

Analysis of Tourist Satisfaction and Influencing Factors in the Core Scenic Areas of the Three Gorges

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Abstract: Tourist satisfaction is a feeling of pleasure or disappointment formed by comparing tourists' expectations of a destination with their actual perceptions upon arrival which plays an important role in destination management and marketing. Taking the Chongqing Three Gorges scenic market as a case study, a multi-level indicator system for evaluating tourist satisfaction in the Three Gorges tourism area has been constructed. Factor analysis was used to analyze tourist satisfaction and its influencing factors in the Three Gorges scenic area. The results show that regional attractiveness, tourism information services, optimization of tourism experience, tourism service quality, tourism environmental quality, and tourism infrastructure and cultural characteristics are the main influencing factors in the Three Gorges scenic area. These findings provide references for the operators and service providers of Three Gorges tourism to improve tourist satisfaction.

Keywords: Tourist satisfaction, Three Gorges scenic areas, Influencing factors, Fengjie.

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I. INTRODUCTION

With the booming development of the tourism industry, tourist satisfaction has become a key indicator for measuring the competitiveness and success of a tourist destination. The Three Gorges area, with its unique natural landscapes and rich historical and cultural resources, has attracted the attention of countless domestic and international tourists and has become an important tourist destination. However, how to enhance tourist satisfaction and optimize the tourism experience has become an urgent issue that needs to be addressed in the development of Three Gorges tourism.

Taking the Chongqing Three Gorges tourism landscape market as an example, a multi-level tourist satisfaction evaluation index system has been constructed. Factor analysis has been applied to conduct a quantitative analysis of the factors influencing tourist satisfaction in the Three Gorges scenic areas, in order to identify the main influencing factors and their degrees of impact. The aim is to address issues in the planning, development, management, and marketing of Three Gorges tourist attractions, and to enhance the overall image and competitiveness of Three Gorges tourism.

Through empirical research on the Chongqing Three Gorges landscape market, especially in the Fengjie area, scientific evidence and strategic recommendations are provided for the healthy and sustainable development of tourist destinations. This, in turn, promotes the sustainable development of Three Gorges tourism and enhances its attractiveness in the global tourism market.

II. Construction of Evaluation Index System and Data Sources

2.1 Construction of Tourist Satisfaction Evaluation Index System

Research on tourist satisfaction abroad started slightly earlier and can be traced back to the 1970s. Early studies in this field mainly focused on the connotation of satisfaction, influencing factors, and methods of satisfaction measurement. Pizam et al. proposed that beach quality, opportunities, costs, hospitality, catering facilities, accommodation facilities, environment, and degree of commercialization are the eight factors influencing tourist satisfaction at coastal tourist destinations [1]. Bread et al. further emphasized that tourist satisfaction is a "positive" perception or feeling based on the positive effect of comparing tourists' expectations with their actual experiences [2]. Chon et al., while studying the role of destination image in tourist satisfaction, proposed a reconciliation theoretical framework for explaining tourist satisfaction. In terms of tourist satisfaction models, Oliver introduced the Expectation-Disconfirmation Model, which suggests that consumers compare their pre-purchase expectations of a product's service or quality with their post-purchase perceptions. If the actual experience exceeds expectations, consumers feel satisfied; otherwise, they feel dissatisfied [3]. Referring to the

earliest literature proposed by Pizam et al., tourist satisfaction is the result of comparing tourists' expectations of a destination with their actual perceptions upon arrival.

Based on the feelings and experiences of tourists at the destination, this forms the actual evaluation of the destination by tourists. It is mainly formed through the soft environment that tourists come into contact with at the destination and the six elements of tourism activities: "food, accommodation, transportation, sightseeing, shopping, and entertainment." These factors provide specific directions for the improvement of tourist destinations. Combining the characteristics of these two aspects and the purpose of the study, the Analytic Hierarchy Process (AHP) was used to design an evaluation index system for the actual perceptions of domestic tourists at tourist destinations. This system includes six main factors and a total of 30 evaluation indicators. The six main factors are: regional attractiveness, tourism information services, optimization of tourism experience, tourism service quality, tourism environmental quality, and tourism infrastructure and cultural characteristics.

Table1. Evaluation Indicators of Tourist Satisfaction in the Core Scenic Areas of the Three Gorges

Indicator	Evaluation Factor Name	Actual Perception Mean	Variance
X1	Scenic Value	4.17	0.40
X2	Scenic Richness	4	0.46
X3	Scenic Characteristic	3.97	0.55
X4	Ticket Price	3.43	0.42
X5	Cleanliness	3.41	0.45
X6	Air Quality	3.59	0.48
X7	Climate Comfort	3.51	0.60
X8	Catering Price	3.11	0.31
X9	Catering Characteristic	3.43	0.40
X10	Catering Convenience	3.3	0.30
X11	Catering Hygiene	3.37	0.32
X12	Local Product Characteristic	3.6	0.42
X13	Product Price	3.37	0.24
X14	Product Richness	3.2	0.37
X15	Accommodation Price	2.30	0.83
X16	Accommodation Convenience	2.94	0.32
X17	Accommodation Service	3.36	0.82
X18	Entertainment Characteristic	2.83	0.23
X19	Entertainment Richness	2.29	0.68
X20	Entertainment Price	2.51	1.05
X21	External Transportation	2.61	0.48
X22	Internal Transportation	2.88	0.16
X23	Communication onvenience	3.30	0.71
X24	Guide Quality	2.59	1.07
X25	Tourism Interpretation System	2.91	1.02
X26	Signage	3	0.29
X27	Service Attitude	2.23	1.92
X28	Public Toilets	2.70	0.48
X29	Scenic Capacity	2.94	0.32
X30	Tourism Consultation	2.42	0.89

2.2 Data Sources

This study employed the method of extracting online reviews from the Ctrip platform to obtain research data. A total of over 500 online reviews from tourists were collected, of which 312 pieces of valid information were extracted. Ideally, to understand tourists' satisfaction, the best approach would be to investigate their expectations before they arrive at the tourist destination or immediately upon arrival. Meanwhile, the actual perceptions of the destination should be understood from the same tourists just before they leave the destination or after they return to their place of residence. Therefore, the ideal investigation site is the Three Gorges Tourist Scenic Area. This survey analyzed tourists' satisfaction with the Three Gorges Scenic Area by collecting online reviews from Ctrip platform users who visited the area. Given that tourists' evaluations of the scenic area may not fully align with the data required for this study, a balanced scoring method was applied to the content not covered in the reviews to construct an evaluation index system for actual tourist perceptions.

The investigation sites selected for this study were two representative attractions within the Three Gorges natural landscape in Fengjie, Chongqing, namely Baidi City and Qutang Gorge-Tiankeng and Difeng.

III. Factor Analysis

Factor analysis is a statistical method for analyzing the internal interdependencies within a correlation matrix. On the premise of minimizing information loss, factor analysis synthesizes a large number of original variables into a few comprehensive indicators, known as factors, which retain the main information of the original variables as much as possible and are uncorrelated with each other. Subsequently, the influence or importance of each factor is determined based on its variance contribution rate [2]. In the study of tourist satisfaction, there are

many variables and the analysis is relatively complex. The primary role of factor analysis is to reduce the dimensionality of indicators, condense information, and simplify the structure of indicators, thereby making the problem simpler, more intuitive, and more effective. This paper refers to the research by Dong Guanzhi, Yang Fengying. A Satisfaction Assessment System for Tourist Attractions[4], Wan Xucai, Ding Min, et al. Assessment of Domestic Tourist Satisfaction and Its Regional Differences in Nanjing[5] and Li Jiajun on the impact factors of tourist satisfaction based on factor analysis [6], as well as the evaluation of tourist satisfaction impact factors by Liu E, Wu Xuelong, and others using factor analysis [7]. Therefore, this paper employs factor analysis to explore the internal structure of the evaluation index system, identify the factors affecting tourist satisfaction in the Three Gorges scenic area, and establish a multi-level comprehensive evaluation system for tourist satisfaction in the Three Gorges scenic area.

3.1. KMO and Bartlett's Sphericity Test

Using SPSS 26.0 software, the KMO and Bartlett's sphericity test results show that the Bartlett's sphericity test value is 2298.635, significant at the 0.000 level with 435 degrees of freedom. The KMO value is 0.491, indicating that factor analysis is suitable for this dataset.

Table2. KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		.491
Bartlett's Test of Sphericity	Approx. Chi-Square	2298.635
	Degrees of Freedom	435
	Significance	.000

3.2 Factor Extraction

Using the principal component extraction method, six common factors were extracted, explaining 71.468% of the total variance. These factors are:

Table3. Factor Analysis of Tourist Satisfaction in the Three Gorges Scenic Areas

New Extracted Factor	Item	Factor Loading	Eigenvalue	Variance Contribution Rate
Factor1:Regional Attractiveness	External Transportation	0.758	7.212	20.407%
	Internal Transportation	0.772		
	Accommodation Price	0.683		
	Scenic Value	0.838		
	Entertainment Richness	0.651		
	Ticket Price	0.791		
	Scenic Characteristic	0.802		
Factor2:Tourism Information Services	Tourism Interpretation System	0.764	4.686	15.31%
	Communication Convenience	0.613		
	Tourism Consultation	0.544		
	Product Richness	0.816		
	Product Price	0.882		
Factor3:Tourism Experience Optimization	Catering Convenience	0.530	3.6582	11.952%
	Scenic Capacity	0.541		
	Signage	0.814		
	Catering Hygiene	0.833		
Factor 4: Tourism Service Quality	Service Attitude	0.598	2.698	10.005%
	Accommodation Service	0.816		
	Catering Price	0.867		
Factor5:Tourism Environment Quality	Cleanliness	0.540	1.867	8.115%
	Air Quality	0.646		
	Climate Comfort	0.842		
Factor6:Tourism Infrastructure and Cultural Characteristics	Catering Characteristic	0.534	1.819	5.679%
	Local Product Characteristic	0.738		
	Public Toilets	0.681		

3.3 Tourist Satisfaction Analysis

The results of the factor analysis indicate that the 25 evaluation indicators are respectively affiliated with six main factors. As shown in Table 1, Common Factor 1 has a high loading on all indicators related to regional attractiveness, which can be defined as regional attractiveness. Common Factor 2 has a high loading on all indicators related to tourism information services and can be defined as tourism information services. Common Factor 3 has a high loading on all indicators related to the optimization of tourism experience and can be defined

as the optimization of tourism experience. Common Factor 4 has a high loading on all indicators related to tourism service quality and can be defined as tourism service quality. Common Factor 5 has a high loading on all indicators related to tourism environmental quality and can be defined as tourism environmental quality. Common Factor 6 has a high loading on all indicators related to tourism infrastructure and cultural characteristics and can be defined as tourism infrastructure and cultural characteristics. Since the principal component extraction method was used to extract common factors and the varimax rotation was applied, six common factors were extracted based on the principle of eigenvalues greater than 1. The cumulative variance contribution rate of the six main factors reaches 71.468%, with the variance contribution rates of regional attractiveness, tourism information services, optimization of tourism experience, tourism service quality, tourism environmental quality, and tourism infrastructure and cultural characteristics being 20.407%, 15.31%, 11.952%, 10.005%, 8.115%, and 5.679%, respectively. This indicates that the six main factors play a dominant role among the 30 factors. Thus, a multi-level comprehensive evaluation index system for measuring the satisfaction of tourists in the core scenic areas of the Three Gorges can be obtained (Table 1).

The variance contribution rate of regional attractiveness is 20.407%. As the factor with the highest variance contribution rate, it has a significant impact on tourist satisfaction and is an important factor affecting the satisfaction of tourists in the core scenic areas of the Three Gorges. This includes elements that attract tourists, such as internal/external transportation, accommodation prices, landscape value, entertainment richness, ticket prices, and landscape characteristics. In particular, the high loadings of landscape value and landscape characteristics indicate that unique natural and cultural landscapes are key factors in attracting tourists. To enhance tourist satisfaction, scenic area managers should focus on protecting and highlighting their natural beauty or cultural characteristics, while developing new landscapes or experiential projects to increase tourist satisfaction and word-of-mouth. Regarding ticket prices, scenic areas need to balance economic benefits and tourist acceptance when setting prices, considering offering reasonable prices and possible preferential policies to attract and maintain tourist flow. Therefore, excessively high prices of goods may also reduce tourists' willingness to purchase, thereby affecting their overall satisfaction. In summary, scenic areas should consider providing reasonably priced, locally characteristic, and commemorative goods to meet tourists' shopping needs and improve satisfaction.

The variance contribution rate of tourism information services is 15.31%. Tourism information services reflect tourists' needs for information services, including the convenience and accuracy of obtaining tourism information, as well as the diversity and price reasonableness of tourism products. Providing accurate and timely tourism information can help tourists better plan their itineraries and enhance satisfaction. Therefore, scenic areas should strengthen the construction of information service tools such as official websites, APPs, and guide systems to ensure the updating and accuracy of information. In addition, to address the current issue of the single and similar development of Three Gorges tourism products with weak attractiveness, it is necessary to actively integrate other characteristic tourism resources around the Three Gorges scenic areas, promote the integrated development of natural tourism, and organically combine the Three Gorges with mountain-water ecological tours, historical and cultural tours, folk custom tours, and leisure and vacation tours. This will cultivate and form a compound tourism product with the Three Gorges' natural tourism as the theme, characterized by distinct features, rich connotations, and diverse forms, develop emerging business forms, meet diverse tourism market demands, enhance the attractiveness and appeal of natural tourism, and organically combine green, blue, and ancient tourism resources to create a compound tourism model that integrates "nature + Three Gorges + historical culture."

The variance contribution rate of the optimization of tourism experience is 11.952%. As one of the important factors affecting tourist satisfaction, its variance contribution rate indicates a considerable proportion among all the considered factors. This means that tourists have high expectations for personal participation and experience during the tourism process. To meet these expectations, scenic areas can take various measures to enhance the attractiveness and depth of the tourism experience. For example, by introducing interactive exhibitions, tourists can not only view historical relics or natural landscapes but also interact with exhibits through touch screens, virtual reality, and other technologies to gain more intuitive and vivid understanding. This high-tech interactive approach can arouse tourists' curiosity and desire to explore, thereby increasing their participation.

The variance contribution rate of tourism service quality is 10.005%. A clean, quiet, and comfortable environment can significantly enhance tourist satisfaction. Tourists have expectations for the price and quality of catering services, and reasonable prices and high-quality catering services can improve tourist satisfaction. Therefore, scenic areas should strengthen environmental maintenance and management to ensure that tourists can enjoy their travel in a high-quality environment. They should also provide a variety of catering options with fair prices and good food quality to meet the needs of different tourists.

The variance contribution rate of tourism environmental quality is 8.115%. The Three Gorges is renowned for its unique mountain-water scenery, and natural landscapes are the core elements that attract tourists. First, tourists have high expectations for the natural beauty of the Three Gorges, and it is crucial to preserve and enhance the original beauty and ecological balance of these natural landscapes. Strict ecological protection

measures should be implemented to ensure that the natural scenery of the Three Gorges remains undamaged. Developing new sightseeing routes, using technological means, and providing entertainment activities can allow tourists to enjoy the beauty of the Three Gorges from different perspectives. Second, the environmental atmosphere of the Three Gorges has an undeniable impact on tourist satisfaction. A pleasant environment can make tourists feel relaxed and happy. Therefore, scenic areas need to strengthen cleaning efforts to ensure a tidy environment and create pleasant leisure spaces through plant arrangement and landscape design. Noise pollution should be controlled, and quiet rest areas should be provided to allow tourists to relax and rejuvenate.

The variance contribution rate of tourism infrastructure and cultural characteristics is 5.679%. Improving catering facilities and providing a more diverse range of catering options to meet the taste preferences of different tourists, as well as developing characteristic products and enhancing their brand image, such as souvenirs and handicrafts designed with the scenery of the Three Gorges as elements. Collaborating with surrounding scenic areas to offer joint tickets and package tours to provide one-stop tourism services.

Finally, the above factors not only enhance tourist satisfaction, the attractiveness of the Three Gorges scenic areas, and the rate of tourist revisits but also improve the tourist experience, promote local cultural exchanges and development, bring economic and social benefits to the tourism destination, and contribute to the sustainable development of the Three Gorges scenic areas.

IV. CONCLUSION

The evaluation of tourist satisfaction in this study is based on the collection of tourist reviews from various platforms in the preliminary investigation. The purpose of the tourist satisfaction survey is to examine and evaluate the satisfaction of tourists in the Three Gorges scenic area and its influencing factors from a macro perspective. The investigation of the Three Gorges tourist series in Fengjie, which includes the White Emperor City and the Qutang Gorge-Tianheng Difeng scenic spots, covers a variety of types, such as museums (Kui Gate Museum), literature (poetry and prose), natural, scenic (karst landforms), and experiential categories. However, the subjects of the evaluation survey in this paper are tourists who have visited the Three Gorges scenic spots and posted reviews on various platforms, which is considered a more authentic assessment of tourist satisfaction. During the data collection process, the tourists' reviews were analyzed based on the specific content and the purpose of the investigation, and the required data materials were extracted. Efforts were made to select more genuine and accurate reviews from tourists. However, the study obtained data through a scoring system by tourists, and whether the data can truly reflect the objective reality requires further research and confirmation. Based on this, the following suggestions are proposed:

1. Protection and Enhancement of Natural Landscapes: Implement strict ecological protection measures to maintain the pristine beauty and ecological balance of the Three Gorges. Strengthen the cleaning of the scenic area to ensure a tidy environment. Through careful plant arrangement and landscape design, create a pleasant leisure environment. Control noise pollution and provide quiet rest areas where tourists can relax. Enhance environmental supervision to ensure that tourism activities do not damage the natural landscape. Develop new sightseeing routes and eco-tourism projects, such as hiking trails and cycling paths, to allow tourists to get closer to nature.

2. Enhancement of Historical and Cultural Experiences: Strengthen research on the historical and cultural aspects of the Three Gorges, uncover more stories and legends, and enrich tourists' cultural experiences. Improve tourists' understanding and interest in the history and culture of the Three Gorges through exhibitions, interpretation, and interactive activities. Set up interactive exhibitions and cultural festivals, such as ancient costume parades and traditional handicraft displays, to enhance tourists' participation and sense of experience.

3. Improvement of Tourism Service Quality: Enhance tour guide training to ensure professional and enthusiastic service, thereby improving tourists' travel experiences. Optimize the transportation system by providing convenient transportation options, reducing waiting times for tourists, and improving travel efficiency. Improve catering facilities to offer a variety of dining choices that meet the taste preferences of different tourists, allowing them to enjoy authentic local cuisine while admiring the beautiful scenery.

4. Diversification of Entertainment Activities: Develop a variety of entertainment activities, such as night cruises, water sports, and outdoor adventures, to increase tourists' entertainment options. Collaborate with professional teams to design unique cultural performances, such as Three Gorges-themed concerts and theatrical performances, to enhance cultural experiences and allow tourists to feel the cultural charm of the Three Gorges through entertainment. Utilize modern technology, such as AR, to provide virtual tour guides and historical scene reconstructions as augmented reality experiences.

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