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Perception and Design of Traditional Village Public Landscape Based on Place Attachment—A Case Study of Futian Town, Jiangxi Province, China

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ABSTRACT

Traditional villages are an important carrier of traditional Chinese culture, and about 35.28% of Chinese population lives in villages. Because of the loss of local characteristics in public places and over-urbanization of villages, villagers' place attachment needs are not satisfied. Taking Futian town in Jiangxi province as an example, this paper measures the degree of place attachment of residents of different age groups to elements of the village public landscape by using a place attachment questionnaire and villagers' interviews, explores the factors of differences in attachment perceptions of residents of each age group and explores the characteristics of village public landscape that trigger local attachment of local residents.

Keywords: Place attachment, Traditional village, Landscape perception

INTRODUCTION

According to the data of Jiangxi Statistical Yearbook, about 26.3% of residents in Jiangxi Province migrated from villages to cities in 2019 (Wan Qingsheng, 2019), and the population loss rate of villages reaches 46.8% by 2020 (Wan Qingsheng, 2020). The main reason is that the public landscape of villages has changed so much. The village has become very strange now, compared to the village in their memory. The public landscape of traditional Chinese villages loads the history and memories of local residents and reflects the quality of life and spiritual culture of villagers. Williams and Vaske (2003) argue for the utility of place attachment scales to identify and measure connections to the landscape. The formation of place attachment helps residents to achieve self-emotional regulation (Korpela K M, Hartig T, Kaiser F G, et al. 2001; J. Dixon, K. Durrheim. 2000), and promotes the formation and development of their cultural identity (Proshansky H M, 1978). At the same time, the degree of place attachment affects residents' protective behavior toward the environment (Williams D R, Vaske J J. 2003).

Table 1. public landscape element information.

Landscape Element	Main Feature
F1. Road	Main road to enter the village
F2. Square	A public square for villagers to have fun and relax
F3. Stream	Stream around the village
F4. Bridge	The main bridge for villagers to cross from the residential area to the crops area
F5. Farmland	The main place for villagers' agricultural production
F6. Pond	Public pond in the village

METHODOLOGY

Studying Area

Futian Town, a case study of this paper, is located in the southeast of Qingyuan District, Ji'an City, Jiangxi Province, China. The town has a total area of 216 square kilometers and includes the Xinzhen, the Guzhen, and the Peixia Village.

Extraction of Landscape Elements

By analyzing the perceived differences in the place attachment of Futian town residents to the town, we explore the commonality and individuality of residents' preference for rural public landscapes (B.P. Kaltenborn, T. Bjerke. 2002), and dissect the characteristics of the association between public landscapes and residents' place attachment in Futian town. To strengthen the relevance and validity of this study, the public landscape elements selected for this experiment needed to obtain the following characteristics: 1) This place can represent the history, culture and regional characteristics of Futian Town; 2) this area is frequently used by residents in their daily lives; 3) This space has special memories for the villagers; 4) This area should be able to hold group activities.

Through the investigation of the field, six types of public landscape elements were finally selected as the objects of this place attachment study (see Table 1).

Method Design

This paper mainly adopts two methods which are survey of questionnaires and oral interview. Combined with the actual situation of Futian Town, we designed a questionnaire containing 5 items to measure the place attachment, forming on a 5-point Likert scale ranging from 1 (representing "very unimportant") to 5 (representing "very important"), and 6 items to assess landscape satisfaction. Each sample which is resident that are randomly selected from the village is required to score six types of landscape elements from two levels, place attachment dimension and landscape satisfaction dimension. We distributed 100 questionnaires, and 92 valid questionnaires were

Table 2. Sample basic information.

Basic Situation	Category	Proportion(%)
Gender role	Male	21.7
	Female	78.3
Age	Teenagers (≤18 years old)	35.0
	Youth group (18-45 years old)	13.3
	Middle-aged group (46-65 years old)	31.3
	Older age group (≥ 65 years old)	20.4
Birthplace	Born in the Village	83.2
	No Born in the Village	16.8

Table 3. Various indicators.

Project	Total	Coefficient	Variance ratio (%)
Place attachment dimension (α=0.737)			
X1. This place is irreplaceable	4.357	0.751	27.234
X2. I have deep feelings for this place	1.742	0.754	10.888
X3. I am proud to have this place	1.602	0.648	10.010
X4. This is the best place for my event	1.464	0.729	9.150
X5. My daily habits are related to it	1.133	0.780	7.084
Landscape satisfaction dimension(α=0.714)			
Y1. Satisfaction with bridge landscape	1.037	0.733	6.483
Y2. Satisfaction with stream landscape	0.757	0.736	75.578
Y3. Satisfaction with the square landscape	0.632	0.766	79.526
Y4. Satisfaction with road landscape	0.583	0.522	83.169
Y5. Satisfaction with farmland landscape	0.517	0.718	86.399
Y6. Satisfaction with pond landscape	0.481	0.770	89.405

obtained after recovery and collation. We determined the number of components by principal component analysis in SPSS (version 12.0). The principal component analysis is an exploratory factor analysis that uses a minimum number of explanatory factors to explain the maximum common variance in the correlation matrix. (A. Fiel. 2000).

ANALYSIS

Analysis of the Validity of the Questionnaire

We collected the data then entered into SPSS and calculated the validity of the questionnaire. The results show that the Cronbach's alpha coefficient for the local dependency dimension is 0.737 and the Cronbach's alpha coefficient for the landscape satisfaction dimension is 0.714 respectively, which are both greater than 0.7 and belong to the validity in the acceptable range.

Analysis

We investigated the sample population's place attachment to Futian town. The results show that the F2 have the highest integrated mean value of 3.923, followed by the F5 at 3.823, the F1 at 3.66, the F6 at 3.595, and the F4 3.413.

Table 4. Mean values of place attachment to public landscape elements by age group.

Age Group	Composite Mean	Public Landscape Element Attachment Value					
		F1	F2	F3	F4	F5	F6
Teenagers	3.475	2.91	4.53	3.15	3.41	2.53	4.32
Youth group	3.318	4.24	3.87	2.73	1.9	3.49	3.68
Middle-aged group	3.685	4.32	3.23	2.91	3.75	4.44	3.46
Older age group	3.763	3.17	4.06	3.01	4.59	4.83	2.92
Composite mean	-	3.66	3.923	2.95	3.413	3.823	3.595

Table 5. The element score coefficient matrix.

Project	F1	F2	F3	F4	F5	F6
X1	0.223	0.797	−0.077	0.03	0.039	0.242
X2	0.177	0.627	−0.188	0.258	0.133	0.458
X3	−0.035	0.759	0.123	−0.091	0.214	−0.045
X4	0.056	−0.034	−0.116	−0.773	0.095	0.325
X5	−0.072	−0.055	0.769	0.417	0.03	0.079

the public landscape element with the lowest sense of place attachment is the F3, with an integrated attachment value of only 2.95.

The groups of the sample were ranked according to their place attachment. The elderly group has the highest attachment to the village landscape with a combined mean value of 3.763, especially the highest attachment to the F5 with 4.83 and the lowest attachment to the F6 with 2.92. secondly, the middle-aged group has a combined mean value of 3.685, the highest attachment to the F5 and the lowest attachment to the F3. Thirdly, the combined mean value of the teenage group is 3.475. this group has the highest attachment value to the F2 and the lowest attachment value to the F5. Finally, the youth group has the lowest attachment to the public landscape of the village with a mean value of 3.318, the highest attachment value for F1 and the lowest attachment value for F4.

Through the factor analysis of the attachment and satisfaction of the sample villagers in three villages, six principal components were extracted, and the data were entered into SPSS (version 12.0) to obtain the element score coefficient matrix (see Table 5).

The average proportions of residents in the three sample villages who are "very satisfied" and "satisfy" with the public landscape of the villages are 33% and 39.2%, respectively. The residents of the Guzhen are "very satisfied" with the highest proportion, at 45.4%. Peixia Village and Xinzhen have the highest proportion of "satisfied", accounting for 36.1% and 48.3% respectively. 3.1%, 3.4%, and 2.8% of the residents of Guzhen, Xinzhen, and Peixia Village are dissatisfied with the village landscape planning respectively (see Table 6).

From the statistical comparison of the interview records of the three residents, the results show that the main reason for the high satisfaction of the residents of the Guzhen with the rural landscape environment is that the Guzhen still maintains the original rural landscape based on improving the

Table 6. Village landscape satisfaction survey.

How satisfied you are with the landscape of the village	Peixia Village	Guzhen	Xinzhen	Chi-square Test
Very satisfied	33.3%	45.4%	17.2%	7.634
Satisfy	36.1%	33.3%	48.3%	
Generally	27.8%	18.2%	31.1%	
Dissatisfied	2.8%	3.1%	3.4%	

living facilities of the residents. Due to the development of rural tourism in Peixia Village, the overall style of the village landscape has undergone immense changes. The Xinzhen is mainly the residents who migrated from the Guzhen, and they do not have a deep sense of attachment to the village.

PUBLIC LANDSCAPE DESIGN

Design Area

Through our field survey and data statistics, we integrated the attachment element situation of each age group and the rural social-economic development structure. The Futian town is divided into a core landscape area, a construction control area, and a coordinated development area.

The core landscape area maintains the original landscape village appearance while restoring the important landscape in the area. Such as restoring the landscape scenes of the ancient docks often used by villagers and showing the dock culture in the form of sculpture. Traditional buildings are gathered in the village construction control area, and the environment is generally good. According to the characteristics of the distribution of the area and the attachment of the residents, the cultural entrepreneurship area is used to harmonize the township's appearance, such as removing or changing facilities that are not related to the landscape of the square. The uncoordinated village appearance of Self-built houses in the Coordinated Development Area can be built into rural cultural industry zones to develop the rural tourism industry.

Landscape Facilities

According to the current landscape situation of Futian Town, we will show the design scheme of the rural landscape of Futian Town from three aspects, road environment, green environment, and architectural environment.

(1) Road Environment

The aging road surface of the main road needs to be resurfaced with asphalt and renewed. The overall road is widened by 90cm on both sides for pedestrian walkway. The pedestrian walkway part is raised by 10cm, with curbs on both sides and sesame gray square ax stones in the middle. The material of the secondary road is chosen from greens-tone slab and chopped ax stone, with cobblestones and tiles. The interval is set according to the building and road condition, and the tree pond is paved with dark landscape cobblestones.

Trees is used to avoid flying sand and clean the road and air. The cobblestones assist the pavement to percolate and drain water.

(2) Green Environment

During our field survey, we found that the village lanes crossed residential areas and were prone to generate large amounts of dust and noise. Therefore, we enclosed the residential houses and the side adjacent to the main road with a green belt of shrubs about 70-100cm high to separate the traffic and pedestrian flow. The selection of plants should meet the geographical attributes and cultural attributes. Plants native to Futian are selected to create a rural landscape atmosphere familiar to residents, such as rhododendron, wetland pine, and ancient camphor.

(3) Building Environment

By extracting the architectural color elements of Futian town, it was determined that the building materials are wood, brick, earth, stone, and tile as the main materials, and the building colors are composed of white, light blue-gray, dark blue-gray, light brown, earth brown, tan and dark red. The architectural colors of Futian town will be unified to restore the overall architectural appearance of the village.

CONCLUSION

The purpose of this thesis is to satisfy the psychological attachment of village residents and promote sustainable development of villages through village landscape design. The results of the study show that residents of Futian Town have the strongest attachment to the rural landscape that carries collective memories, and the weakest attachment to the landscape with large changes in function, style, and pattern. Residents over 46 years old keep the highest degree of attachment to the village, and residents aged 18-45 years old remain the lowest attachment value to the rural landscape. Residents of different age groups pay different attention to public landscape elements. The teenage group is focused on recreational rural landscapes such as squares and ponds, while other residents have a stronger attachment to rural landscapes with productive properties. Adding landscape elements with a stronger sense of attachment in rural construction is conducive to improving residents' sense of identity and happiness.

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