(1) Functional format: life leisure, tourism leisure, business leisure, leisure after work; Its

functional format adapts to the derivative functional format of living space, employment space and business space.

(2) Spatial vitality: the consistency of space nature, space order and place spirit.

(3) Social Vitality: Medium Communication Space Promotes the Quality of Communication and Enhances the Acquisition of Spiritual Value of Places

(4) Economic Vitality: The traditional business form with family as the unit, the historical accumulation and the brand effect of historical stacking constitute the industrial chain and market environment based on the spirit of space place.

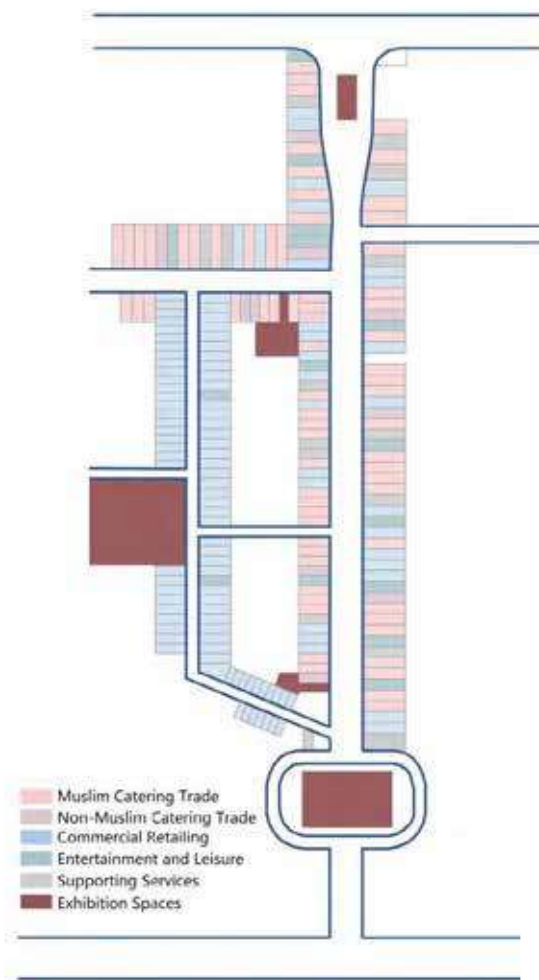


Fig.4 The Schematic Diagram of Investigation Results of Industry States distribution in Investigation Section
Picture Source: Drawing Based on Investigation Data by Author

3.3 Self-management of Urban Behavior

Because of the historical and cultural value of Muslim neighborhoods, the historical-spatial field composed of community groups and space carriers produces effect, which constitutes the characteristics of self-management of urban behavior. It involves the following three aspects.

(1) Place management: Place management is divided into urban management and community self-management, in which urban management mainly focuses on health and safety, while community management makes the relationship between business and residence close and complex. Muslim neighbourhood has become an environmental theme, reflecting the cultural connotation and denotation of the community's space and cultural characteristics.

(2) Scene management: The historical accumulation of family as business unit constitutes its specific environment atmosphere, which makes the sense of environmental symbols, color, texture and environment scale have the matching characteristics of block pedestrian space, space function and its behavior, showing the order under chaotic phenomena.

(3) Behavior management: In the space dominated by catering and tourism commodities, the family-based business has the characteristics of diversified development and diversity. Self-management mechanism is the spatial logic and order of acquisition of spiritual value based on the adaptability of place theme and emotional pleasure.

4. Self-organization of Flexible Space

In Muslim neighbourhoods, the traditional living space of streets and alleys bears the local history and memory, so it has cultural inheritance. However, the family-based business model also shows the trend of self-renewal and the gradual alienation of traditional business groups. However, in the process of self-development of stability and renewal, the interaction of various factors strengthens the complexity of the community and highlights its cultural, social and economic value, which is embodied in the following four aspects of the relationship and role process.

(1) Leisure life network: From environmental quality to communication quality, leisure life has obvious locality based on a daily life scene with historical atmosphere, and the multiple characteristics of spatial attributes endow the people in this region with greater tolerance for foreign cultural or fashion trends. Therefore, multi-cultural attributes and local living places pass through neighborhood formats. It generates the power of self-renewal.

(2) Derivation of public function: Communication center transforms from organizational behavior to leisure life behavior, which has prominent local characteristics, self-adjustment based on the complex functions of historical environment and public living space, and

infiltration and integration of daily life behavior and urban public life behavior. Strong regional characteristics have become an attracting factor of local life experience willingness. Public life functions derive and diversify around residential life functions.

(3) Multidimensional public life: Local micro-economic location factors make community life tend to be multi-centered and decentralized, while mosques play a composite role of economic, social and cultural effects of commercial integrity under cultural constraints. The function of public life is multi-dimensional and multi-level symbiosis and coordination, and it also meets the public and tourists'recreational life, business contacts and other public life behavior.

(4) Business form self-renewal: Starting from the traditional life form, it adapts to people's attention and pursuit of history and memory. As a result, the leisure life form in this area not only improves the economic benefits, but also promotes the communication activities of consumers. Through the adaptability upgrading of business form, the whole block is full of vitality.

5. conclusion

Healthy city refers to a whole which is organically developed by healthy people, healthy environment and healthy society. It can improve its environment, expand its resources, and enable the urban situation to support each other so as to maximize its potential. The social value of flexible space originates from the pluralistic and complex nature of local residents, living places and public spaces. It has multi-functional adaptability, often manifested as the effect of space occupation and activity field in pedestrian blocks. Therefore, the community flexible space design guided by social value is a new trend of urban space planning and design under the concept of health.

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