



A Study on the Evaluation of the Constructive Remains of Traditional Villages

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Abstract. Traditional villages are not only the aggregation of historical memory and the vivid embodiment of civilization progress, but also the historical and cultural treasures that cannot be copied. As rural settlements for inheriting regional traditional culture, they have irreplaceable value. Based on the factors affecting the distribution of traditional villages, this paper divides the traditional villages in Ankang City into valley terrace type and mountain gentle slope type, taking Miaowan Village and Zijing Village as typical villages. Starting from two dimensions of ontology value and extension value, the paper constructs the evaluation system of the constructive relic space value of traditional villages in southern Shaanxi. Through the value evaluation of two typical villages in the system, the purpose is to verify the scientific and practical application value of the constructed model, and then lay a solid theoretical foundation for the active utilization and sustainable development of constructive heritage space.

Keywords: Traditional village, Constructive legacy space, Value assessment

1 Introduction

China's urbanization process is accelerating, which leads to the problems of hollowing out of traditional villages, serious building damage, aggravation of scenery damage and the contradiction of villagers' protection intention[1]. Since 2012, The State Council promulgated the Notice on the Investigation of Traditional Villages. As mentioned in Document No. 1 of the Central Committee in 2024, it is necessary to carry out centralized protection and utilization of traditional villages, and strengthen the excavation, collation, protection and utilization of agricultural cultural heritage and rural intangible cultural heritage, which is more urgent and important for the study of traditional villages.

As a regional relic space, traditional villages are the synthesis of material cultural heritage and intangible cultural heritage, which are the long-term interaction between human and nature^[2]. Studies on heritage value assessment in foreign countries started earlier. J.F. Coeterier^[3] defined and evaluated historical sites from the perspective of



site villagers and pointed out that villagers of historical sites paid more attention to the external form of historical sites. Aidatul Fadzlin Bakri^[4] emphasized the core values and importance of the protection of the built environment and optimized the evaluation criteria for cultural heritage. In recent years, more and more attention has been paid to the research on the protection and development of traditional villages in China^[5]. Scholars have studied the architectural remains^[6], street remains^[7] and cultural landscape remains^[8] of traditional villages from multiple perspectives based on the principles of integrity, scientificity and regionalism^[9], and made a comparative analysis of some traditional villages^[10], laying a foundation for the protection and development of traditional villages. This paper evaluates traditional villages from the perspective of constructive legacy space, not only evaluates the current situation of constructive legacy space of traditional villages from the overall perspective, but also selects several typical traditional villages in southern Shaanxi for comparative study, and puts forward targeted strategies for the protection and development of constructive legacy space.

2 Overview of Research Objects

The southern Shaanxi region refers to the three prefecture-level cities of Hanzhong, Ankang and Shangluo, including Hanshui, Qinling and other neighboring areas, which has been deeply influenced by Bashu culture, Jingchu culture, Qinlong culture and Central Plains culture in history. There are many kinds of landforms in southern Shaanxi, such as mountains, hills and basins. These unique landforms provide important natural basis for the formation of various villages. By the end of 2024, a total of 57 traditional Chinese villages have been selected from three administrative units in southern Shaanxi Province. In this paper, 24 traditional villages in Ankang City of Shaanxi Province are selected as the main research objects, and the representative traditional villages are selected as the typical ones for value assessment and analysis.

Through the field investigation of traditional villages in southern Shaanxi, it is found that the spatial preservation of constructive remains of traditional villages is closely related to topography. For example, the valley terrace village has a relatively slow terrain, but because it is close to the river, it is vulnerable to flood, and the humid climate is not conducive to the protection of space. Due to the remote location, inconvenient traffic and less human flow of traditional villages with gentle slopes, the inner space of the villages is well preserved. According to the combing and statistics, among the 24 traditional villages in Ankang City, there are 11 valley terrace villages near the water source, accounting for 45.83% of the total. There were 13 traditional villages with gentle slopes, accounting for 54.16% of the total. Considering the typicality and representativeness of village types, Miaowan Village in Chiyan Town of Xunyang City and Zijing Village in Zijing Town of Hanbin District were selected as valley terrace type and mountain gentle slope type traditional villages respectively for value evaluation.(Table 1)

Table 1. Selection of typical study villages

Village type	Graphic scheme	Local area	name	Chinese traditional village batch
Valley terrace type		Qiyang town, Xunyang City	Miaowan Village	The third batch
Mountain gentle slope type		Zijing Town, Hanbin City	Zijing Village	The sixth batch

3 Construction of spatial value evaluation model

3.1 Establishment of Evaluation Index Model

Based on the unique development process and its own development situation of Ankang City in southern Shaanxi province, the typical characteristics that can represent the constructive remaining space of traditional villages are selected as evaluation indicators. The evaluation model is divided into three layers: the first layer is the target layer, the second layer is the criterion layer, which is divided into two parts: ontology value and extended value, and the third layer is the factor layer, including 5 bearing factors and 8 indicator factors (**Figure 1**).

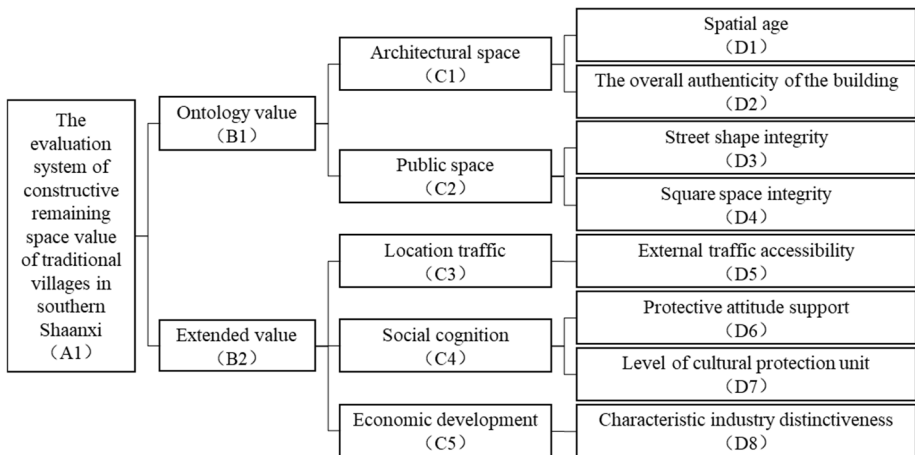


Fig. 1. Index system of spatial value evaluation of constructive remains of traditional villages in southern Shaanxi

3.2 Evaluation Indicator Assignment

After determining the evaluation index system, this paper comprehensively considers the fairness and comparability of each index in assigning time, and determines that the full score of each index is 10 points, and each index factor is interpreted according to the scoring standard of traditional villages in southern Shaanxi (Table 2).

Table 2. Specific scoring standards for evaluation indicators of constructive relic space protection of traditional villages in Ankang City

Element	Level I (8-10 points)	Level II (4-7 points)	Level III (0-3 points)	Data source
D1	Ming Dynasty and before	From the Qing Dynasty to the Republic of China	After the founding of New China	record
D2	The architectural details are well preserved and the craftsmanship is unique	The detail of the building is in a damaged state, and the process has certain uniqueness	The building details are badly damaged and the workmanship lacks uniqueness	Record and research
D3	The street interface is well preserved, and the overall style is complete and coordinated	Street interface preservation is general, the overall style continuity is general	The street interface is seriously damaged, and the overall style is not coordinated	Record and research
D4	The space is well preserved, the area is large, and the frequency of use is high	The space preservation is general, the area is general, and the frequency of use is general	The space damage is serious, the area is small, and the frequency of use is low	Record and research
D5	It has railway transport stations, national highways and high-speed trunk lines	Only provincial road, village road main trunk	Only country roads	Record and research
D6	Most villagers are supportive of conservation	More villagers support the protection	A few villagers are supportive of conservation	Record and research
D7	The number of cultural relics under national, provincial and city and county protection.			Record and research
D8	The characteristic industries are abundant and the economic benefits are good	The characteristic industry is general, and the economic benefit is general	There is no characteristic industry, and the economic benefit is low	Record and research

3.3 Establishment of Evaluation Index Model

3.3.1 Establishment of Judgment Matrix

After constructing the value evaluation index system, experts were invited to fill in the Evaluation index Form of the spatial value Evaluation of the constructive remains of traditional villages in southern Shaanxi. Combining Delphi method and analytic hierarchy process, this paper compares the pairwise importance of each level of the value evaluation index model, and constructs a comparative judgment matrix.

3.3.2 Calculate the Factor Weight Value

After the judgment matrix is obtained, the weight value W needs to be calculated according to the judgment matrix by calculating the maximum eigenroot λ_{\max} and the corresponding eigenvector.

Step 1: Calculate the score product M_i of the importance of each row of indicators in the judgment matrix:

$$M_i = \prod_{j=1}^n a_{ij} \quad (i = 1, 2, \dots, n) \tag{1}$$

Step 2: Calculate the NTH root \overline{M}_i of M_i :

$$\overline{M}_i = \sqrt[n]{M_i} \quad (i = 1, 2, \dots, n) \tag{2}$$

Step 3: For the vector $\overline{M}_i = (\overline{M}_1, \overline{M}_2, \dots, \overline{M}_n)^T$ is normalized to get the relative weight W_i :

$$W_i = \overline{M}_i / \sum_{i=1}^n \overline{M}_i \quad (i = 1, 2, \dots, n) \tag{3}$$

3.3.3 Evaluation Factor Consistency Test

Due to the subjectivity of each expert in the evaluation of objective things, there are various results in the scoring process. It is necessary to conduct a consistency test on the judgment matrix of the evaluation of the constructive remains of traditional villages in order to ensure the scientificity and rationality of the evaluation process. The calculation process is as follows:

Step 1: Calculate the maximum eigenvalue:

$$\lambda_{\max} = \sum_{i=1}^n \frac{(AW)_i}{nW_i} \quad (i = 1, 2, \dots, n) \tag{4}$$

Step 2: Calculate the consistency indicator $C.I.$:

$$C.I. = (\lambda_{\max} - n) / (n - 1) \tag{5}$$

Step 3: Calculate the consistency ratio *C.R.* :

$$C.R. = C.I. / R.I. \tag{6}$$

Where, *R.I.* is the average random consistency index. When *R.I.* < 0.1, it is generally considered that the consistency of the judgment matrix is acceptable.

Based on the comparative judgment matrix, the relative weights of each index are calculated, and the consistency of these index judgment matrices is tested. Finally, the evaluation model and weights of the constructive remains spatial value of traditional villages in southern Shaanxi are obtained (**Table 3**).

Table 3. Spatial value evaluation model and of traditional village construction remains in southern Shaanxi Province

Target layer	Criterion layer	Element level			
Construction of traditional village value evaluation model in southern Shaanxi (A1)	Ontology value (B1)	0.6667	Architectural space (C1)	Spatial age (D1)	0.251
				8	The overall authenticity of the building (D2)
			Public space (C2)	Street shape integrity (D3)	0.148
				9	Square space integrity (D4)
	Extended value (B2)	0.3333	Location traffic (C3)	External traffic accessibility (D5)	0.163
				5	Protective attitude support (D6)
			Social cognition (C4)	Level of cultural protection unit (D7)	0.026
				0.104	Characteristic industry distinctiveness (D8)
Economic development (C5)	0.065	9		9	

4 Results and Analysis

4.1 Ontology Value Evaluation

According to the archives and field research, the architectural space and public space of Miaowan Village and Zijing Village are analyzed and evaluated, and the ontological value of the two villages is finally scored (**Table 4**).

4.1.1 Architectural Space Evaluation

Miaowan Village complex was mostly built in the early Ming Dynasty, concentrated contiguous, unified and coordinated style, after hundreds of years there are still residents to maintain a good historical continuity. The ancient architecture of Zijing Village was mainly built in the Qing Dynasty, influenced by the red culture and modernization process, the traditional architectural style was impacted by the new buildings, and the overall harmony was damaged.

As a valley terrace village, Miaowan Village is eroded by the river valley current, the architectural details are poorly protected, the historical buildings are damaged by the tide, and the authenticity of the architectural details is damaged due to the large flow of people. Zijing Village is located on the gentle slope of the mountain, which is conducive to protection. As the birthplace of Ankang red culture, it has a dense flow of people. The interior of the village is decorated with high authenticity, mainly wood carving, and gorgeous and complex buildings in the late Qing Dynasty, showing regional characteristics.

4.1.2 Public Space Evaluation

The streets of Miaowan village have a pattern of "one main and multiple branches", the overall form and texture are complete, the identification is strong, the space protection is good, and the style is coordinated. The road structure of Zijing Village was damaged due to the upgrading of the village, and the outstanding architectural style affected the overall coordination of the street space.

Affected by the hollowing out of villages, the use frequency of squares decreased and the scores of protection assessment were low. Miaowan Village square is large but abandoned; The expansion of Zijing Village Square integrates red culture, but it is far away from residential areas and has poor accessibility.

Table 4. Evaluation table of traditional village ontology value in southern Shaanxi

Criterion layer	Element level	weight	Miaowan Village	Zijing Village	
Ontology value (B1)	Architectural space (C1)	Spatial age (D1)	0.2519	9	5
		The overall authenticity of the building (D2)	0.1679	6	6
	Public space (C2)	Street shape integrity (D3)	0.1481	8	5
		Square space integrity (D4)	0.0988	3	6
	Total		4.7557	3.6002	

4.2 Extended Value Assessment

According to the archives and field research, the location traffic, economic development and social cognition of Miaowan Village and Zijing Village are analyzed and evaluated, and the extended value of the two villages is finally scored (**Table 5**).

4.2.1 Location Traffic Assessment

Miaowan Village has significant transportation advantages. The X304 main road connects Xunyang City and the surrounding towns, and the bus and ancient tourist routes cover it, which greatly facilitates the travel of villagers and tourists. Zijing Village external transportation is also more convenient, Y211 road connects Ankang City and neighboring towns, and the village has an important node of the red tour line, and the surrounding bus station meets the daily travel needs of villagers and tourists.

4.2.2 Social Cognitive Assessment

The indicators of villagers' cognition are all derived from the questionnaire survey of villagers. The support score of Miaowan Village's conservation attitude is high, indicating that villagers' attitude towards the protection of traditional characteristics in the village is supportive. Some villagers in Zijing Village believe that the existing red industry in the village should be vigorously developed, emphasizing that red culture is the main development object, and traditional village characteristics cannot be the main development content in the future.

In the classification of cultural protection units, the two villages are traditional Chinese villages. Miaowan Village was selected as a traditional village in Shaanxi Province, Zijing Village was rated as a historical and cultural village in Shaanxi Province, the internal Xie Jia compound was rated as provincial cultural relics protection, and the former site of the establishment of the First People's anti-Japanese Army in southern Shaanxi was also rated as the seventh batch of provincial cultural relics protection units. The inner courtyard of Miaowan Village also has high historical value, especially the stone carvings, calligraphy and paintings and inscriptions on the gatehouse have high research value. Therefore, the cultural protection unit rating of Zijing Village is higher than that of Miaowan Village.

4.2.3 Economic Development Assessment

Zijing Village is located in the hillside gentle slope of the village topography is relatively gentle, its tertiary industry compared with Miaowan village better development. The high development of tourism has provided a great guarantee for the development of the tertiary industry of Zijing Village. The former site of the First anti-Japanese Army of Zijing Village, the ruins of the ancient trestle road and the Sansheng Palace and other Qing Dynasty buildings are also the key contents of tourists' sightseeing. The unique climate environment of Miaowan village provides a good environment for the growth of shiitake mushrooms. With the production of primary mushrooms as the main industry, large-scale cultivation in greenhouses has been realized, but the overall characteristics of the products are not outstanding, and the degree of secondary production is low.

Table 5. Evaluation table of extended value of traditional villages in southern Shaanxi

Criterion layer	Element level	weight	Mi-aowan Village	Zijing Village
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	Location traf- fic (C3)	External traffic acces- sibility (D5)	0.1635	5	4
Extended value (B2)	Social cogni- tion (C4)	Protective attitude support (D6)	0.078	8	7
		Level of cultural pro- tection unit (D7)	0.026	4	7
	Economic de- velopment (C5)	Characteristic indus- try distinctiveness (D8)	0.0659	4	9
Total				1.8091	1.9751

4.3 Construction of Activation Path Based ON Evaluation Results

According to the evaluation results, the village's own advantages in ontology value and extended value are highlighted, and different protection and development paths are given(Figure 2).

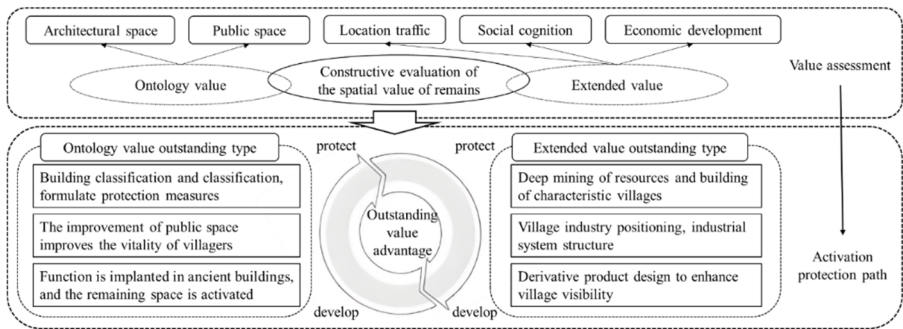


Fig. 2. Revitalization, protection and development strategies of traditional villages in southern Shaanxi under the constructive heritage spatial value assessment

Traditional villages with outstanding ontological value, such as Miaowan Village, should focus on protecting their internal buildings and public Spaces, and make active use of them on the basis of protection, highlighting the architectural value and laying the foundation for further value. The streets, architecture and decoration of Miaowan Village are all valuable heritage and need to be protected. In the process of activated utilization, the protection and utilization of traditional buildings should be strengthened, and ancient buildings should be shaped into ancient architecture exhibition halls through popular science education to promote the sustainable development of villages.

Traditional villages with outstanding value, such as Zijing Village, should dig deep historical resources, continue the characteristic culture, develop the existing advantages, and summarize the development characteristics to provide the basis for the

follow-up. Based on existing resources to enhance visibility, form cultural symbols, activate existing industries, become economic support, and lay a solid foundation for village construction.

5 Conclusion And Discussion

Protection and development are two major issues faced by traditional villages in southern Shaanxi. Two traditional villages in Ankang City in southern Shaanxi are selected as research objects, and the value of constructive relic space is evaluated from five aspects: architectural space, public space, location transportation, social cognition and economic development. This paper explores the value assessment method applicable to the constructive remaining space of traditional villages in southern Shaanxi, and finally defines the protection factors and activation ways of villages with different value categories based on the results of value assessment, focusing on the advantages and outstanding values of villages.

In this study, eight factors are selected to model traditional villages in Ankang City and applied to two typical villages, but there are few villages and factors in the study. In the future, more traditional villages in southern Shaanxi and more specific research factors will be taken as examples to demonstrate the rationality and feasibility of the evaluation model of the constructive relic spatial value of traditional villages in southern Shaanxi. At the same time, more accurate data can be used in future studies to provide more feasible data sources and activation basis for the protection and activation of traditional villages, and constantly improve the scientific evaluation of constructive remaining space of traditional villages.

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