

Vitality Promotion Study of Zhaoyu Ancient City Based On Symbiosis Between Tourists and Local Residents

Li MIAO

Dalian University of Technology

Bing LI

Dalian University of Technology

Xiaoyan HUANG

Dalian University of Technology

Na LI

DiDi chuxing technology Co

Abstract

Zhaoyu Ancient City is located in Qi county, Shanxi Province in China. Today, the ancient city still preserves its urban form dating back to 1,500 years ago. As a city heritage, Zhaoyu Ancient City has high historical value. Based on the concept of "symbiosis", this paper regards Zhaoyu Ancient City as a dynamic symbiosis system, in which both tourists and local residents are symbiosis elements. First of all, the study investigated the composition of local residents and tourists. Then, the paper analyzes its vitality, compares the peak season with the off-season, and reveals that Zhaoyu Ancient City still keeps the characteristics of the living ancient city. Its vitality injected by local residents is as important as that contributed by tourists. Furthermore, combined with the results of multi-source data analysis, this paper analyzes the interaction between the vitality and four dimensions of space, function, culture and experience. Finally, based on the orientation of "symbiosis" between tourists and local residents, this paper proposes multiple strategies to improve the quality of space and environment in the ancient city. The integration and co-existence of two groups will create a source of vitality for the sustainable development of ancient city.

Corresponding author :

Li MIAO (miaoli@dlut.edu.cn)

Acknowledgement(s) :

This research was supported by a grant from the Project of Social Science Planning Fund of Liaoning Province [No. L19BKG001], P.R.China.

1. Concept of symbiosis and progress of related research

The word "symbiosis" comes from Greek and was originally a biological concept. The theory of symbiosis emphasizes the mutual coordination, fusion and cooperation among materials to achieve win-win co-prosperity. By now, the concept of symbiosis has begun to permeate in all fields [1]. The symbiosis theory in the field of architecture was put forward by the famous Japanese architect Keizo Kurokawa, who advocated the symbiosis between heterogeneous cultures, the integration of interior and exterior, the continuity of nature and architecture, and the coexistence of history and modernity, etc [2].

Ancient city is a place where various people live together. His vitality is closely related to the complex and diverse social relations. Most existing researches focus on the following aspects: the symbiosis between tourism industry and cultural heritage protection, between tourists and indigenous people or between local residents and foreign investors. Among them, the study focuses on the symbiotic relationship between tourists and local residents, which is an important point.

How a living ancient city can be vitalized by the rational implantation of tourism? How can tourists and local residents coexist energetically and harmoniously through space re-organization? Our study is to explore the above questions.

2. Introduction to Zhaoyu Ancient City

Zhaoyu Ancient City is located in Qi county, Jinzhong city, Shanxi Province in China. Zhaoyu Ancient City was built from a.d. 227 to a.d. 233. The ancient city is 835 meters long

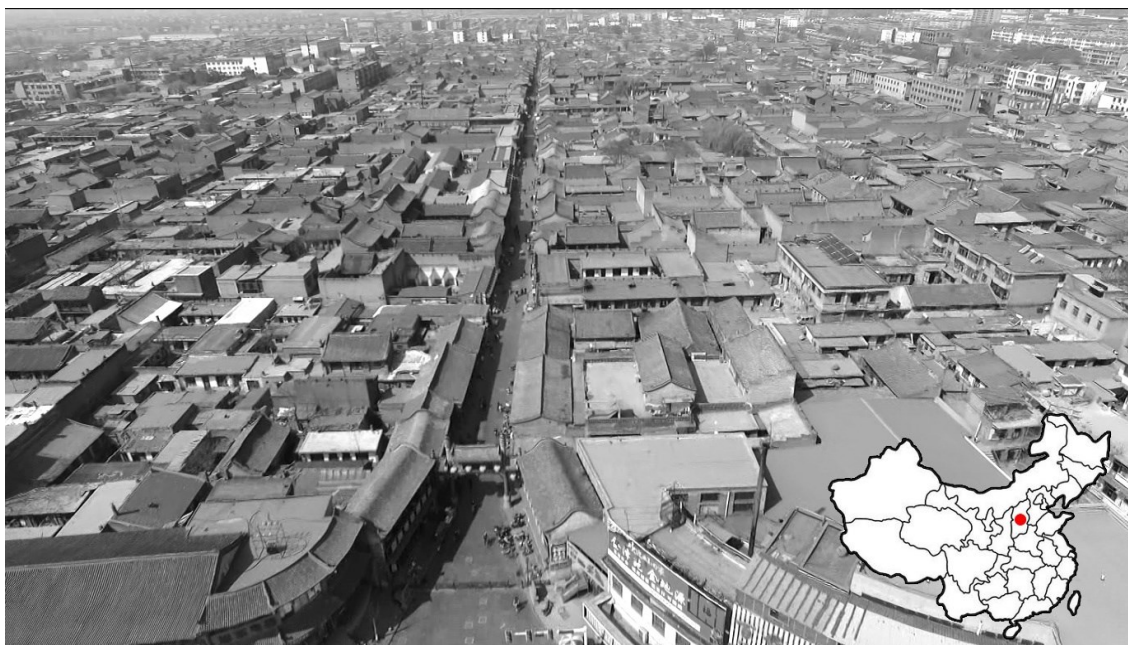


Figure 1. bird's-eye view of Zhaoyu Ancient City
(Source of images: photographed by author)

from east to west and 698 meters long from north to south, covering an area of 54.9 hectares. The whole city presents a rectangle without a corner in the southeast. There were brick walls with four gates, five turrets and a moat. The wall was torn down because of wars and modern constructions. Today, Zhaoyu Ancient City still preserves its urban form dating back to 1,500 years ago, integrating traditional streets, shops and temples. Its overall pattern of "one city, four streets, twenty-eight lanes and forty courtyards" is wholly preserved (Figure 1).

Because of the absence of the wall, Zhaoyu Ancient City is now connected with the outside county. Residence is the main function in the inner city. The most prosperous business converges here on the two sides of the central crossroad street. The ancient city reserves a large number of historical architectural heritages. In addition, several heritage sites are opened for visitors only and a large number of historical buildings are still in use. These architectural heritages perform specific functions, such as tea houses, workshops and residences. A primary school and a secondary school located in Zhaoyu Ancient City. The children who go to school and the parents who pick up their children every day bring much vitality to the ancient city. In a word, Zhaoyu is still a living ancient city (Figure 2) [3].

3. Investigation on local residents and tourists

3.1 Analysis of the composition of local residents

Zhaoyu Ancient City is densely populated by about 6000 people, including indigenous people and tenants. Zhaoyu Ancient City lies in the center of Qi county. In order to pursue a modern living environment, a large number of indigenous people in the ancient city migrate to the county. At the same time, a large population from the outer suburbs or nearby villages move to the ancient city. For seeking employment in the downtown, these out-of-town people choose to stay in ancient city because of the cheap room charge. In addition, the only middle school of the county located in the ancient city, attracting temporary tenants to accompany their children to study. For maximize the rent benefits, most indigenous people expand their rooms in their original courtyards. This movement contribute the dense architecture and chaotic environment in the ancient city.

3.2 Composition characteristics of tourists

In the first half of 2016, the main scenic spots in Qi county attracted 898,900 tourists. Our team conducted a questionnaire on tourists visiting the ancient city and collected 403 valid questionnaires [4]. At first, a sampling survey on the purpose of tourists was conducted



Figure 2. Land use of zhaoyu Ancient City
(Source of images: drawn by author)

(most questionnaires are multi-choice, so the total proportion is not 1). It can be found that tourists who want to know about the local history and culture account for the highest proportion (80.4%). About 75.2 percent of tourists wanted more local specialties, while 58.4 percent wanted more entertainment. Thus it can be seen that the historical value of the ancient city is the most important and also attracts many foreign tourists. Secondly, the survey of tourists' group has been done. The largest proportion of tourists traveling with their friends (29.7%), followed by couples (22.7%) and family members (16.8%). So there is a great demand for special homestay with the local features. The residential buildings in Zhaoyu Ancient City are suitable for the development of homestay (Figure 3).

4. Contribution of local residents and tourists to the vitality of the ancient city

The overall vitality of the ancient city is composed of tourism during the off-season and the peak season.

Tourism off-season vitality is mainly contributed by local residents of the ancient city.

Since Zhaoyu Ancient City has not yet undergone large-scale tourism development or commercial transformation, the vitality of the ancient city is basically generated by local residents, except for the special tourist seasons, such as small holidays and golden weeks. A series of rich activities, such as commuting, going to and leaving school, leisure and entertainment, shopping and dining, constitute the off-season vitality of the ancient city. Therefore, with the big data, tourism off-season is further divided into workday vitality and holiday vitality at time level. Our system collects digital information to translate the number of people per square meter into a thermal image in real-time, using the colours from red to green to indicate density.

Tourism peak season vitality is constituted by the ancient city tourists and local residents together. The vitality in ancient city is composed of a certain scale of tourists and the local residents. Compared with the features of steadiness and lasting in the off-season, the vitality of the tourist season fluctuates significantly with time. In particular, the busiest two areas with a swarm of tourists is in the east of the ancient city, making the ancient city present a balanced vitality. In short, the tourism development in Zhaoyu Ancient City is still in the initial stage. The seasonal influx of tourists

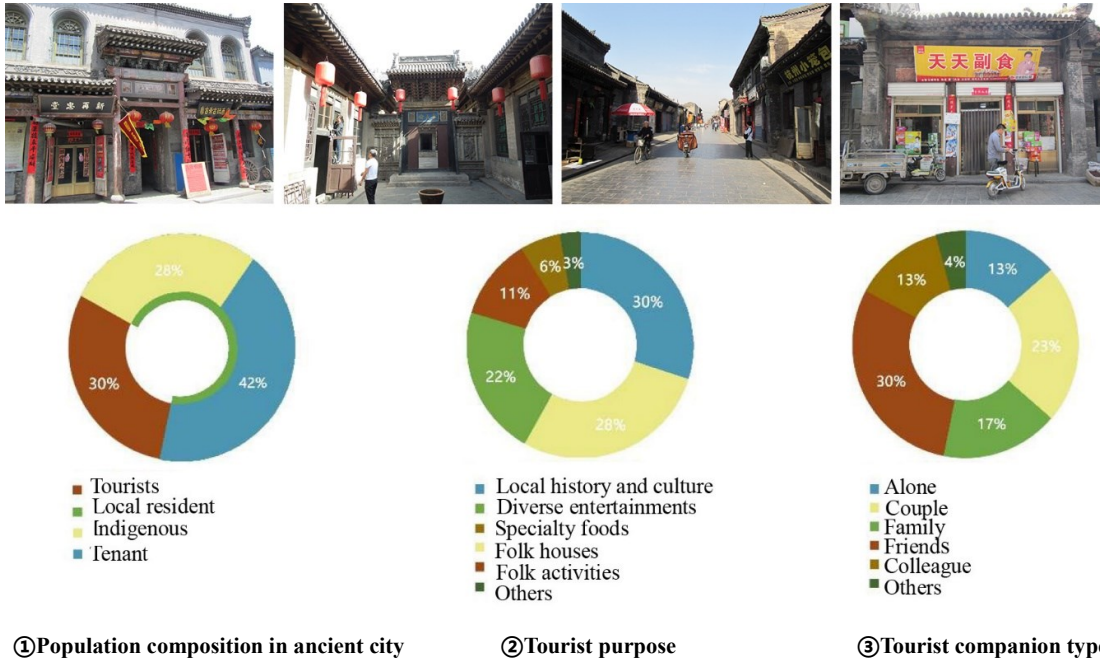


Figure 3. Street views and investigation on local residents and tourists
(Source of images: photographed and drawn by author)

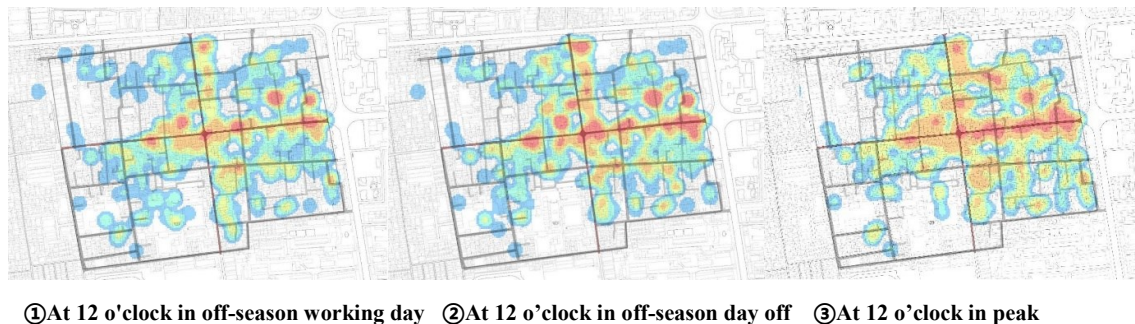


Figure 4. Thermal image of temporal and spatial distribution of vitality in Zhaoyu Ancient City
(Source of images: drawn by author)

5. Influence factors and correlation analysis of ancient city vitality

5.1 Four dimensions affecting the vitality

Through the observation of the distribution of vitality in Zhaoyu Ancient City, the analysis of vitality is summarized into four dimensions: space, function, culture and experience. The study constructed a vitality analysis model for Zhaoyu Ancient City, including building a spatial database, dividing the analysis unit, quantifying the indicators of the four analysis dimensions, analyzing the correlation between the vitality in the off-season and the peak season and the influence factors. During this period, with the analysis tool GIS, spatial syntax, and

mathematical statistics, the multi-type data such as raster data, vector data, text and numbers were completed through grid division and spatial connection^[4].

5.2 Correlation analysis between vitality and four dimension's evaluation factors

Pearson analysis shows that the functional dimension has the strongest correlation with vitality, while the spatial dimension is the weakest. First of all, the comprehensive scores of each dimension and the vitality data all passed the correlation test, showing a significant correlation at the level of 0.01 and a positive linear correlation to different degrees, reflecting

has an obvious impact on the vitality of the ancient city, but the vitality contributed by the local residents also plays an important role in the peak season. (Figure 4) [4].

the feasibility of the selection of inflection factors and having an positive effect. In the off-season, correlation degree between vitality and four dimensions accords with the following order: function> experience> culture> space. In the peak season, the order of correlation degree between vitality and four dimensions is as follows : function> culture > experience > space. That means the impact of cultural dimensions for tourist activities is stronger than the dimension of experience. For the local residents, vitality is more concerned with daily environment quality. At the same time, it can be found that each dimension's linear correlation degree is higher in the peak season and tourist activities are more susceptible to the role of each influence factor in dynamic analysis model. In terms of specific dimensions of a single influence factor, the vitality of the peak season and the off-season is influenced largely by dynamic functions in density, the influence degree of the mixing degree and the integrity of the related degree.

The vitality analysis model was applied to analyze the vitality of Zhaoyu Ancient City, and the correlation degree of 12 influence factors in four dimensions with the vitality in the off-season and the peak season of tourism was obtained. The refined research and data insight of ancient city supported by multi-source data were completed. On this basis, it is convenient to put forward basic and targeted vitality promotion strategies [4]

6. Ancient city space renovation based on the concept of symbiosis

The progressive renewal model proposed by the "urban catalyst" theory (Wayne Attoe, Dorn Logan, 1980) provides an idea for the overall renewal of historical city, which has strong practical value for solving the problems of declining space, functional and cultural element in historical blocks. The application of the theory of "urban catalyst" to the study of the vitality promotion of Zhaoyu Ancient City can be summarized as point, line and surface strategies [5]. The important cultural heritage and the main living places of citizens are regarded as "points", the tourist routes and the living routes are regarded as "lines", and the "points" and "lines" are used as catalysts to promote the

"surface", the overall vitality of the whole ancient city.

6.1 Development of diversified tourist routes

Considering the diversity of tourists' needs and the difference of stay time, three different tour routes are set based on the spatial distribution of tourism resources in the ancient city. Among them, the "half-day tour route" is 1.5km in length, covering the northeast area of the ancient city. With the newly built tourist center service as the starting and ending point, the route connects all the high-score analysis units in the northeast of the ancient city, with Qujia courtyard and Changyuchuan tea house as key heritage interpretation places. The "One day tour route" is 2.4km in length and contains the analysis unit of all the highest scores in four dimensions of the ancient city, covering the northeast and south of the ancient city. " Two-day tour route" is 3.2km length and covers the whole territory of the ancient city. Qujia courtyard, Changyuchuan tea house, Confucian temple, Hejia courtyard and some key residential areas are the key heritage interpretation places. The starting point of the second day will be changed according to the accommodation of tourists.

6.2 Improvement of living space quality of local residents

The ancient city has a high density of buildings and lanes, but lacks of external public space and green park. In addition, there are some idle land in the ancient city due to the demolition of factories and collapse of old buildings, providing a possibility for the construction of public space. Therefore, the plan is to use the existing idle lands to set up a green system mainly serving for local residents, and it can also be used by tourists. The loss of ancient city walls make the ancient city and the surrounding counties become integrated which reduce the recognition of the ancient city. Therefore, it is suggested to demolish buildings of poor quality without historical value in a certain area around the ancient city, and construct a green belt to redefine the development boundary of the ancient city, which also provides space for viewing the overall appearance of the ancient city from a distance.

The gardens inside the ancient city and the green belt around the ancient city will improve the quality of living space for local residents. At the same time, these routes of local residents



Figure 5. Planning Strategy of Zhaoyu Ancient City based on the concept of symbiosis (Source of images: drawn by author)

also intersect with those of tourists, which is important to promote exchanges and symbiosis between local residents and tourists (Figure 5).

Conclusion

Based on the concept of "symbiosis", this paper regards Zhaoyu Ancient City as a dynamic symbiosis system, in which both tourists and local residents are symbiosis elements. First of all, the study combines the qualitative and quantitative analysis of the vitality, and compares the peak season with the off-season to show the current characteristics of the vitality of Zhaoyu Ancient City. It is revealed that Zhaoyu Ancient City still preserves the characteristics of the living ancient city compared with the other historical cities which has been developed commercially by tourism. The vitality injected by local residents is as important as that contributed by tourists, and the overall vitality of the ancient city still has space for substantial improvement. Furthermore, combined with the results of multi-source data analysis, this paper analyzes the interaction between the vitality of ancient cities and the four dimensions of space, function, culture and experience. Finally, based on the value orientation of "symbiosis" of tourists and local residents, this paper proposes multiple strategies to improve the quality of space and environment of the ancient city. The integration and co-existence of the two groups

will create a source of vitality for the sustainable development of ancient city.

Endnotes

1. Zou Tongqian, Chen Xuguang. Study on the symbiosis mechanism of rural tourism operators—A Case Study of Beizhai Village, Huairou District, Beijing. [J]. Journal of Beijing International Studies University. 2006(09):67-73.
2. Farhady M & Nam J. Comparison of In-between Concepts by Aldo Van Eyck and Kisho Kurokawa Through Theories of 'Twin Phenomena' and 'Symbiosis'. [J]. Journal of Aslan Architecture and Building Engineering. 2009,8(1):17-23
3. Miao Li, Li Bing, Zhang Yu. Achievements report of City Development project research of Qixian[D]. Qixian Loan Project Sponsored by the Agency of French Development. 2017.
4. Li Na. Research on Vitality Promotion Strategy of Ancient Cities Based on Multi-source Data—A Case Study of Zhaoyu Ancient City in Qi County, Shanxi Province. [D]. Dalian University of Technology. 2018.
5. Jing Guangjun, Chen Yang. On the influence of urban design project on surrounding environment under "catalyst effect". [J]. Planner. 2006(11):8-12.