

Research on the cultural value of architectural symbols in the ancient town of CiQikou

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Abstract. The purpose of this paper is to investigate the cultural value of the architectural heritage symbols of the ancient town of CiQikou in Chongqing, China, and to analyze their implied meaning. Specifically, the main objectives of the study are. (1) to identify the architectural symbols that embody the architectural heritage of the ancient town of CiQikou. (2) To assess the cultural value of these symbols and the contribution they have made to the town. To achieve these objectives, this study employs an empirical model to analyze the architectural symbols of the architectural heritage of the ancient town of CiQikou. Direct observations and records of 87 buildings were collected, and a questionnaire survey with more than 800 validity and reliability analyses was used to analyze the specific cultural values of the architectural heritage symbols of the ancient town of CiQikou, including architectural cultural value, historical cultural value, commercial cultural value, folklore cultural value, scientific and educational value, and heritage value. And the specific values of the above cultural values in the cultural value of architectural heritage symbols are evaluated to show who is the biggest contributor. With the support of these empirical results, a policy framework to support the symbolic cultural value of the architecture of the ancient town of CiQikou is proposed.

Keywords: Cultural value; regression analysis ; Architectural heritage symbol.

1. Introduction

Architectural heritage is more than just stone and mortar; it has evolved into monumental spaces. These spaces represent a way of life, human memory and traditional culture that has been passed down from generation to generation. The architectural elements of these ancient towns' architectural heritage, including doors, windows, columns, and roofs, not only provide people with the function of living, but also contribute to the cultural heritage of the ancient town accordingly. However, as the economy grows to meet the needs of tourists and commerce, the number of ancient town buildings is constantly increasing, which unconsciously modifies the historical buildings and makes them look different. Their remarkable changes have weakened the transformation of the cultural value of the architectural heritage of the ancient town [1]. The architecture of the ancient town of Chongqing's CiQikou is no exception to this rule; therefore, an empirical study of the architectural symbols of the most original architectural heritage areas must be conducted to understand the importance of cultural values in the architectural elements, so that an assessment of cultural values can be made and special conservation plans can be further developed.

The purpose of this paper is to explore the cultural value of the architectural heritage of the ancient town of CiQikou. The main objectives of this paper are, (1) to identify the architectural symbols that embody the architectural heritage of the ancient town of CiQikou. (2) To assess the cultural value of these architectural heritage symbols, based on the architectural cultural value, historical cultural value, commercial cultural value, folklore cultural value, scientific and educational value, and heritage value, and to assess the cultural value that contributes the most. In this paper, a logistic regression model is used to achieve the above objectives.

This paper is divided into six sections. Section 2 describes the background of the architectural heritage of the ancient town of CiQikou. Section 3 introduces the research area, conceptual framework and research methodology of the empirical study. Section IV specifies the data analysis of the empirical study, emphasizes the importance of the logistic regression model, and discusses

the dependent and independent variables. Section V presents and discusses the results. Section VI concludes the full paper.

2. Chongqing CiQikou ancient town

Chongqing CiQikou ancient town is located in the northwest of Shapingba District, Chongqing, China, on the bank of Jialing River, 3 km from the center of Shapingba District, with an area of about 1.18 km², and has a history of nearly 1800 years ago [2]. The ancient town of CiQikou was formed during the Han and Tang dynasties in China, and its development and prosperity began in the Ming and Qing dynasties. It is a national historical and cultural district, the core of Chongqing's national historical and cultural city protection system, with deep cultural heritage, rich architectural elements, and intact style, is an important historical and cultural district, a national AAAA-level scenic spot, an important spatial carrier of Chongqing's historical and cultural city protection system, and an internationally renowned tourist destination in Chongqing [3].

The prosperity and flourishing of the ancient town of CiQikou at the very beginning originated mainly from porcelain, and since the town was a major transportation route by water, it was used as a port of transit for porcelain, and porcelain and related crafts became a major local culture. In the 1840s Chongqing was named the accompanying capital, ranking as the second capital in addition to the capital of Beijing. The city's remarkable rise in status attracted a large number of cultural institutions and cultural figures to move here, some of whom were immigrants from Huguang and Sichuan, some were merchants who came to transit porcelain and grain, and some were political and cultural figures who came to settle here, and according to the literature, the number of permanent residents at the time in CiQikou rapidly increased from 30,000 to 100,000 [4]. The large number of foreign residents brought with them the demand for housing and consumption, as well as culture, and transformed everything in the town in their own unique way, which together formed the famous Shajiakou culture at that time, which, together with the Red Rock culture, the anti-war culture, the dock culture and the local religious culture, formed a valuable cultural asset of the town. In addition, the unique location of one river, two streams and three mountains, the unique mountainous architectural culture, and the folk culture such as tea ceremony, dragon lantern and temple fairs formed over the centuries are also the cultural heritage of the town that can be written about. It has finally become a cultural magnet kou with "a stone street and a thousand years of magnet kou" [4] (Figure 1).



Figure 1. Entrance door of Ciqikou ancient town

3. Methods and Study area

3.1 Study area

The total area of the ancient town of CiQikou is 325,000 square meters, of which the core area of the ancient town is very well preserved with an area of 143,000 square meters, which are distributed on the east and southeast side of Maanshan. The whole ancient town starts from the mountain and is built by the mountain. The 42 streets and lanes are perpendicular to the cross street and the main street, and branch out to the ridge of Maanshan and the edge of the stream, forming a very characteristic dendritic pattern. The horizontal street and the main street are 3-6.5 meters wide, linking the Jialing River Water Transport Terminal, the Baolun Temple and the peripheral traffic arteries into one. The alleyways are 1.5-4.5 meters wide and are flexibly laid out according to the topography. The streets-alleyways-houses form a three-level spatial structure of public space, semi-public space, and private space, forming a clear basic pattern of social organization in the neighborhood [5]. The streets are mostly lined with Ming and Qing dynasty architectural styles. Due to the relocation of foreign populations and the introduction of culture, the architectural style of the area belongs to the Chinese Chuandong folk house style. The ground of the ancient town of CiQikou is paved with stone slabs and there are many stores along the streets. Commerce and trade are concentrated on the Grand Pier and Jinrongzheng Street, which is adjacent to the pier. The scope of this paper is the main street area of the architecture of the ancient town of CiQikou, and a total of 87 buildings were selected for the study (Figure 2).

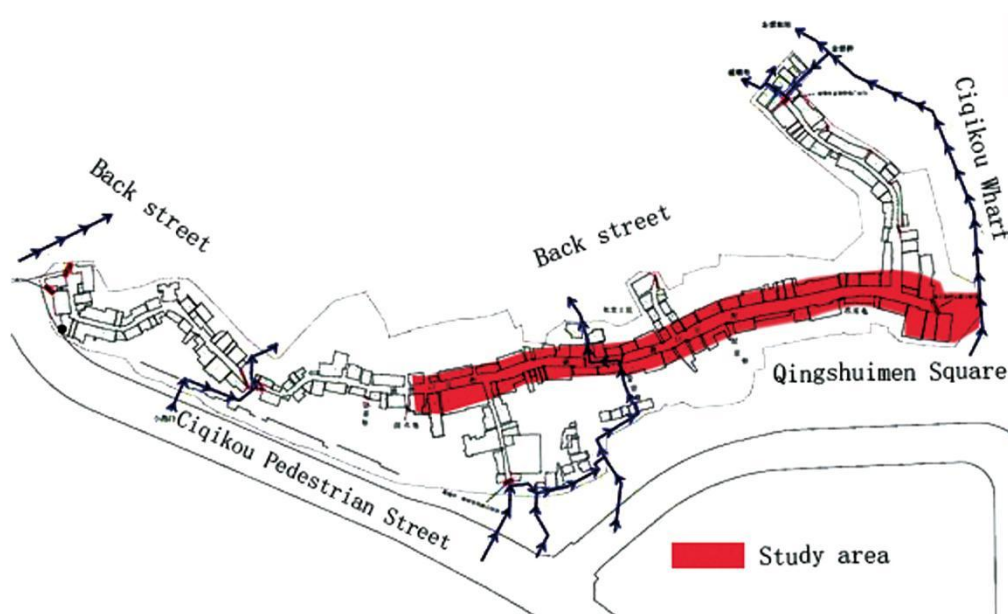


Figure 2. Sketch map of architectural research area of Ciqikou ancient town.

3.2 Methodology

The study area contains 87 buildings and two streets in the main street of the ancient town of CiQikou. Based on the architectural symbols of each heritage building, specific cultural values were identified as the source of information for this study, through a questionnaire survey after validity analysis and reliability analysis. The cultural values of the architectural heritage symbols were investigated and the various types of cultural values were used as variables for the subsequent study for empirical analysis. To check if the variables were related, the null hypothesis and the assumed relationship between the independent (X1-X6) and dependent (BHVP) variables were rejected. The analysis results describe the contribution of each variable to the The empirical analysis is presented conceptually.

4. Empirical analysis

4.1 variables

Six variables were used to describe the contributions of the architectural elements to the Cultural value of ChongQing CiQikou Ancient Town. the direct observations and documentations of 87 buildings in 2 selected streets were used in the analysis. During the study, 828 valid samples were collected through a questionnaire with validity analysis and reliability analysis, and six independent variables were refined (Fig.) Both dependent and independent variables were used to analyze the Cultural value of ChongQing CiQikou Ancient Town.

In this study, the scale in the independent variables was derived from the research of Xihong Yu in the study of the relationship between traditional cultural attributes and street charm, and this paper continued the scale in combination with the research theme and made two fine adjustments, and based on the adjusted scale, validity analysis and reliability analysis were conducted, and the following are the steps and results of the study.

4.1.1 KMO and Bartlett's tests in the validity analysis.

For the KMO test, the KMO value test indicates that there is a correlation between the question variables, which meets the requirements of factor analysis. For Bartlett's test, if the significance is less than 0.05, the original hypothesis is rejected, indicating that factor analysis can be done, and if the original hypothesis is not rejected, it indicates that these variables may provide some information independently and are not suitable for factor analysis [6]. In this analysis, the results of the KMO test show that the value of KMO is 0.903, while the results of Bartlett's spherical test show that the significance p-value is 0.000***, which presents significance at the level, and the original hypothesis is rejected, the variables are correlated and the factor analysis is valid, and the value of KMO is 0.903 to the degree of fitness.

Table 1. KMO test and Bartlett's test

KMO test and Bartlett's test		
KMO value		0.903
Bartlett's sphericity test	Approximate cardinality	3136.298
	df	15
	P	0.000***
Note: ***, **, * represent 1%, 5%, 10% significance levels, respectively		

4.1.2 In the reliability analysis, Cronbach's alpha coefficient (or folded half coefficient) is analyzed.

According to most scholars, generally if the Cronb alpha coefficient (or folded half coefficient) is above 0.9, the test or scale has very good reliability, between 0.8-0.9 indicates good reliability, between 0.7-0.8 indicates acceptable reliability, between 0.6-0.7 indicates average reliability, and between 0.5 and 0.6 indicates less than ideal reliability, and if it is below 0.5, we should consider reformatting the questionnaire [7]. In this study, through analysis, the coefficient value of Cronbach's α was obtained as 0.897, which indicates that the reliability of the questionnaire is good, and therefore, the next logistic regression analysis was performed based on this scale.

Table 2. Summary chart of confidence analysis

Serial number	Analysis item name	Correlation of deleted items with the total number of deleted items	Cronbach's alpha coefficient after removal of terms	Reference Conclusion
1	Passing on the value	0.785	0.869	better

2	Science Education	0.596	0.898	Need to check
3	Folk Culture	0.54	0.906	Need to check
4	Business Culture	0.819	0.864	better
5	History and Culture	0.731	0.878	better
6	Architectural Culture	0.875	0.855	better

Table 3. Cronbach's alpha coefficient table

Cronbach's alpha coefficient	Standardized Cronbach's alpha coefficient	Number of items	Number of samples
0.897	0.896	6	828

4.2 Dependent variable and Independent variable

In this study, the cultural connotations of the 87 building symbols, doors and windows, columns, roofs, column bases, and sparrows in this study were explained by assessing the dependent variable, architectural heritage symbolic value architectural heritage symbolic cultural value of the ancient town of Chongqing CiQikou. Through the collection of literature, the following six categories of cultural connotations were identified and investigated and studied as the independent variables of this study.

4.2.1. Architectural culture (X1)

The preservation of traditional architectural symbols, including the decorative elements of architectural symbols. The rich connotation brought by the ancient architectural style of traditional buildings, traditional patterns and carvings, etc. [8].

4.2.2. Historic culture (X2)

the presence of historical remains on the architectural heritage symbols of the ancient town, (prehistoric activities, social activities - historical humanities, etc.), fully demonstrates the historical culture of the city in which it is located [9].

4.2.3. Commercial culture (X3)

There are many well-known old stores on the streets of the ancient town of CiQikou. The business ways of the old stores play a demonstration role in the commercial street. It has promoted the development of commercial culture in the ancient town [10].

4.2.4. Folk Culture (X4)

To be able to understand the unique local folklore (food customs, ethnic customs, etc.) [11].

4.2.5. Scientific and educational value (X5)

The symbols of traditional architectural heritage provide learning materials for future generations and popularize cultural connotations and historical values.

4.2.6. Heritage value (X6)

The richness of the forms of architectural symbols provides a basis for the study and development of architectural heritage for future generations.

4.3 selection of empirical model

A logistic regression model in SPSS was used to assess the relationship between cultural connotations and cultural values of heritage buildings in the ancient town of CiQikou. An ordered regression prediction of the dependent variable using the independent variables was performed. The regression promoted the interaction between the dependent variable and one or more independent variables [12].

In this study, the distribution status of the categorical dependent variable was described by. The likelihood ratio chi-square test is performed on the model to analyze the likelihood check ratio

chi-square significance, and if the original hypothesis is rejected ($P < 0.05$), it means that the model is valid, and vice versa, the model is not valid, and if multiple models are designed, they can be combined with other categorical evaluations or information criteria (the smaller the AIC and BIC values are, the better) for a comprehensive analysis. Thereby, according to the model parameter table, the analysis of whether X is significant ($P < 0.05$) is used to explore the relationship between the influence of X on Y. Then, the regression coefficients B and OR values (dominance ratio) were analyzed to compare and analyze the degree of influence of X on Y. Finally, the model predictions are analyzed by combining the prediction classification confusion matrix with the classification indicators in the model evaluation [13].

Table 4. Basic summary of dichotomous dependent variables

Dependent variable	Options	Frequency	Percentage(%)
Cultural value of architectural heritage symbols	1.0	417	50.362
	2.0	411	49.638
	Total	828	100

Table 5. Model evaluation

Likelihood ratio chi-squared value	P	AIC	BIC
1043.911	0.000***	1057.911	1090.944
Note: ***, **, * represent 1%, 5%, 10% significance levels, respectively			

The results of the likelihood ratio chi-square test of the model show a significance p-value of 0.000***, which presents significance at the level and rejects the original hypothesis, thus the model is valid.

5. Results and discussion

The analysis based on the following graphs shows the results of this logistic regression, the values of each independent variable and the factors of influence on the dependent variable, according to each significance P-value, it is clear whether the influence of each cultural connotation on the symbolic cultural value of architectural heritage is strong or not. The field constant significance P-value is 0.014**, which presents significance at the level and rejects the original hypothesis, so the constant will have a significant effect on the symbolic cultural value of architectural heritage, meaning that for each unit increase in the constant, the probability of the symbolic cultural value of architectural heritage being 2.0 is 50.944% lower than the probability of 1.0. The following are the results of the effects of each independent variable on the dependent variable. Through the analysis of logistic regression, among the cultural connotations of these architectural heritage heritage inheritance value (X6) and commercial culture (X3) will not have a significant effect on the symbolic cultural value of architectural heritage in the ancient town of CiQikou. Educational value (X5) and architectural culture (X1) will have some influence. And the most influential factor is folk culture (X4), which raises the rate to 128.925%.

Table 6. binary logistic regression results

item	Regression coefficient	Standard Error	Wald	P	OR	OR value 95% confidence interval	
						Upper limit	Lower limit
Constants	-0.712	0.289	6.056	0.014**	0.491	0.278	0.865
X6 Heritage Values	0.211	0.152	1.941	0.164	1.235	0.918	1.662
X5 Science Education Value	0.389	0.123	9.919	0.002***	1.475	1.158	1.878
X4 Folk Culture	0.828	0.119	48.217	0.000***	2.29	1.812	2.893
X3 Business Culture	0.224	0.165	1.85	0.174	1.251	0.906	1.727

X2 History and Culture	-0.891	0.156	32.505	0.000***	0.41	0.302	0.557
X1 Architectural Culture	-0.672	0.204	10.888	0.001***	0.511	0.343	0.761
Dependent variable: Cultural value of architectural heritage symbols							
Note: ***, **, * represent 1%, 5%, 10% significance levels, respectively							

Field X6 heritage value significance P-value is 0.164, which does not present significance at the level and cannot reject the original hypothesis, therefore X6 heritage value will not have a significant effect on the symbolic cultural value of architectural heritage.

Field X5 scientific education value significant P-value is 0.002***, which presents significance at the level and rejects the original hypothesis, therefore X5 scientific education value will have a significant effect on the symbolic cultural value of architectural heritage, implying that for each unit increase in X5 scientific education value, the probability of the symbolic cultural value of architectural heritage being 2.0 is 47.486% higher than the probability of 1.0.

Field X4 Folk Culture Significance P-value of 0.000*** presents significance at the level and rejects the original hypothesis, therefore, X4 Folk Culture will have a significant effect on the symbolic cultural value of architectural heritage, implying that for every unit increase in X4 Folk Culture, the probability of the symbolic cultural value of architectural heritage being 2.0 is 128.952% higher than the probability of 1.0.

Field X3 commercial culture significance P-value is 0.174, which does not present significance at the level and cannot reject the original hypothesis, so X3 commercial culture will not have a significant effect on the symbolic cultural value of architectural heritage.

Field X2 historical culture significance P-value is 0.000***, which presents significance at the level and rejects the original hypothesis, therefore X2 historical culture will have a significant effect on the symbolic cultural value of architectural heritage, implying that for each unit increase in X2 historical culture, the probability that the symbolic cultural value of architectural heritage is 2.0 is 58.967% lower than the probability of 1.0.

The field X1 architectural culture significance p-value is 0.001***, which presents significance at the level and rejects the original hypothesis, so X1 architectural culture will have a significant effect on the symbolic cultural value of architectural heritage, implying that for each unit increase in X1 architectural culture, the probability that the symbolic cultural value of architectural heritage is 2.0 is 48.909% lower than the probability of 1.0.

6. Summary

An empirical analysis of the cultural value of the architectural heritage of the ancient town of CiQikou was conducted through the cultural connotations of architectural heritage symbols. An ordered logistic regression model was used to assess the influence of each architectural symbol connotation on the cultural value of architectural heritage. The different connotations generated by the architectural symbols corresponded to significant changes in cultural values. The low influence of educational value and commercial cultural value significance indicates that the presence of both in architectural heritage symbols is not a high value and, therefore, not a significant influencing factor. The significant value of folk culture, on the other hand, has a particularly large change in significance, corresponding to the influence of the cultural value of the architectural heritage of the CiQikou. The influence of both historical culture and architectural culture follows closely behind and also has some influence. According to the above study, it is important to focus on the restoration and protection of folk culture when constructing the conservation framework, followed closely by the restoration of the symbolic culture and the presentation of historical culture of the building itself, instead of considering only the commercial value and the continuation of blind restoration.

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