Research on semiotic urban tourism landscape design for traditional cultural expression

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Abstract

With the acceleration of urbanization, the orderly combination and benign synergy of two systems, traditional semiotic culture and urban tourism landscape design, is one of the important paths of "cultural and tourism integration". In this paper, a total of 33 positive and negative indicators of traditional culture and tourism industry are selected to build a coupling and coordination evaluation index system, and the data are collected and the weights are determined by using the entropy method. By drawing on the coupling model in physics, the quantitative analysis of the coupling coordination degree of traditional culture and tourism industry in G city was conducted, and the grade of coupling coordination degree in previous years was measured, and a case reference for traditional semiotic culture in urban tourism landscape design was provided based on the coupling coordination judging criteria. The results show that the mean value of the coupling coordination degree is 0.9807, which is a high coupling level, according to the coupling coordination degree model, taking Liu San Jie Grand View Garden scenic area in G city as a case study, indicating that the traditional semiotic culture and tourism industry system in G city basically present a coupling development state. This paper has arrived at the optimal model for the coordinated development of traditional culture inheritance and tourism commercialization, which in turn provides a reference basis for the design of semiotic culture in tourism landscape in the city.

Introduction

In the wave of symbolic consumption sweeping the world, tourism activities are naturally involved in it, becoming the expression and carrier of symbols (Chen, 2011; Katelieva, Muhar, & Penker, 2020; Lovrentjev, 2015). Tourists are not only satisfied with visiting tourist places, but also gradually experience and clock some characteristic symbols for tourism perception, experience and memory, so as to prove their tourism participation behavior and thus obtain spiritual and psychological satisfaction (Kuvan & Akan, 2005; Li, Ouyang, & Alhamami, 2022) For ethnic neighborhoods, the core attraction is "ethnic traditional cultural characteristics", and tourism developers often create tourist spaces that meet tourists' needs by refining various symbols that represent "ethnic characteristics" (Fleischer & Tchetchik, 2005; Tan, Tan, Kok, & Choon, 2018).

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Locality is a fundamental attribute that distinguishes one place from another, and for cities where ethnic minorities gather, their unique ethnic culture makes their locality more distinct and easily perceived and followed by the public (Throsby, 2016). The literature (Krasojević & Djordjević, 2017) argues that based on tourism gaze theory proposes that local consumption mainly refers to the consumption of local functions and the consumption of symbols, the former mainly refers to the products and services provided by the place, while the latter refers to the consumption of local symbols. Literature (Olalere, 2019) establishes "non-heritage" exhibition and culture museums, "non-heritage" inheritance bases, "non-heritage" folklore festivals and other measures to build a new model of intangible cultural heritage protection and tourism development. The literature (Ricart, Ribas, Pavón, Gabarda-Mallorquí, & Roset, 2019) suggests that intangible cultural heritage can be presented through live performances, local fairs, folklore festivals, and other tourism presentations to attract tourists and increase the tourism attractiveness of intangible cultural heritage. Culture is the soul of tourism, and tourism is the carrier of culture. Culture makes the quality of tourism improved and tourism makes culture widely spread (Jiménez Madariaga & Seño Asencio, 2019; Sohie, 2016). The literature (Afanasiev, 2020) shows that as long as the principle of moderation is grasped for the reasonable market development of cultural resources, the protection and inheritance of traditional village culture can actually be better realized. The literature (Zandieh & Seifpour, 2020) considers the integrated development model of intangible cultural heritage and tourism resources, the development model of region-wide cultural tourism experience, and the creative development model of intangible cultural heritage tourism souvenirs. Literature (Timothy, 2014) constructs a model of co-directional optimization of intangible cultural heritage and cultural landscape in Indian desert towns with a tripartite synergistic model of heritage, landscape, and technological innovation. This paper firstly analyzes the interaction between two systems of traditional village cultural inheritance and tourism commercialization, selects a total of 33 positive and negative indicators of traditional culture and tourism industry to construct a coupled coordination evaluation index system, collects data and applies the entropy value method to determine the weights. Next, the coupled coordination degree model of traditional culture inheritance and tourism commercialization is proposed, and the system integration method is used to realize the contribution degree of each indicator in the semiotic culture inheritance subsystem and tourism commercialization subsystem to the total system. Finally, through the data collection and analysis of Liu Sanjie Grand View Park scenic spot in G city, the coupling coordination degree between traditional village cultural inheritance and tourism commercialization in this place is calculated.

Evaluation model of coupling coordination between traditional semiotic culture and urban tourism

Mechanism of interaction between traditional semiotic culture and urban tourism

Semiotics is an important resource support for traditional culture for tourism development activities, and at the same time, the cultural heritage and protection of semiotics also need tourism

development as a carrier. Many scholars believe that tourism is a cultural industry with strong economy and also an economic industry with strong culture. The interaction and integration between tourism industry and cultural industry modalities can effectively promote the comprehensive development of cultural tourism industry. Actively using national traditional semiotic culture which tends to mature tourism industry as the most realistic and relatively convenient platform, based on the rich diversity of national cultural resources, facing the expanding cultural consumer market. Through creative integration and the participation of modern technology, penetrate the inheritance and protection of ethnic culture, produce and provide products and services that can meet the cultural needs of modern people, culture and tourism interaction relationship as shown in Table 1.

**Table 1**. Interaction between culture and tourism

Relationship between the two		Basic Assertion
Inclusion Relationships	Tourism includes the cultural industry	Tourism stimulates the development of cultural industries: With the expansion of tourism's outreach, tourism has gradually developed into a large industrial cluster that includes cultural industries.
	The cultural industry includes the tourism industry	The cultural industry is the main force, the connotation and extension of the cultural industry are much larger than tourism, and tourism behavior in general is one of the cultural phenomena.
	The two are mutually inclusive	The two interpenetrate each other, the industry sectors cross each other and even merge into one.
Parallelism	The tourism industry and the cultural industry belong to different economic categories	The evolutionary stages of human economic history are agriculture, industry, service, and experience, with tourism belonging to the third stage and cultural industry to the fourth stage.
Interleaved relations	On a theoretical level, the cultural industry encompasses tourism	From the perspective of culture, the cultural scope of the cultural industry is larger than that of the tourism industry.
	On a practical level, they are both ways of transmitting culture.	From an industrial point of view, the cultural industry is also larger than the tourism industry. However, in reality, both the cultural industry and the tourism industry are only one way of transmitting culture, not a form of culture itself.
	The two are intertwined, but remain relatively independent.	The two industry sectors are intertwined, but remain relatively independent.

Commercialization is an inevitable product of tourism development activities. Since cultural industry and tourism industry influence each other and interpenetrate each other, the interaction between cultural heritage and tourism commercialization must also exist. Through the comparative

analysis of cultural industry and tourism industry category system, and the review of some traditional semiotic culture inheritance and tourism commercialization, this paper analyzes the interaction mechanism between traditional semiotic culture inheritance and tourism commercialization as follows:

(1) Analysis of the influence of semiotic culture on tourism commercialization

Semiotic culture is the soul of tourism industry development, cultural inheritance on the one hand strongly promote the upgrading of tourism commercialization, so that the tourism type traditional semiotic culture to get rid of the problem of a single profit model, excessive reliance on tickets, so as to achieve the multi-polar development of tourism industry. On the other hand cultural heritage makes local tourism resources distinctive and become the kernel of commercialization, thus extending more products and enriching the local business modality, while avoiding the problem of homogenization, the influence mechanism of semiotic culture on tourism commercialization is shown in Figure 1.
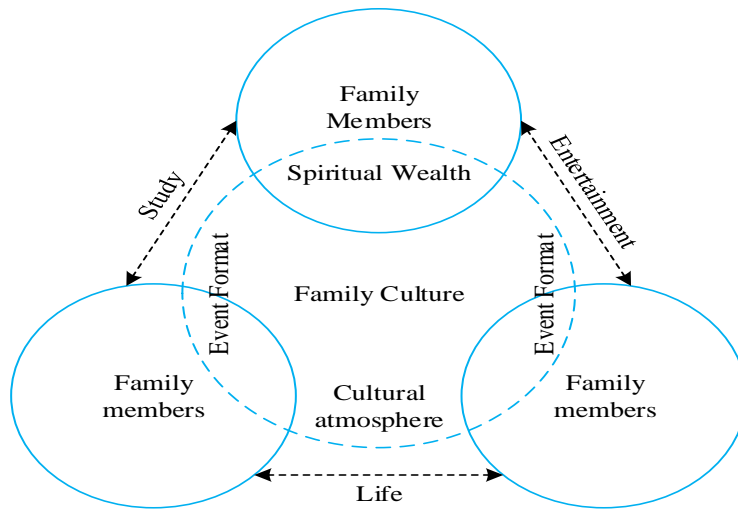
Figure 1. Mechanism of semiotic culture influence on tourism commercialization

(2) Analysis of the impact of tourism commercialization on semiotic cultural inheritance

On the one hand, the tourists' recognition of the value of the cultural resources of the villages, the objective economic income brought by tourism commercialization, and the improvement of the living standard of the local residents make the local residents realize the economic value of their culture in tourism, thus enhancing the motivation of cultural inheritance. On the other hand, tourism commercialization brings considerable economic benefits, which provides financial guarantee for cultural inheritance, such as many ethnic ecological museums have been built in cities with good tourism development where ethnic minorities gather, and the influence mechanism of traditional semiotic culture and cultural inheritance is shown in Figure 2.
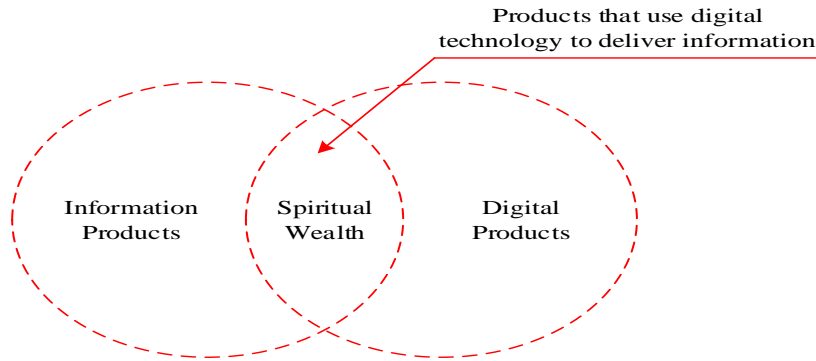
Figure 2. Influence mechanism of traditional semiotic culture and cultural transmission

(3) Interactive relationship

Traditional semiotic culture inheritance and tourism commercialization are not a pair of irreconcilable contradictions, but a mutually reinforcing relationship. Cultural inheritance is the premise of tourism commercialization, and only by inheriting the culture of traditional symbology can we attract more tourists to stop by, thus effectively supporting tourism development. At the same time moderate commercial tourism development is also conducive to cultural heritage. Therefore, as long as we find the balance point of the coordinated development of cultural heritage and tourism commercialization, we can promote the better and healthy development of traditional cultural tourism in the city, and the interaction mechanism of traditional semiotic culture and tourism commercialization is shown in Figure 3.
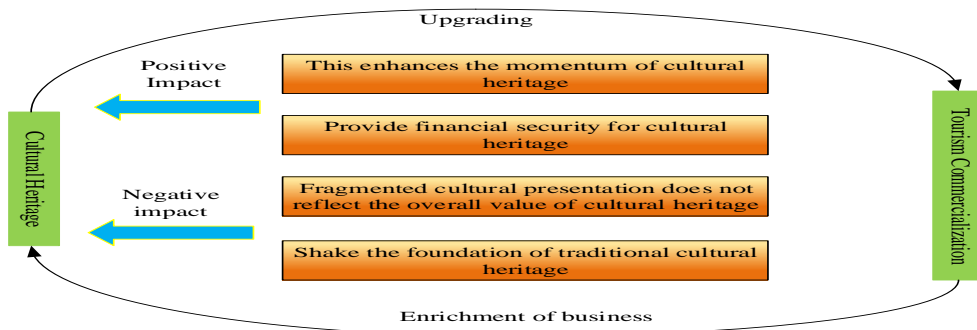
Figure 3. Interaction between traditional cultural heritage and tourism commercialization

Traditional semiotic culture and urban tourism coupling coordination evaluation index system

To analyze the coupling coordination degree of traditional semiotic cultural heritage and tourism commercialization, the premise is to construct a scientific and reasonable relevant evaluation index

system. When selecting indicators, it is necessary to both comprehensively summarize the basic characteristics of cultural heritage and tourism commercialization, and at the same time have strong typical representativeness, in addition to considering the availability of data. For example, we analyze the influencing factors of cultural heritage based on 3 dimensions of traditional cultural landscape preservation degree, activity undertaking degree and value transmission degree, in order to provide micro case reference for traditional semiotic culture in urban tourism landscape design.

Establishing the index system

Based on the characteristics of semiotic cultural inheritance, tourism commercialization respectively and their interactive relationship, the evaluation index system is initially constructed by selecting indicators based on the above three principles. Then relevant experts and scholars were invited to propose modifications and then optimize the evaluation indexes, setting the total target layer of the evaluation index system as A, the criterion layer as B, and the indicator layers as C and D. Finally, the evaluation index system of the coordination degree of cultural inheritance and tourism commercialization of the unified village was constructed as shown in Table 2.

Table 2. Harmonization index of traditional semiotic culture and tourism commercialization

Target layer A	Factor layer B	Criterion layer C	Specific Indicator Layer D
Harmonization of cultural inheritance and tourism commercialization in traditional villages(A)	Cultural inheritance(B1)	Traditional cultural landscape preservation degree (C1)	Architectural authenticity (D1)
			Food authenticity (D2)
			Costume authenticity (D3)
		Degree of undertaking traditional cultural activities (C2)	Folklore authenticity (D4)
			Technology and attitude (D5)
			Adaptability to places (D6)
		Degree of dissemination of traditional cultural values (C3)	Ecological perception (D7)
			Resident recognition (D8)
			Visitor recognition (D9)
	Tourism commercialization(B2)	Commercial density (C4)	Number of commercial

		households (D10)
		Commercial area (D11)
	Business Type (C5)	Commercial business type (D12)
		Commercial business layout (D13)
		Commercial business fat ratio (D14)
		Commercial business grade (D15)
	Visitor business perception (C6)	Commodity price(D16)
		Commercial pollution (DI7)
		Commercial service degree (D18)

Determine the weight value of each index

Semiotic cultural heritage and tourism commercialization are two macro systems, and the indicators contained in these two systems are abstract and difficult to analyze quantitatively. Therefore, this study adopts the hierarchical research method to strip the system layer by layer, and then uses the judgment matrix to compare the importance of each related index, so as to determine the weight value of different indicators at each level and provide a scientific and quantitative basis for the final measurement results. Firstly, we develop the hierarchical evaluation system of traditional semiotic culture inheritance and tourism commercialization respectively, and use the entropy value method to invite experts to score the importance of the evaluation elements in the matrix in a two-by-two coincidence. Then calculate the weight value of each indicator and test its consistency, and finally arrive at the indicator weight value of each evaluation layer, and the coupling coordination degree level classification criteria are shown in Table 3.

Table 3. Classification criteria of coupling coordination level

Scale	Meaning
1	ai, aj both indicators are of equal importance
3	Indicator ai is marginally more important than indicator ai
5	Indicator ai is significantly more important than indicator aj
7	ai is more important than indicator aj is particularly important
9	ai is more important than indicator ai
2,4,6,8,10	Median of the above two adjacent judgments

In the set of evaluations, from $M = (M_1, M_2, ..., M_n)$, the set of objects (different years or regions) involved in the system's comprehensive price, $D = (D_1, D_2, ..., D_n)$, the set of indicators for n evaluations, and the value of object M on indicator D is $X = (x_{ij})_{m \times n}$, then the decision matrix is formed:

$$X = \begin{bmatrix} & D_1 & D_2 & \cdots & D_n \\ M_1 & x_{11} & x_{12} & \cdots & x_{1n} \\ M_2 & x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ M_m & x_{m1} & x_{m2} & & x_{mn} \end{bmatrix} \tag{1}$$

For a certain indicator D_j in the evaluation system, the greater the difference in the value of each indicator for different years (regions) x_{ij}, the greater the utility of this indicator for the evaluated object in the comprehensive evaluation. Conversely, the smaller the utility. If this indicator all:

(1) After standardizing the data using the entropy value method, the standardized values of some years may be 0. In order to avoid meaninglessness when taking logarithms. The standardized data need to be appropriately shifted, and the shifting magnitude is determined as 0.001, the specific formula is:

Positive indicator:

$$u_{ij} = \frac{x_{ij} - \min_{1 \leq i \leq m} x_{ij}}{\max_{1 \leq i \leq m} x_{ij} - \min_{1 \leq i \leq m} x_{ij}} + 0.001 \tag{2}$$

Negative indicators :

$$u_{ij} = \frac{\max_{1 < i < m} x_{ij} - x_{ij}}{\max_{1 \leq i \leq m} x_{ij} - \min_{1 \leq i \leq m} x_{ij}} + 0.001 \tag{3}$$

(2) After standardizing the data, the weight of the indicator value in year i under indicator j was calculated P_{ij} as:

$$P_{ij} = \frac{u_{ij}}{\sum_{i=1}^{m} x_{ij}} \tag{4}$$

(3) Calculate the information entropy value of index j :

$$H_j = -\frac{1}{\ln m} \sum_{i=1}^{m} p_{ij} \ln p_{ij} \tag{5}$$

(4) The information utility value of an indicator depends on the difference between the information entropy of the calculated indicator H_j and 1, i.e., the coefficient of variability, which has a direct impact on the weighting. The coefficient of variability S_j is calculated by the formula:

$$S_j = 1 - H_j \tag{6}$$

The smaller the variability of x_{ij} for a given indicator, the larger the entropy value H_j and the smaller the variability coefficient S_j. The less the indicator plays a role in the comparison of annual or regional values, if the values of an indicator are equal in all years.

Coupling coordination degree evaluation model construction

Coupling coordination degree model

The system integration method is used to realize the contribution of each index in the semiotic cultural heritage subsystem and the tourism commercialization subsystem to the total system, and the formula is:

$$U_{x,y} = \sum_{i=1, j=1}^{n} \lambda_i Dx_{ij}, y_{ij} \tag{7}$$

λ denotes the total weight coefficient of indicators, D_{xij}, y_{ij} denotes the score of each system element evaluation layer indicators:

$$C = \left\{ \left(U_x \times U_y\right) / \left[\left(U_x + U_y\right)\left(U_x + U_y\right)\right] \right\}^{1/2} \tag{8}$$

To construct the coupled coordination model, the coupling degree should be calculated first, and the coupling degree expression is:

In this paper, the coupling degree C is divided into 3 levels:

(1) When $C \in [0, 0.3)$, it indicates that the coupling level between the two systems of cultural inheritance and tourism commercialization of traditional villages is low.

(2) When $C \in [0.3, 0.7]$, it indicates that the coupling level between the two systems of cultural heritage and tourism commercialization of traditional villages is medium, and there is more room for development.

(3) When $C \in [0.7, 1]$, it indicates that the coupling level between the two systems of cultural inheritance and tourism commercialization of traditional villages is high and basically tends to be stable.

Coupling coordination function

Although the coupling degree can basically reflect the degree of interaction between the two systems of semiotic cultural heritage and tourism commercialization, only measuring the coupling degree between the systems cannot objectively reflect the real development of each system. If both systems will develop at a low level, their coupling degree will be higher, which is obviously contrary to the results that the study wants to obtain. Therefore, the calculation of the coupling degree alone cannot truly reflect the level of synergistic development between the two systems, and even in some special cases there may be large deviations. Therefore, in order to reflect more scientifically the degree of coordinated development between the two systems of semiotic cultural heritage and tourism commercialization, this paper establishes the coupling coordination degree model between semiotic cultural heritage and tourism commercialization, namely:

$$\begin{cases} F = (C g T)^{1/2} \\ T = aU_x + bU_y \end{cases} \quad (9)$$

The criteria for classifying the levels of coupling coordination are shown in Table 4.

Table 4. Classification criteria of coupling coordination level

Serial number	Coordination degree interval	Coordination level	Serial number	Coordination degree interval	Coordination level
1	0-0.1	Extreme imbalance	6	0.51-0.6	Barely coordinated
2	0.11-0.2	Severe Imbalance	7	0.61-0.7	Primary coordination
3	0.21-0.3	Moderate imbalance	8	0.71-0.8	Intermediate coordination
4	0.31-0.4	Mild imbalance	9	0.81-0.9	Good Coordination
5	0.41-0.5	On the verge of imbalance	10	0.91-1	Quality Coordination

Relying on the capacity coupling coefficient model in physics, the coupling degree function of

multiple systems or elements can be generalized:

$$C_n = n\left\{(u_1 \cdot u_2 \cdot \cdots \cdot u_n)/\left[\Pi(u_i + u_j)\right]\right\}^{1/n} \qquad (10)$$

If there are only two subsystems, the coupling function can be obtained as:

$$C_2 = 2\left\{(u_1 \cdot u_2)/\left[(u_1 + u_2)(u_1 + u_2)\right]\right\}^{1/2} \qquad (11)$$

Applying this function to the study of the coupling of cultural industry and tourism industry, the expression of the coupling degree of cultural industry and tourism industry can be derived as:

$$C = 2\{(L \cdot T)/[(L+T)(L+T)]\}^{1/2} \qquad (12)$$

The value of coupling degree C varies between 0 and 1. The higher the value, the stronger the coupling. The smaller the value, the weaker the coupling.

Empirical results and analysis

Urban residents' perceptions of traditional semiotic culture inheritance and tourism commercialization are affected by various factors and are highly subjective.

In this paper, we refer to the method of previous scholars and establish a resident perception scale according to the evaluation index system constructed above, using a 5-point Likert scale, divided into five options: "very much approve, approve, average, disapprove, and not approve at all", corresponding to 5, 4, 3, 2, and 1 points.

The questionnaire and interview method were used to collect data from three visits to Liu San Jie Grand View Park in G city. The questionnaire designed for this study was divided into two parts.

The first part includes the basic situation of the survey respondents, and the second part is the scale of the survey respondents' perception of local traditional culture inheritance and tourism commercialization, including the situation of each index in the evaluation index system.

250 questionnaires were distributed in the three times of questionnaire research, 225 questionnaires were collected, and 225 valid questionnaires were screened, with an effective rate of 90%.

Reliability and validity analysis

Reliability analysis

The reliability of the questionnaire was analyzed with spss24.0 software, and the results showed that the Clonbach Alpha of the tourists' questionnaire, local villagers' questionnaire, and operators' questionnaire were 0.852, 0.877, and 0.891 questionnaires had good reliability, and the specific data are shown in Table 5.

Table 5. Reliability statistics of the questionnaire

Questionnaire type	Cloning Bach AIpha	Cloning based on standardized items Bach Alpha	Number of items
Visitor Questionnaire	0.852	0.803	23
Villagers' Questionnaire	0.877	0.845	25
Operators Questionnaire	0.891	0.852	21

Residents and tourists have a stronger overall perception of the locality of Liu Sanjie Grand View Park Scenic Area in G.

This is a side reflection of the fact that the tourism developers have been more successful in creating the semiotic traditional culture of the Sanjie Grand View Park Scenic Area, which can be more strongly perceived by residents and tourists.

In contrast, tourists have a stronger overall perception of locality than residents. However, for both residents and tourists.

The perception of spiritual symbolism is the strongest for both, which also side-reflects the yearning for deep spiritual culture for both.

Validity analysis

The questionnaire was developed in consultation with a number of experts in the relevant industry, thus ensuring the practicality and scientific validity of the questionnaire.

After the initial determination of the content of the questionnaire, the pool of items for each dimension was selected by means of a review and field survey, and finally the questionnaire was created and the experts' opinions on the questionnaire were actively solicited to further modify the questionnaire.

After the questionnaire was pre-surveyed, the results were sent back to the related parties, and more than 95 percent of the experts thought that the test dimensions and test indicators of this questionnaire could adequately reflect the coordination of traditional semiotic cultural heritage and tourism commercialization coupling, and the design was reasonable.

So this questionnaire has good content validity.

The KMO values of the questionnaire were obtained. The data showed that the KMO values of tourist questionnaire, local villagers questionnaire, and operators questionnaire were 0.809, 0.838, and 0.882, respectively, and the questionnaire had good, validity questionnaire KMO and Bartlett's test as shown in Table 6.

Table 6. Validity questionnaire KMO and Bartlett's test

Questionnaire type	KMO Sampling appropriateness Number of measures of relevance	Bartlett's test of sphericity		
		Approximate chi-square	Degree of freedom	Significance
Visitor Questionnaire	0.809	8237.154	35	0.000
Villagers' Questionnaire	0.838	7146.446	35	0.000
Operators Questionnaire	0.882	8083.563	35	0.000

The Cronbach's alpha of the questionnaires were all greater than 0.8, indicating that the reliability of the questionnaires was good and suitable for subsequent data analysis. The KMO values of the scales were all greater than 0.8, and the significance index Sig was 0.000, which was less than 0.001.

Measurement results of the coupling coordination between traditional culture inheritance and tourism commercialization

Judgment matrix and its weights, consistency test

In this paper, a two-by-two discriminant matrix is obtained by scoring according to the index system, and its data are shown in Table 7.

Table 7. Judgment matrix of cultural heritage and tourism commercialization

	Cultural Heritage(B1)	Tourism commercialization (B2)
Cultural Heritage(B1)	1/2	1/2
Tourism commercialization (B2)	1/2	1/2
Consistency check		
	Indicator layer	Weights
Cultural Heritage(B1)		0.5
Tourism commercialization (B2)		0.5

The maximum characteristic root of the judgment matrix S was calculated using MATLAB

software as $\lambda_{max} = 2$. The weights of the indicators were calculated using MATLAB software. The weights of indicators are derived by using hierarchical analysis. Construct the judgment matrix $S = (u_{ij})_{p \times p}$, and the judgment matrix is shown in Table 8.

Table 8. Judgment matrix of C1-C3 indicators of cultural heritage system

	Commercial Density (C4)	Commercial Form (C5)	Visitor business perception (C6)
Commercial Density (C4)	1	1/2	2
Commercial Form (C5)	1/2	1	2
Visitor business perception (C6)	1/2	2	1

Evaluation indexes for the comprehensive development level of semiotic culture assignment

The evaluation index system of the comprehensive development level of semiotic culture is derived according to the evaluation assignment, and the visualization results of the weight of the criterion level are drawn, as shown in detail in Figure 4. Among them, the quality of semiotic culture development has the highest weight of 42.83%, indicating that the high-quality development of the region is the core dimension of the comprehensive development of semiotic culture. Among the other three guideline level indicators, the weight of the development and utilization of semiotic culture is slightly higher than the average value at 28.08%, the weight of the public service of semiotic culture is lower than the average value at 18.72%, and the weight of the level of guaranteeing the development of semiotic culture is the lowest at 11.03%.
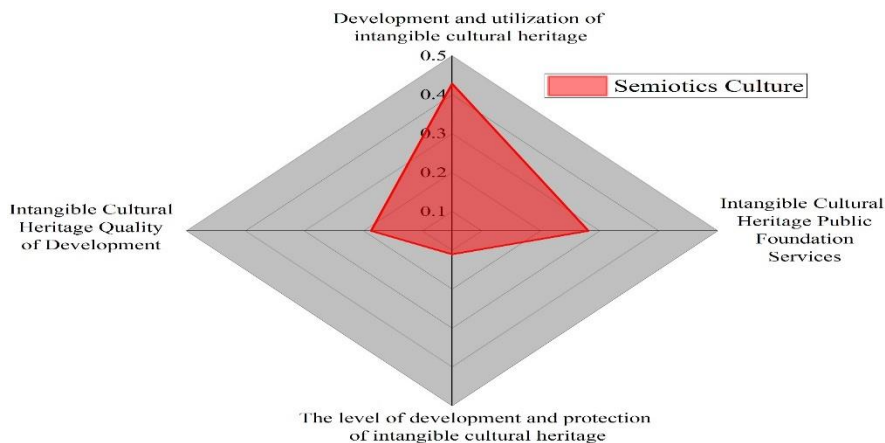
Figure 4. Evaluation of the comprehensive development level of semiotic culture

Based on the weight weights of the criterion layers, the weight distribution of the sub-criterion layers is further analyzed as shown in Figure 5. As can be seen from the figure, among the highest weighted quality dimensions of tangible cultural heritage development, market development is the most important sub-criterion layer with a weight value of 32.35%. The economic efficiency and financial security sub-criterion layers have higher weights of 19.23% and 13.72%, respectively. The factor layer weight of the ICH public service criterion layer is the lowest among the criterion layer dimensions, with only 6.52% and 7.27%.
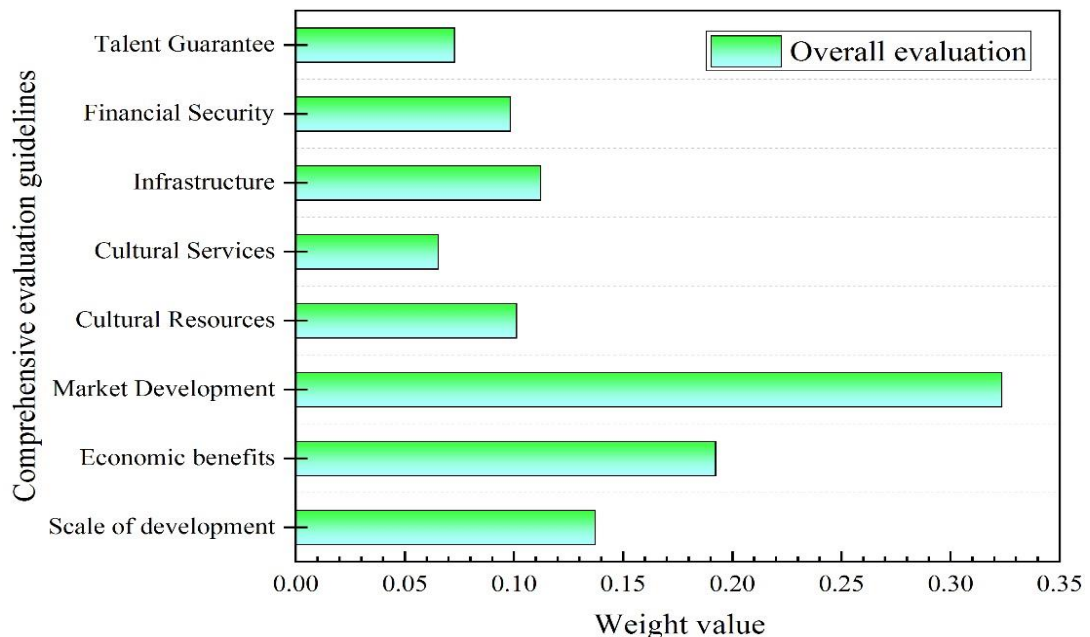

Figure 5. Distribution of evaluation factors of semiotic culture development layer

Structural coupling evaluation analysis

Based on the analysis of the correlation degree between each criterion level, sub-criterion level and program level between the two systems of traditional semiotic culture and tourism industry in G city in the previous section. The performance of 2019 degrees at the end of the study with relatively strong stability is selected to study the structural coupling between the two systems. According to the CPA structural coupling research method, the X-axis is the actual performance/statistical observation, the Y-axis is the correlation degree, and the intersection of the axes is the arithmetic mean of the 10-city tourist attractions of G city in 2019, and the four quadrants divided represent different structural coupling for comparative analysis.

Based on the measured data of G city in 2019 degree, the average score results of statistical values of correlation degree and traditional cultural heritage system guideline layer, sub-criterion layer, and program layer were mapped to CPA charts in the form of coordinates to obtain four quadrant dot

plots containing all factors respectively as shown in Figure 6.
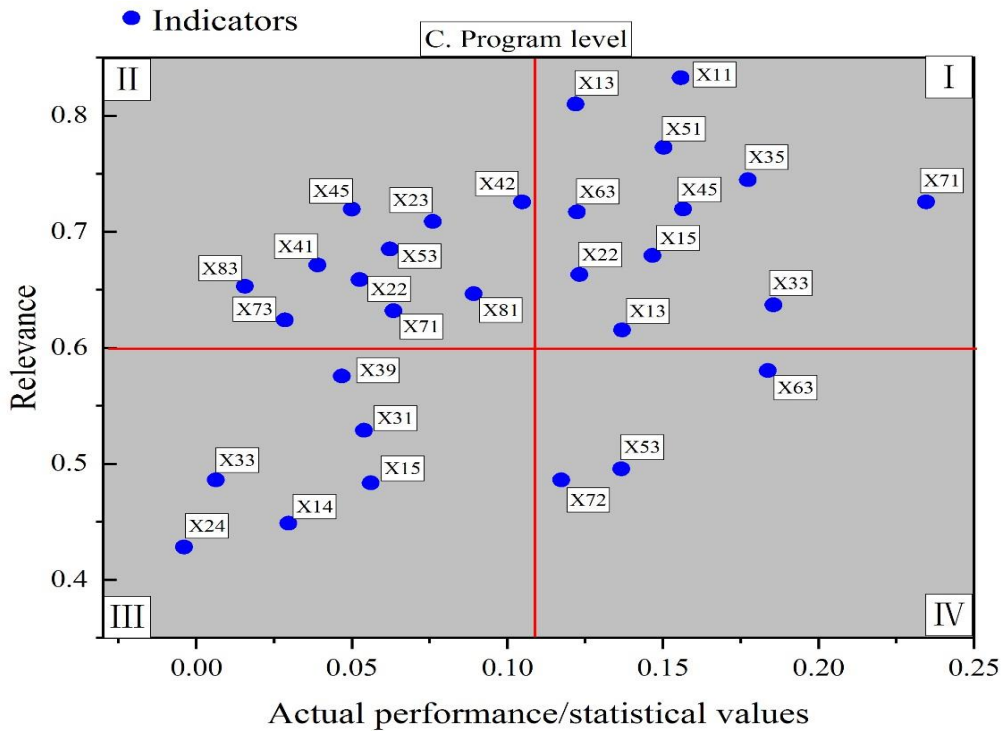
Figure 6. CPA model of the structural degree of traditional semiotic cultural system

It can be seen that the weight of the criterion layer, sub-criterion layer, and program layer in the quadrant I (continue to maintain) part of the two systems of traditional semiotic culture and tourism industry in G city are at or above the mean value. The structural coupling of the two systems is relatively stable, but the focused improvement part of each layer in the two systems is the focus of attention.

In G city traditional semiotic cultural heritage system:

Quadrant I, including two guideline layers of ICH development and utilization A1, ICH public services A3, three sub-criterion layers of development scale a1, market development a3, and infrastructure a6. As well as X11, X12, X13, X21, X31, X32, X33, X51, X54, X62, X63, X72 program layers 12, accounting for 51.5%, 36.3% and 37.81% of the corresponding layers respectively. This part of the index has a high relevance to the tourism industry system. The performance is better and needs to be maintained.

Quadrant II, including one A2 criterion layer for the development quality of intangible cultural heritage, three sub-criterion layers for economic benefits a2, cultural resources a4, and financial security a7, and ten X21, X23, X34, X41, X42, X46, X71, X53, X85, and X85 program layers. They

account for 25.5%, 36.7% and 30.23% of the corresponding layers, respectively. Although this part of the indicators is highly correlated with the tourism industry system, the performance is poor and needs to be focused on improvement.

Quadrant III, including 1 in the A4 criterion tier of the level of guarantee for the development of intangible cultural heritage, 2 in the sub-criterion tier of cultural services a2 and talent guarantee a8, and 6 in the X43, X44, X52, X53, X82 and X84 program tiers. They account for 25.7%, 20.5% and 18.37% of the corresponding layers, respectively. This part of the indicators has low relevance to the tourism industry system and performs poorly, and can be treated as low priority.

Quadrant IV, which includes only three X63, X53 and X73 program layers, accounts for 10.58% of the corresponding layers. This part of the index is less related to the tourism industry system, but performs better, and can be made to be treated as natural.

According to the data and graph of coupling degree between traditional semiotic culture and tourism industry system in G city from 2008 to 2020, it can be seen that the coupling development stage between traditional semiotic culture and tourism industry system in G city started in 2008, and although there are slight ups and downs during the 12 years, the coupling degree is in the range of 0.9702 to 0.9822, and the overall state is stable. The mean value of coupling in the study period reaches 0.9807, which is a high coupling level, indicating that the traditional semiotic culture and tourism industry system in G city basically present a coupling development state.

Conclusion

How to control the degree of tourism commercialization, so that the inheritance of traditional semiotic culture and the coordinated development of tourism commercialization in the process of tourism landscape design is a common problem faced by most out traditional cities at present. In this paper, by constructing an evaluation index system, the typical representative of traditional characteristic cities, G City Liu Sanjie Grand View Garden Scenic Area, is selected as an example. Through data collection, collation and aggregation, the coupling coordination degree of traditional culture inheritance and tourism commercialization in this city is calculated, and the landscape design to promote the sustainable development of the city's traditional culture is proposed, with a view to providing reference for cities with the same type of cultural characteristics. The main conclusions are as follows:

(1) By taking Liu Sanjie Grand View Garden scenic spot in G city as the case land, the coupling coordination degree coupling mean value of traditional semiotic culture and tourism commercialization from 2008 to 2020 is measured according to the coupling coordination degree measurement model and reaches 0.9807, which is a high coupling level. It indicates that cities can enhance the perception of tourists by digging deeper into the meaning behind cultural symbols and enhancing their emotional function of travelers. The spiritual symbols can be inherited through deep excavation and incorporated into the design of urban tourism landscape in a positive way.

(2) Through an empirical research cycle spanning 12 years, covering both the tortuous evolution of the integrated development of traditional cultural heritage and tourism industry and the comprehensive evaluation of the feasibility and synergy of related themes, the study not only expands and enriches the theoretical system of research on the integration of Chinese traditional culture inheritance and tourism innovation, but also provides a more comprehensive perspective for the mutual development of "culture + tourism". It not only expands and enriches the theoretical system of research on the innovative integration of Chinese traditional culture heritage and tourism, but also provides a new and more comprehensive perspective on the mutual development of "culture + tourism".

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