Research on Experiential Tourism Route Planning Based on Multi-source Data Algorithm in Rich Energy and Cultural Resources Areas

Chunyu Yu1,*, Heming Zhang2

1College of Marxism, Heilongjiang Institute of Technology, China, 158100
2Heilongjiang Institute of Technology Security Office, China, 158100

*Corresponding author e-mail: 33537127@qq.com

Abstract. Historical blocks are the carrier of urban history and culture, reflecting the continuation and development of urban history and culture, embodying a local historical context and regional cultural characteristics, and are an important part of historical and cultural cities. Taking the ancient city of Xi'an as the research area, this paper discusses the design method of the cultural promenade in the ancient city from the aspects of development condition analysis, route selection, theme determination, spatial organization and support system, etc., relying on multi-source data algorithms, and designed 4 Special theme promenade, on this basis, summarizes the planning and design methods of cultural promenade.

Keywords: Historical District, Historical and Cultural Promenade, Xi'an Ancient City, Planning and Design

1. Introduction

Whether it is the group living left over from the traditional society or the modern personal life style, the value of personal existence is constantly improving, and it also makes people have a stronger desire for personalized development. The rapid development of economic technology has laid the foundation for this demand. Material basis. The requirements of personal tourism are constantly developing in the direction of individualization, uniqueness and novelty, which makes experiential tourism popular; in order to adapt to this change, China's tourism industry is constantly changing to better meet the diverse needs. And innovation, but facing the lack or imperfection of minority tourism resources, the tourism industry still faces greater challenges[1-2]. With the development of society, the contradiction between the protection and development of historic districts in my country has become increasingly prominent. How to display the culture of historical districts in a suitable way on the basis of protection is the key to solving the contradiction between protection and tourism development[3-4].

The cultural promenade is an innovative method for the protection and tourism development of historical districts in European and American countries in the middle of the 20th century. It is based on the relative scattered distribution of historical relics in historical districts. In order to meet the characteristics and personalized needs of tourists, the form of walking trails will be scattered. The relics (scenic spots) are connected in series and launched as a whole. Through the construction of the
promenade, visitors can freely explore the historical districts, go deep into the streets and houses, and feel the historical memory of the city during the walking tour; it can also allow visitors to communicate with community residents at any time, so that tourists can truly feel, Comprehend and understand the history and culture of the neighborhood [5]. Foreign practical experience shows that by designing the form of cultural promenade, the scattered relics of historical blocks can be rationally organized, and the historical culture of the block can be displayed in a reasonable way. It is an effective method to solve the contradiction between the protection of historical blocks and the development of tourism. Inheritance and the development of urban tourism are of great significance [6]. Therefore, this article takes the historical and cultural promenade in the ancient city of Xi'an as an example, based on multi-source data algorithms, discusses the planning and design methods of the cultural promenade in the enriched area of energy and cultural resources, aiming to promote the rational development and utilization of historical districts in my country.

2. Analysis of planning and development conditions of the cultural promenade in Xi’an ancient city

2.1. Basic analysis of urban construction

According to the fourth urban planning of Xi'an, Xi'an will stretch the skeleton of a big city, gradually form a spatial structure of "Nine Palaces, One City and Multiple Hearts", and form a metropolis with the division of new and ancient, historical culture and modern civilization. Numerous super-tall and super-large new buildings have risen from the ground, obliterating the iconic traditional buildings of the ancient city such as the bell and drum tower and the tower. A large number of low traditional residential areas have been transformed, destroying the original texture and scale of the ancient city, and increasing the building And the density of the population, the population of the old city rose instead of falling, and the development of a large number of commercial buildings attracted a large number of people and vehicles, and even formed today's situation of "there are walls without cities, and streets without markets".

2.2. Analysis of the current situation of urban tourism

2.2.1. Analysis of tourism node structure. At present, the ancient city of Xi'an has formed two tourism nodes, one is the central node of the ancient city with the Bell and Drum Tower and the Great Mosque as the core, and the second is the southern node of the ancient city with the Xi'an Forest of Steles Museum and the South Gate as the core, which is an important support for urban tourism. Because the number of tourist nodes is too small and the coverage is too small, it cannot fully reflect the historical style of the ancient city, which reduces the original perception and influence of the ancient city of Xi'an.

2.2.2. Analysis of the development of tourist areas. For many years, the tourism development of the ancient city has paid attention to the development of individual scenic spots and ignored the development of tourist areas, resulting in too few tourist areas and single themes. At present, the ancient city has formed two tourist areas, the Shuyuanmen Cultural District and the Beiyuanmen Muslim Cultural District, which cannot meet the multi-level needs of tourists and affect the tourists' perception and experience of the ancient city.

2.2.3. Analysis of urban circulation routes. Although the traffic route in the ancient city is dense, it does not form a reasonable circular route to connect the tourist attractions in the city, and the continuity of tourists' visit is interrupted. The historical streets such as South Street and West Street in the ancient city are not only tourist passages, but also the city's traffic arteries. This dual identity affects the organization of tourist routes and the arrangement of transitional spaces.
3. Development and design of the historical and cultural promenade in the ancient city of Xi'an based on multi-source data algorithms

The tourism scenario planning and project experience design concept of multi-source data algorithm is shown in Figure 1:

![Diagram](attachment:image.png)

**Figure 1. Scenario planning of multivariate data algorithm**

3.1. Promenade route selection

When choosing the route of the promenade, you should choose a route with high historical value, dense cultural resources, and unique attraction, and consider the time and physical condition of tourists to avoid modern urban traffic to create a comfortable sightseeing environment for tourists. When choosing the promenade route of the ancient city of Xi'an, try to focus on the historical and cultural essence of the ancient city, so that tourists can fully understand the style and features of the ancient city and deeply understand the history and culture. Therefore, the key development streets of the promenade are South Gate, Shuyuanmen Street, Xiangzi Temple Street, Beiyuanmen Street, Xiyangshi Street, Dapiyuan Street, Miaohou Street, Damaishi Street, Sajinqiao Street, etc.

3.2. Theme and route organization design

According to the resource distribution, cultural heritage foundation, and urban construction foundation of the historical streets in Xi'an ancient city, relying on multi-source data algorithms, four characteristic themed tour routes are determined, and their spatial organization mode is determined accordingly (as shown in Figure 2).

For different characteristics, the overall performance is different, including the complexity T, the cost C, the comfort S, and the income P level by using the multi-source data algorithm. In order to evaluate the overall performance of a method, a weighted linear ranking can be used, as shown in equation (1):

$$P_r = a_i \times T + a_2 \times C + a_3 \times S + a_4 \times P$$

(1)

$a_i$ is an adjustable weight, and the complexity of the route needs to be evaluated based on the algorithm.
(1) Modern Revolutionary Culture Promenade-Street Route Type

The modern revolutionary culture promenade connects the scenic spots related to modern revolutionary events, forming a cultural promenade reflecting the development of modern revolution in Xi’an. The specific route is as follows: Zhang Xueliang Mansion-Gao Guizi Mansion-Xijing Guest House-Revolution Park-Eighth Route Army Office-Yang Hucheng Memorial Hall. The street route mode should be chosen, that is, the mode that connects the remainders of the same cultural basis scattered on both sides of the street along the street in the city.

![Figure 2](image-url)

**Figure 2.** The design of the historical and cultural promenade in the ancient city of Xi’an

(2) Scholarly Mobao Cultural Promenade—Scenic-based

The scholarly calligraphy cultural promenade connects the scenic spots near the gate of the academy to show the scholarly calligraphy culture, forming a promenade reflecting the academic culture and calligraphy culture of the ancient city. The specific route is as follows: Shuyuanmen Ancient Culture Street-Baoqing Temple Pagoda-Guanzhong Academy-Stele Forest Museum-Reclining Buddha Temple-Shuncheng Lane-South Gate. Adopting a scenic spot-based organization model, that is, relying on the famous scenic spot Beilin Museum to drive the development of other surrounding scenic spots and regions, forming a comparatively dependent spatial development model between well-known scenic spots and surrounding scenic spots and regions, forming a good resource complementation, market sharing, and coordinated development situation.

(3) Five cases combined into a cultural promenade-street line type

The five combined cultural promenades connect the existing religious attractions to form a promenade reflecting the integration of ancient religions and cultures in Xi’an. The specific route is as follows: Guangren Temple-Xiwutai-Sajinqiao Mosque-West Mosque-Xiaoxuexiang Ancient Mosque-Daxuexiang Ancient Mosque-Chenghuang Temple-Catholic Church-Xiangzi Temple.

(4) Halal Huifang Cultural Promenade-Block type

The Muslim Huifang Cultural Promenade will show the essence of the Muslim Huifang culture as a whole, forming a regional route to experience the Muslim culture. The specific area is the area enclosed by Beiyuamen Street, Xiyangshi Street, Miaohou Street, Damaishi Street and West Street. Adopt the block-type model, that is, relying on the blocks that have formed unique regional culture and style, through the tourism route organization, the block-type space development mode formed by connecting the available resources inside the block. This model takes the different regional styles of the block as its attraction element, and should fully show the overall style of the block.

4. **Systematic method of planning and designing historical and cultural walkway**

The planning and construction of the historical and cultural promenade is a systematic project, and the following steps should be followed: (1) Investigation of the current situation of resources, that is, the investigation of the current situation of resources and protection and utilization of the historical district; (2) Investigation of the current environmental situation, of the environment of the historic district.
Investigate the situation in order to maintain a beautiful environment after the historical and cultural promenade is formed; (3) Construction basic analysis, that is, analyze the urban construction foundation of the promenade construction; (4) Route selection, choose high historical value and cultural resources Dense and uniquely attractive routes; (5) Determine cultural themes and spatial organization models, that is, design promenades with different cultural themes according to the resource foundation and cultural foundation of the historical district, and determine the appropriate spatial organization pattern according to the block conditions (6) Supporting system construction, that is, constructing and optimizing the explanation system, environmental system, and traffic safety system of the promenade to ensure the effective operation of the promenade.

5. Conclusion
The historical and cultural promenade is an innovative planning and design idea that integrates the tourism resources of historical districts and displays historical culture. It has the significance of rationally organizing space, coordinating neighborhood society, protecting cultural resources, and deepening tourist experience. This paper takes the ancient city of Xi'an as the research area. Based on the analysis of the status quo of space development, tourism resources, urban construction foundation, and resource protection status, the route design method and spatial organization method of the cultural promenade in the ancient urban area are determined, and 4 Promenades with different themes are designed to support the construction. Finally, the systematic method of planning and design of historical and cultural promenade is summarized, which is of reference significance for the promotion of the protection and renewal of my country's historical districts and the harmonious development of tourism development.

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