Science, Technology, and Social Sciences Procedia
2022; 2022(5): CiM10
https://wjst.wu.ac.th/index.php/stssp

Tourists' Satisfaction and Expectation on Smart Tourism in Shenghaijing Salt Well Scenic Spot, Zigong City, China†

Luo Gan[1,*] and Onanong Cheablam[2]

[1]College of Graduate Studies, Walailak University, Nakhon Si Thammarat 80160, Thailand
[2]School of Management, Walailak University, Nakhon Si Thammarat 80160, Thailand

([*]Corresponding author's e-mail: 290646334@qq.com)

Abstract

The rapid integration of smart information technology and the tourism industry, driven by "Internet+", has given rise to the development of smart tourism, making smart scenic spots a tourism boom. Therefore, this paper is based on the construction goals of smart scenic spots, analyzing tourists' expectations and satisfaction during the tour, and whether it will guide tourists' post-tour behavior, so as to improve the development of smart scenic spots. In this study, the smart factors that affect tourists' expectations and satisfaction are studied through questionnaires, and areas that need attention are identified through IPA analysis to help the rapid development of smart scenic spots. Based on the above findings, tourists are more satisfied with the wisdom service of Shenghaijing Salt Well Scenic Spot in Zigong; guide service, which the scenic spot can maintain, but at the same time, tourists are very dissatisfied with the wisdom construction aspect of the scenic spot, which is weak, such as the lack of multimedia display; smart terminal; electronic explanation and guidance. These aspects require the scenic spot managers to increase investment and accelerate the wisdom construction.

Keywords: Satisfaction, Expectation, Value smart scenic area, Smart tourism

Introduction

"Smart City" is another important slogan proposed by IBM after "smart planet", aiming to take "smart city" construction as an opportunity to lead the prosperous development of global cities. The "smart scenic area" is based on the actual the "smart scenic spot" is based on the actual tourism scenic spot, and formed on the basis of the practical development of "smart earth" and "smart city". Through the comprehensive use of the internet of things, cloud computing, big data and other innovative technologies, from the three stages of pre-trip, travel and post-trip for tourists to build a complete set of travel plans to meet the tourists in the trip planning, product The system can meet the actual expectations of tourists in trip planning, product booking, smart guide, interactive experience, etc., comprehensively display the characteristics of tourist attractions, optimize to enhance the services of tourist attractions, enrich the tourist experience, and realize the harmonious development of man and nature, economy and society in tourist attractions.

Chinese Government Network (2022) shows that in 2022, the national "the 14th Five-Year Plan" period of tourism development plan information technology special planning, modern tourism system sounder, culture and tourism deep integration, tourism accessibility and services to further strengthen the construction of the environment. Accelerate the promotion of digital, networked and smart tourism characterized by intelligent tourism, and expand the application scenarios of new technologies. People's demand for tourism information, the demand for tourism information has been increasing, and in response to this characteristic, in the current development of tourism, meeting the individual expectations of travelers and change the traditional tourism model has become the primary problem. As an important core part of "smart tourism", "smart scenic spot" plays a vital role in the long-term development of the entire tourism industry. On the one hand, this study can deepen the understanding and awareness of tourists about wisdom tourism and wisdom scenic spots, raise the awareness of tourists about wisdom tourism, and advocate the

†Presented at the Conference in Management: Winter 2022 (December 17, 2022 at Walailak University, Thailand)

integration of tourists into the new modern tourism consumption mode; meanwhile, it can raise the importance of scenic spots to the construction of wisdom, accelerate the construction of wisdom scenic spots, and improve the modern service level of tourism industry, so as to promote the new development of tourism. On the other hand, the wisdom of scenic spots is the result of the deep integration of network information technology and tourism, the current overall development level is not high, the country has not issued relevant documents clearly put forward the wisdom of scenic construction standards, at this stage of the construction of wisdom of scenic spots is not yet fully mature experience to draw on. Many wisdom scenic spot just a single to imitate copy, simply add some intelligent equipment is considered a wisdom scenic spot, too much attention to the application of network information technology, ignoring the expectations of tourists and satisfaction, it is difficult to make tourists get a satisfactory experience, so that the image of the scenic spot is damaged, so the study of wisdom scenic spot tourist expectations, satisfaction and the relationship between wisdom scenic spot for the construction of wisdom scenic spot has Therefore, the study of the relationship between tourist expectation, satisfaction and smart scenery of smart scenery has great significance for the construction of smart scenery.

Based on the theory of tourists' satisfaction, expectation hierarchy theory and expectation difference theory, this study defines the concepts of tourism satisfaction, smart tourism and smart scenic spot to some extent scientifically, takes the smart tourism experience of tourists and tourists' expectation of Shenghaijing Salt Well Scenic Spot as the starting point, and adopts 3 aspects of scenic spot smart infrastructure construction, smart marketing and smart service, such as questionnaire survey and network survey professional methods to obtain the evaluation of tourists, and quantitative research and analysis of tourist satisfaction statistics and tourist expectations. To provide some reference for the theoretical research and smart construction of Shenhaijing Salt Well Smart Scenic Area.

Literature review

Theoretical framework

Tourist expectation

Tourist travel expectation is the psychological expectation of the tourist triggered by the travel motivation to achieve the trip goal of his or her travel decision. Travel expectations firstly affect the whole travel process of the tourist subjectively, because it is often the desire of the tourist himself to be concerned about how well his travel goals will be satisfied with the actual travel experience, and in this process he wants to coordinate with each other to reach agreement. Second, because tourism expectations are affected by the richness and accuracy of information and various media communication in the formation process, they also have characteristics such as one-sidedness and ambiguity in general, transferability or substitutability in goal orientation, and perceptibility and evaluability in the realization process. It is thus clear that although tourism expectations are created before the tourist's travel behavior takes place, it is conceivable that it will have a very important impact on the tourist's travel process and its effects.

Tourist satisfaction

Tourist satisfaction is a psychological state that results from a comparison between tourists' expectations of a tourist destination and the results of their experience after visiting the destination. It is a comprehensive rating of tourists on the itinerary, attractions, accommodation, catering, shopping, time arrangement, guided tour, tourist car and other payments.

Smart scenic spots

Smart scenic area means comprehensive, thorough and timely perception of scenic geographical things, natural resources, tourist behavior, scenic staff traces, scenic infrastructure and service facilities through smart network; visual management of tourists and scenic staff; strategic alliance with upstream and downstream enterprises in tourism industry; comprehensive, coordinated and sustainable development of environment, society and economy of scenic area.

Smart tourism

Smart tourism, also known as intelligent tourism. It is the use of cloud computing, internet of things and other new technologies, through the internet/mobile internet, with the help of portable terminal Internet access devices, active perception of tourism resources, tourism economy, tourism activities, tourists and other aspects of information, timely release, so that people can timely understand this information, timely arrangement and adjustment of work and travel plans, so as to achieve the effect of smart perception of various types of tourism information, convenient use. The construction and development of smart tourism will eventually be reflected in the three levels of tourism management, tourism services and tourism marketing.

Expectancy difference theory

The expectation difference theory was proposed by Oliver (1980), who believed that consumers form expectations about the product before they buy it, and then, compare the actual performance of the product with his expectations, and if the actual performance is better than the expectations, then a positive proof is formed, which means that they are satisfied and willing to buy again. If he is not satisfied, he will buy another alternative product. Expectation difference theory is expressed by the equation: Customer satisfaction (CS) = performance (P) an expectation (E) In recent years, expectation difference theory has been applied to research in the field of tourism, with the majority of research on the perception of tourist satisfaction in tourist destinations.

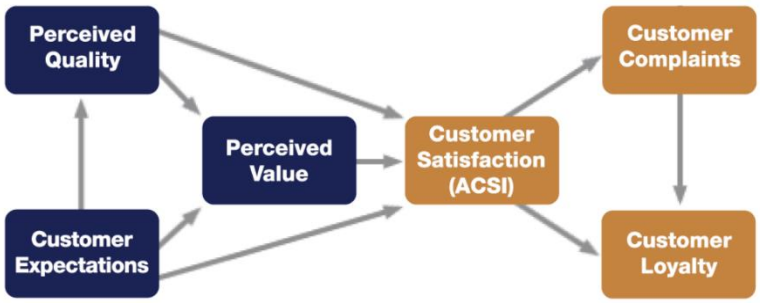
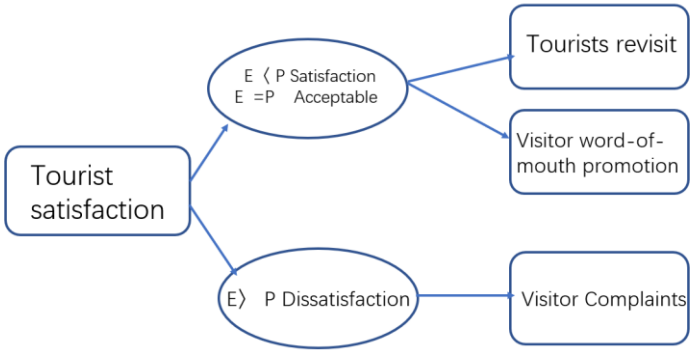


Figure 1 Theoretical model
Source: www.theacsi.org

ACSI is a macro index to measure the quality of economic output, a comprehensive evaluation index of the level of customer satisfaction based on the process of product and service consumption, consisting of four levels: Overall national satisfaction index, sectoral satisfaction index, industry satisfaction index and enterprise satisfaction index, and is a theoretical model of national customer satisfaction with the most complete system and the best application. A CSI is ACSI is a model of customer satisfaction index created by Fornell et al. (1989) on the basis of the Swedish Customer Satisfaction Index Model (SCSB).



S = Satisfaction E = Expectations P = Experience

Figure 2 Expectation variance theory model.

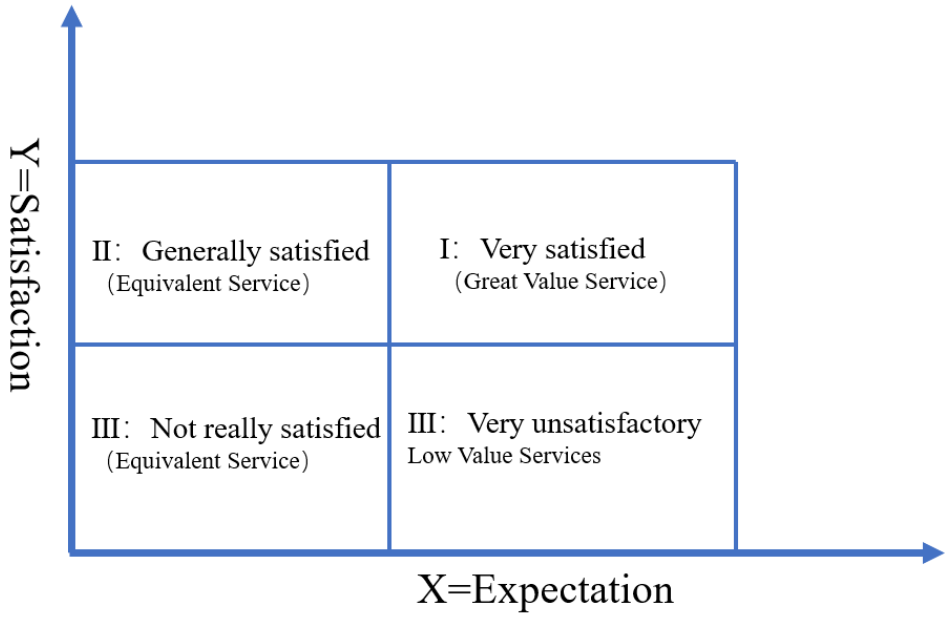


Figure 3 Extended expectation difference model.
Source: Aksu et al. (2010)

According to the U.S. Customer Satisfaction Index (CSI) model, combined with this research-satisfaction model is represented as follows. In the measurement index of tourism experience, tourism expectation determines the evaluation of tourism experience by tourists to a certain extent. When tourists travel expectations are higher than the actual tourism experience, tourists will feel satisfied, better tourism experience will guide the behavior of tourists, conducive to tourists to revisit, scenic word-of-mouth publicity and intelligent scenic construction, and vice versa will affect the experience of tourist satisfaction.

Smart factor framework model

Smart infrastructure

Smart infrastructure is the basis and premise for the realization of scenic smart, which provides a carrier and platform for scenic wisdom. Good or bad smart infrastructure effect directly reflects the situation of scenic smart. From the scenic smart content, to achieve the wisdom of management and service, it is necessary to configure a variety of supportable hardware equipment, including wireless communication network, wireless broadband network, multimedia equipment, intelligent terminal equipment, smart electronic help equipment, emergency broadcasting equipment, etc., of which the wireless network is the core and foundation of information technology, without high-speed, stable wireless network support, it is impossible to achieve intelligent tourism. These are the basic contents of scenic smart construction, and also the basic elements to evaluate the construction effect. Therefore, this study from the multimedia display, landscape smart terminal, alarm linkage service, wifi full coverage, scenic video surveillance configuration quantity and quality of the situation, let the tourists evaluate this, in order to reflect the Shenghaijing Salt Well Scenic Area in the information infrastructure construction and configuration of the level and effect.

Smart service

With the increasingly fierce competition in the tourism market, moreover, the wisdom service of scenic spots is required to be oriented to the needs of tourists, to facilitate the travel and play of tourists for the purpose of one-stop service, and to satisfy tourists as the standard. Therefore, the scenic wisdom service is very important, based on this, this study incorporates the wisdom service into the construction of Shenghaijing Salt Well Scenic spot scenic wisdom, reflecting the idea and principle of tourist-oriented, mainly from the construction of scenic portal, online complaint acceptance platform, and management, electronic explanation and guidance, scenic self-help tour, scenic staff service to be evaluated.

Smart marketing

Smart marketing is the core of overturning the traditional business model, is an important part of scenic network marketing, related to all aspects of tourist travel, but also the scenic area with the pace of the network information era, to meet the tourist's consumption needs of one of the important initiatives. At the same time to provide convenient, diversified, intelligent marketing services for tourists, is to ensure that their consumption satisfaction of the basic. On the one hand, it gives tourists a better intelligent tourism experience and responds to the thoughtful and considerate tourism services of the scenic spot, and on the other hand, it is also beneficial to the development of business in the scenic spot. Based on this, this study selects intelligent accommodation service, visitor interaction and sharing platform, intelligent ticketing system, and intelligent shopping guide service for evaluation.

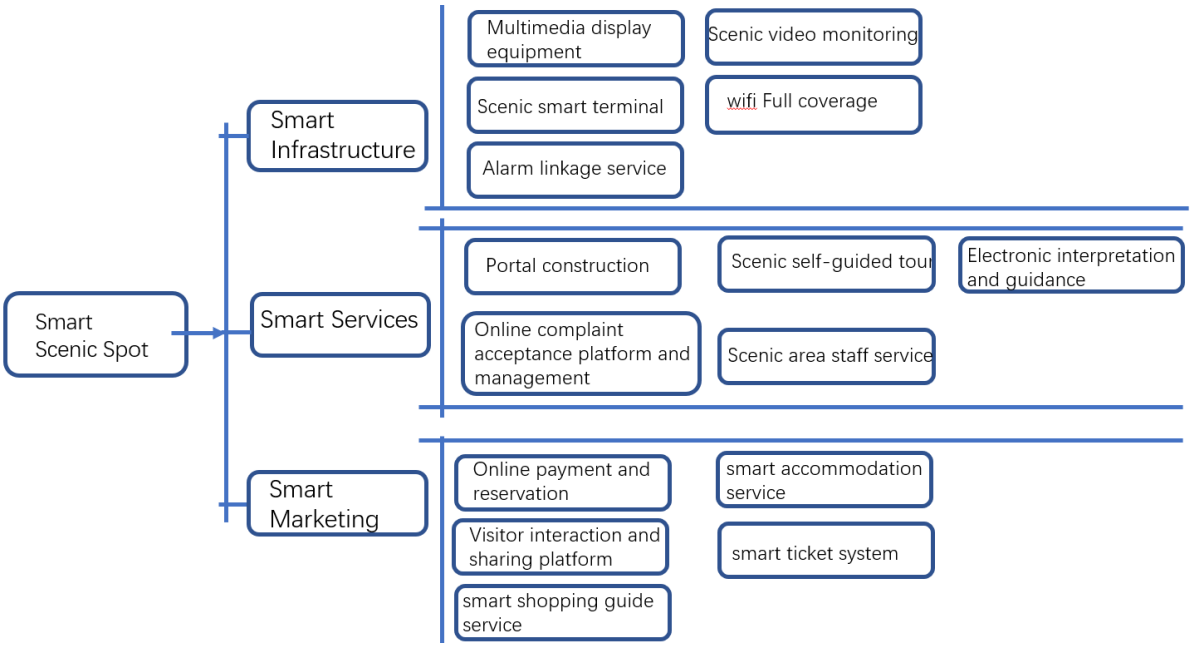


Figure 4 Indicator framework.

IPA analysis model overview

Importance-performance analysis is an analysis of the importance that users place on attributes such as products or services, and perceived performance is a measure of the actual performance of the product or service. This method produces two assessments: one is the gap between the importance of each measure in the minds of customers and their actual perceptions; the other is an analysis of the distribution of coordinate point positions within a two-dimensional four-quadrant diagram to identify areas that need to be continued, maintained, and emphasized and ignored.

Using a Likert scale, each dimension is scored from very dissatisfied to very satisfied, using 1 to 5 respectively, and after retrieving the data, the basic information situation of the researcher is described through descriptive row statistical analysis, followed by a comparative analysis of the expectation and satisfaction of the respondents through paired sample test, and finally the quadrant distribution of the difference between expectation and satisfaction through IPA in order to see where the place needs to be improved, and then propose corresponding initiatives.

Methodology

Research design and methods

This chapter discussed the study area and selection criteria, sampling methods, and data collection methods used in this study, including techniques for data analysis.

Sampling design and sample size

The visitor population was 98,000 persons per year (Zigong Municipal Government Work Repor, 2021).

The field collection sample size was determined using Yamane's (1970) formula. The sample size n was calculated as follows:

$$n = \frac{N}{1 + N.e^2}$$

where,

n = sample size

N = population size

e = precision or desired margin of error (5 %)

Thus, 398 tourists were the minimum number of the sample size. However, for this study, 403 tourists were considered.

Data collection, sources, and methods

Secondary data are collected or extracted from various sources such as journal articles, project reports, and official records, statistical yearbooks. These data sources are Zigong City Culture and Tourism Bureau, CNKI, Go.com, Shenghaijing Salt Well management committee.

Data analysis

Quantitative analysis

The statistical software SPSS26.0 to analyze the data, the survey selected 4 indicators of satisfaction and expectation: "scenic wisdom infrastructure construction," "scenic smart management," "scenic smart marketing," "scenic smart service," tourists are assessed in terms of satisfaction degree (P) and expectation degree (E) in visiting the smart scenic tourism. Likert 5-score, representing "strongly dissatisfied/strong expectations," "dissatisfied/no expectations," "neutral/neutral," "satisfied/expectations" and "strongly satisfied/strong expectations," respectively, to evaluate the four indicators. The scores were 1 - 5, and the mean and standard deviation were calculated. Using a Likert scale, each dimension is scored from very dissatisfied to very satisfied, using 1 to 5 respectively, and after retrieving the data, the basic information situation of the researcher is described through descriptive row statistical analysis, followed by a comparative analysis of the expectation and satisfaction of the respondents through paired sample test, and finally the quadrant distribution of the difference between expectation and satisfaction through IPA in order to see where the place needs to be improved, and then propose corresponding initiatives

The analytical questions used in the Weighted Average Index (WAI) analysis of visitor satisfaction and expectations used the following 5-point rating:

Strongly dissatisfied (sds) = 1.00 - 1. 80

Dissatisfied (ds) =1 81 - 2. 60

Neutral (n) = 2.61 - 3. 40

Satisfaction (s) = 3.41 - 4.20

Strongly satisfied (ss) = 4.21 - 5. 00

WAI of satisfaction is calculated as follows:

WAI = fsds(1) + fds(2) + fn(3) + fs(4) + fss(5)/N

where f = frequency and N = total number of respondents

Strongly unexpected (sue) = 1.00 - 1.80
Unexpected (ue) = 1.81 - 2.60
Neutral (n) = 2.61 - 3.40
Expectation (e) = 3.41 - 4.20
Strongly expected (se) = 4.21 - 5.00

WAI of expectation is calculated as follow:

$$WAI = fsue(1) + fue(2) + fn(3) + fe(4) + fse(5)/N$$

where f = frequency and N = total number of respondents.

The second type, using internet sampling, is a single means of obtaining data from traditional questionnaires and other methods, with low coverage and imperfect data results. To ensure the completeness and comprehensiveness of the dissertation data, the internet was used to obtain the required data on top of combining the traditional questionnaire survey to obtain data.

The questionnaire can be briefly divided into the following parts. Preface to the questionnaire: The focus of the preface is to explain the anonymity guarantee, information security issues and the content of the questionnaire and the direction of use, in order to make the respondents feel at ease to participate in the questionnaire and to prepare for their smooth completion.

The first part is to understand the basic information of the survey respondents. There are 3 questions in total, mainly including age group, education level, occupation, and other basic personal information.

The second part is the tourist's experience feeling in the smart scenic spot. Divided into 3 pieces of content, smart infrastructure satisfaction, smart service satisfaction, smart marketing satisfaction.

Main methods of research

1) Literature research method: Through the collection of Chinese and English literature in this research field, we understand the development history and the current reality of the intelligent scenic area; we summarize the Shenghaijing Salt Well tourism, tourist satisfaction and other related studies, and find the theoretical basis for the construction of tourist expectations and satisfaction evaluation index system.

2) Questionnaire survey method: Based on the previous literature research and the combing of Shenghaijing Salt Well Scenic Area and tourists' satisfaction and expectation, a questionnaire was prepared by ourselves and a questionnaire survey was conducted for tourists visiting Shenghaijing Salt Well Scenic Area to provide data support for the literature.

3) IPA analysis method: The important dimensions of this method are the importance of a certain index and satisfaction, and the four quadrant diagram is obtained through the collection of all the indicators.

Results and discussion

Characterization of demographic variables

This paper considers that descriptive statistics on the basic characteristics of the respondents from five aspects: gender; age; education; occupation; and annual net income can be used to understand the basic characteristics of the respondents to a certain extent, and to verify the validity of the data in this paper, and also to reflect the target market group of the intelligent tourism scenic area of Shenghaijing Salt Well Scenic Area in Zigong City to a certain extent. By using SPSS26.0 data analysis software to test them, the descriptive statistics results are shown in **Table 1** below.

The research results show that: 1) there are 178 male respondents, accounting for 43.7 %, and 229 female respondents, accounting for 56.3 %. The number of female respondents is slightly higher, which fits with the current situation of the age proportion of the tourist group in Zigong Shenghaijing Salt Well Scenic Area intelligent tourism scenic area, and there is no significant difference between the 2, and the questionnaire data is more real and reliable; 2) the age structure of the respondents shows that 44.7 % of the respondents are aged 31 - 50, and 31.2 % of the respondents are aged 18 - 30, therefore, the respondents

Therefore, the age of the respondents is mainly young and middle-aged, which also fits with the age distribution of the consumer groups of the intelligent tourism scenic spot in Shenghaijing Salt Well Scenic Area of Zigong City, and the questionnaire data is valid. 3) The results of the respondents' education show that the respondents' education is mainly undergraduate (160 people, 39.3 %) and high school (103 people, 25.3 %), so the respondents' education level is relatively high and they have strong ability to understand and grasp the questionnaire items. 4) The results of the respondents' occupations show that the respondents' occupations are widely distributed and mainly consist of general workers, which corresponds to the current occupational ratio of Chinese residents. 5) Finally, the results of the monthly income of the respondents show that 43.2 % of the respondents' annual net income is between 50,000 and 100,000 RMB, and 29.5 % of the respondents' monthly income is between 100,000 and 200,000 RMB, which in general, the income status of the respondents matches the current income status of the residents in China.

Table 1 Distribution of demographic variables characteristics.

Variables	Classification	Frequency	Percentage
Gender	Male	178	43.7
	Female	229	56.3
Age	Under 18 years old	59	14.5
	18 - 30 years old	127	31.2
	31 - 50 years old	182	44.7
	Over 50 years old	39	9.6
Academic qualifications	Junior high school and below	76	18.7
	High School	103	25.3
	Undergraduate	160	39.3
	Graduate student and above	68	16.7
Career	Government Officials	15	3.7
	Officials of state-owned enterprises	46	11.3
	Private company employees	57	14.0
	Self-employed/business owners	64	15.7
	General Workers	121	29.7
	Other	104	25.6
Monthly income	Less than 50,000 RMB	31	7.6
	50,000 - 100,000 RMB	176	43.2
	100,000 - 200,000 RMB	120	29.5
	200,000-500,000 RMB	80	19.7

Reliability analysis

Academics mainly use the value of Cronbach's Alpha coefficient as an indicator to test the level of questionnaire reliability. Academics stipulate that 1) when the Cronbach's Alpha coefficient > 0.9, it indicates a very high level of questionnaire reliability; 2) when the Cronbach's alpha coefficient > 0.8, it indicates that the questionnaire reliability level is high; 3) when Cronbach's alpha coefficient > 0.7, it indicates that the questionnaire reliability level is high; 4) when Cronbach's alpha coefficient > 0.6, it

indicates that the questionnaire 4) when the Cronbach's alpha coefficient is > 0.6, the reliability level of the questionnaire is within the acceptable range; 5) when the Cronbach's alpha coefficient is < 0.6, the reliability level of the questionnaire is low, and the questionnaire items should be further revised, and the results of the reliability analysis of the questionnaire are shown in the table below.

The Cronbach's Alpha coefficients of the variables in the respondents' expectations are as follows: smart infrastructure (Cronbach's alpha coefficient of 0.884); smart services (Cronbach's alpha coefficient of 0.877) The Cronbach's alpha coefficients for each variable in the respondents' satisfaction are as follows: smart infrastructure (Cronbach's alpha coefficient of 0.871); smart marketing (Cronbach's alpha coefficient of 0.901); smart services (Cronbach's alpha coefficient of 0.884); and smart marketing (Cronbach's alpha coefficient of 0.847), and the reliability coefficients of each variable are greater than the academic minimum standard of greater than 0.6. Therefore, the reliability of each topic passed the test. The Cronbach's alpha coefficients of the modified item-total correlations and the deleted items in **Table 3** show that the Cronbach's alpha coefficients of the modified item-total correlations are all greater than 0.3 and the Cronbach's alpha coefficients are not significantly improved after the deletion of the relevant questions. Therefore, all the questions were retained.

Table 2 Reliability analysis table of the questionnaire.

Research subjects		Expected value	Satisfaction
Variables	**Number of items**	**Cronbach's alpha coefficient**	**Cronbach's alpha coefficient**
Smart Infrastructure	5	0.884	0.871
Smart Services	5	0.877	0.884
Smart Marketing	5	0.901	0.847

Descriptive analysis of expectation and satisfaction

In this paper, visitor satisfaction and expectation ratings are tested using the weighted average index (WAI) analysis of visitor.

First, over descriptive statistical analysis, descriptive statistical analysis of tourist satisfaction of intelligent tourism in Zigong City Shenghaijing Salt Well Scenic Area, and get the analysis results shown in **Table 3** below. The results show that, on the whole, the mean value of the surveyed tourists' satisfaction with smart tourism in Zigong Shenghaijing Salt Well Scenic Area is 2.59 less than 2.6, and the overall satisfaction of the surveyed people with this scenic area is at the unsatisfactory level. The mean value of the satisfaction of the researched on Zigong City Shenghaijing Salt Well Scenic Area wisdom tourism tourists on each dimension is between 1.95 and 3.10, on the whole, the degree of satisfaction of the researched on these 15 influencing factors indicators of the survey is low, all in the unsatisfied to general level, the researched think that these 15 factors are all key factors affecting the satisfaction of the wisdom tourism tourists in Zigong City Shenghaijing Salt Well Scenic Area, but The value recognition of the scenic area by the researched people is not high. Therefore, there is still much room for improvement in these 15 aspects in the area. Secondly, the standard deviation of these 15 indicators is distributed between 0.839 - 1.317, with a small standard deviation, indicating that the dispersion of the data is not high, further indicating that the respondents' cognitive opinions on the satisfaction of each influencing factor are consistent and there is no significant difference. In terms of individual dimensions, the respondents only expressed opinions on P13 alarm linkage service; P15 scenic video monitoring; P21 portal construction; P22 online complaint acceptance platform management; P24 scenic self-guided tour; P25 scenic staff service; P33 visitor interaction and sharing platform; P35 intelligent guide service is neutral in several aspects, while in P11 multimedia display; P12 landscape intelligent terminal; P14 Wifi full coverage; P23 electronic explanation and guidance; P31 online payment and reservation; P32 intelligent accommodation service; P34 intelligent ticketing system, which are seven aspects with a very dissatisfied posture.

Through descriptive statistical analysis, descriptive statistical analysis of the expectation value of the smart tourism tourists in Zigong City Shenghaijing Salt Well Scenic Area, the results show that, on the whole, the mean value of the researched tourists' satisfaction with the smart tourism in Zigong City Shenghaijing Salt Well Scenic Area is 4.06, which is greater than 3.4 and less than 4.2, so the overall satisfaction of the researched tourists with this scenic area is at the expected level. The mean value of the researched on Zigong Shenghaijing Salt Well Scenic Area wisdom tourism tourists' expectation of each dimension is between 3.79 and 4.29, which fully indicates that the degree of tourists' expectation of these 15 influencing factors indicators of the survey are between expected - strong expectation, and the researched think that these 15 factors are all key factors affecting the expectation of Zigong Shenghaijing Salt Well Scenic Area wisdom tourism tourists, which are between expected - strong Expectations. Secondly, the standard deviation of the indicators is distributed between 1.030 - 1.342, with a small standard deviation, indicating that the dispersion of the data is not high, further indicating that the respondents' perceptions of the expectations of each influencing factor are consistent, and there is no significant difference. In terms of individual dimensions, the researched respondents held strong expectations for E11 multimedia display; E12 landscape intelligent terminal; E13 alarm linkage service and E21 portal construction, while they held strong expectations for E14 Wifi full coverage; E15 Scenic video monitoring; E22 Online complaint receiving platform management; E23 Electronic explanation and guidance; E24 Scenic area self-guided tour; E25 Scenic area staff service; E31 online payment and reservation; E32 intelligent accommodation service; E33 visitor interaction and sharing platform; E34 intelligent ticketing system; E35 intelligent guide service holds a higher expectation posture. Therefore, in general, the respondents have very high expectations of the service level of the scenic spot on 15 levels.

The study found that smart tourism largely improves the overall satisfaction level of tourists, who expect to feel the convenience brought by "smart tourism" in the actual experience. In line with Teng (2018) shows the smart factors such as smart ticketing, smart parking, and smart interpretation in the construction process of "smart tourism" in scenic areas bring significant improvements to tourists' tourism experience, and the marginal contribution of smart tourism to tourists' satisfaction and expectations has been reflected in all aspects of scenic areas.

Consistent with Lin (2017) found that Wuyi Mountain scenic area wisdom construction needs and evaluation study, visitors to the wisdom of the wisdom of the scenic area needs satisfaction evaluation part of wisdom marketing, wisdom service, wisdom infrastructure construction part of the wisdom factor evaluation. From the weighting of indicators in the scholar's paper, tourists have high evaluation of Smart Infrastructure, Multimedia display, Scenic smart terminal, Wifi full coverage, which is in line with the continued focus on improvement in this paper, so tourists are very important for the wisdom infrastructure, followed by wisdom service, wisdom management.

Through a longitudinal comparison of the Shenghaijing Salt Well Scenic Area of intelligent tourism tourist expectations and satisfaction can be seen, the level of satisfaction of tourists to the scenic area and the level of expectations there is a significant difference, the level of expectations is much higher than the level of satisfaction of tourists, fully indicating that the scenic area in a number of aspects of the service there is still a lot of room for improvement. For example, for the two aspects of multimedia display; landscape intelligent terminal, the research has very high expectations for the intelligent tourism of Zigong Shenghaijing Salt well Salt Well Scenic Area, but the actual research found that the satisfaction level of tourists with multimedia display; landscape intelligent terminal is very low and in a state of dissatisfaction. Therefore, through the comparative analysis of the expectation and satisfaction of the tourists of the smart tourism of Zigong City Shenghaijing Salt Well Scenic Area, it can be further assessed that the scenic area should focus on the improvement direction.

Table 3 Assessment level of the tourist expectations and satisfaction indicators of smart tourism in Shenghaijing Salt Well Scenic Area of Zigong City.

Projects		Average value	Standard deviation	Sort by	Assessment Level
Satisfaction (P)					
P11	Multimedia display	2.27	1.014	12	Dissatisfaction
P12	Scenic smart terminal	2.49	1.105	9	Dissatisfaction
P13	Alarm linkage service	3.05	1.155	2	Neutral
P14	Wifi Full coverage	2.21	1.116	13	Dissatisfaction
P15	Scenic video monitoring	2.94	1.157	4	Neutral
P21	Portal construction	2.73	0.978	7	Neutral
P22	Online complaint acceptance platform and management	3.10	1.036	1	Neutral
P23	Electronic interpretation and guidance	2.14	0.994	14	Dissatisfaction
P24	Scenic self-guided tour	2.83	1.216	5	Neutral
P25	Scenic area staff service	2.67	0.839	8	Neutral
P31	Online payment and reservation	2.37	1.060	10	Dissatisfaction
P32	Smart accommodation service	2.35	0.995	11	Dissatisfaction
P33	Visitor interaction and sharing platform	3.01	1.317	3	Neutral
P34	Smart ticket system	1.95	0.980	15	Dissatisfaction
P35	Smart shopping guide service	2.81	1.081	6	Neutral
Total		2.59	0.686		Dissatisfaction
Expected value (E)					
E11	Multimedia display	4.24	1.086	2	Strongly Expected
E12	Scenic smart terminal	4.29	1.154	1	Strongly Expected
E13	Alarm linkage service	4.22	1.030	4	Strongly Expected
E14	Wifi Full coverage	4.17	1.137	5	Expected
E15	Scenic video monitoring	3.79	1.165	15	Expected
E21	Portal construction	4.22	1.100	3	Strongly Expected
E22	Online complaint acceptance platform and management	3.94	1.215	12	Expected
E23	Electronic interpretation and guidance	4.12	1.125	6	Expected
E24	Scenic self-guided tour	4.10	1.071	8	Expected
E25	Scenic area staff service	4.11	1.171	7	Expected
E31	Online payment and reservation	3.89	1.194	14	Expected
E32	Smart accommodation service	3.99	1.287	10	Expected
E33	Visitor interaction and sharing platform	3.97	1.260	11	Expected
E34	Smart ticket system	3.90	1.342	13	Expected
E35	Smart shopping guide service	3.99	1.287	9	Expected
Total		4.06	0.677		Expectations

Expectation and satisfaction pair analysis

In this paper, by using SPSS26.0 data analysis software, paired-samples t-test analysis was used to explore the perceived differences in the mean values of expectation and satisfaction of the 15 influencing factors by the respondents for comparative analysis. The academic community stipulates that the important premise of the paired-samples t-test is that the variables are independent variables and two sets of correlated samples obeying normal distribution, and the two sets of data of expectation and satisfaction of smart tourism tourists in Shenghaijing Salt Well Scenic Area of Zigong City meet the hypothetical premise,

therefore, the paired-samples t-test is carried out to further compare whether there is a significant difference between the data of expectation and satisfaction. And it is stipulated that when the significance value (2-tailed) $p > 0.05$, it means that the difference is not significant, when $p < 0.05$, it means that the difference is significant; when $p < 0.01$, it means that the difference is highly significant. The results of the test of variance are shown in the following representation. The results show that the respondents' expectations of the intelligent tourism of Zigong Shenghaijing Salt Well Scenic Area are all much higher than the satisfaction level of the respondents. And in the multimedia display; landscape intelligent terminal; alarm linkage service; wifi full coverage; scenic video monitoring; portal construction; online complaint acceptance platform and management; electronic explanation and guidance; scenic self-guided tour; scenic staff service; online payment and reservation; intelligent accommodation service; visitor interaction and sharing platform; intelligent ticketing system; intelligent guide service and other 15 levels of tourists' expectations and satisfaction were significantly different ($p < 0.001$). Therefore, the degree of expectation of tourists of smart tourism in Shenghaijing Salt Well Scenic Area of Zigong City is high and satisfaction is relatively low. It further reflects that there are still some problems and shortcomings in the smart tourism of Zigong City Shenghaijing Salt Well Scenic Area.

Table 4 Paired samples t-test for expectation and satisfaction.

Name	Expectation average value	Satisfaction average value	Difference in Means	T	Sig.
1)Multimedia display	4.24	2.27	1.97	24.672	0.000
2)Scenic smart terminal	4.29	2.49	1.8	22.399	0.000
3)Alarm linkage service	4.22	3.05	1.17	14.867	0.000
4)Wifi Full coverage	4.17	2.21	1.96	23.491	0.000
5)Scenic video monitoring	3.79	2.94	0.85	10.142	0.001
6)Portal construction	4.22	2.73	1.49	20.605	0.000
7)Online complaint acceptance platform and management	3.94	3.1	0.84	10.449	0.002
8)Electronic interpretation and guidance	4.12	2.14	1.98	26.623	0.000
9)Scenic self-guided tour	4.1	2.83	1.27	15.789	0.000
10)Scenic area staff service	4.11	2.67	1.44	19.857	0.000
11)Online payment and reservation	3.89	2.37	1.52	18.363	0.000
12)Smart accommodation service	3.99	2.35	1.64	19.741	0.000
13)Visitor interaction and sharing platform	3.97	3.01	0.96	10.432	0.003
14)Smart ticket system	3.9	1.95	1.95	25.012	0.000
15)Smart shopping guide service	3.99	2.81	1.18	14.006	0.000

IPA analysis

In this paper, we use IPA analysis method to develop IPA model scatter diagram, and divide the data of expectation variable (I) as the horizontal (X) axis, the data of satisfaction variable (P) as the vertical (Y) axis, the mean value of expectation variable (MI) as the reference axis of X axis, and the mean value of satisfaction variable as the reference axis of Y axis into four quadrants, as shown in **Figure 5**. The 15 influential indicators of expectation and satisfaction of the tourists of smart tourism in Shenghaijing Salt Well Scenic Area of Zigong City obtained from the survey are mapped into the IPA quadrant, so that the following four regions can be obtained.

1) The first quadrant: Indicates high expectations and high satisfaction, and is the dominant area.

2) The second quadrant: Indicates low expectations and high satisfaction, and is the oversupply area.

3) The third quadrant: Indicates that the expectations and satisfaction are low, and is the secondary improvement area.

4) Fourth quadrant: Indicates high expectations, low satisfaction, and urgent need to fix the repair area.

Through the IPA analysis of this paper, it is consistent with the conclusion of Yang (2012) shows IPA analysis that the four-quadrant diagram is expressed as an important factor derivation model, which is an intuitive form of quantitative analysis, and any of the influencing factors in the questionnaire can appear in the form of points in this four-quadrant diagram according to their satisfaction and importance scores. In addition, in line with (Shen, 2018) satisfaction variance analysis, through the questionnaire, the IPA model analysis of the impact indicators from the first quadrant; maintain the advantage, the second quadrant; moderate regulation, the third quadrant: active expansion, and the fourth quadrant: Focused improvement. As a basis, the corresponding countermeasures are proposed.

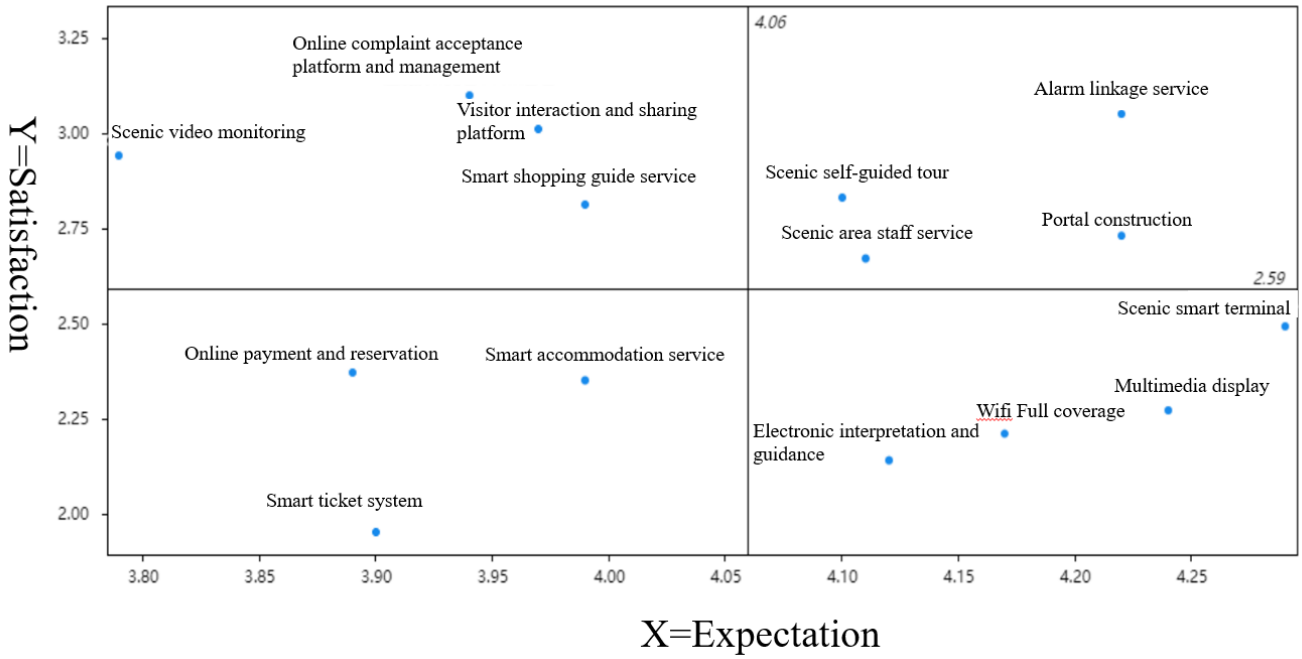


Figure 5 Scatterplot of IPA model analysis

Guidelines for smart tourism management in Shenhaijing Salt Well Scenic Spot

According to the above chart summarize the following points:

1) The first quadrant: indicates high expectations and high satisfaction, and is the dominant area.

The analysis results show that a total of four items located in the first holding area quadrant are self-guided tour of the scenic area; scenic staff services; alarm linkage services and portal construction; visitors have relatively high expectations of the influencing factors in this quadrant and a high level of satisfaction with the current situation. Therefore, the scenic area should continue to maintain these aspects in its subsequent development.

2) The second quadrant: indicates low expectations and high satisfaction, and is the oversupply area.

The analysis results show that there are four items located in the second quadrant, which are video monitoring in the scenic spot; intelligent guide service; visitor interaction and sharing platform; online complaint receiving platform and management. Visitors do not have high expectations of the four influencing factors in this quadrant, but the scenic spot is doing very well in these aspects, and the scenic spot is oversupplying these aspects and can reduce the investment appropriately.

3) The third quadrant: indicates that the expectations and satisfaction are low, and is the secondary improvement area.

The analysis showed that there are 3 quadrants, namely online payment and reservation; smart accommodation service and smart ticketing system. Tourists neither pay attention to nor are satisfied with the influencing factors in this quadrant, therefore, the managers of this scenic spot may not care or even need to pay attention to these aspects of the service, and treat these 3 areas as secondary improvement areas based on the improvement of other aspects.

4) Fourth quadrant: indicates high expectations, low satisfaction, and urgent need to fix the repair area.

The analysis results show that there are four items located in the fourth quadrant, which are multimedia display; landscape intelligent terminal; electronic explanation and guidance; WiFi full coverage; visitors have very high expectations of these four aspects, but the actual perceived satisfaction is very low. It is the focus of the subsequent improvement of this scenic spot, and should start to improve and strengthen the relevant aspects for the relevant problems, to provide a good living environment for tourists and maintain good social security.

Conclusions

Scenic spots should vigorously develop smart tourism to enhance the experience and satisfaction of tourists for scenic tourism, for this reason, scenic spots should improve the smart services, smart scenic infrastructure, so that tourists get a deeper tourism experience in the process of sightseeing in scenic spots, which includes investing various resources, building advanced smart scenic guidance service system, building scenic spots smart tourism experience center; at the same time, scenic spots should also take a smart approach to create an experience environment, in order to achieve this goal, scenic spots should improve the smart infrastructure, such as large outdoor screens, interpretation screens and other infrastructure; and scenic spots should also use new media to carry out experiential infrastructure. At the same time, the scenic spot should also take a smart approach to create an experience environment, in order to achieve this goal, the scenic spot should improve the smart infrastructure construction, such as outdoor screen, interpretation screen and other infrastructure; and, the scenic spot should also use new media to carry out experiential tourism consumption, including the use of new media to innovate smart marketing channels, the development of innovative intelligent tourism products; finally, should also be the tourist-centric construction of smart tourism team, in order to effectively promote the ultimate realization of the above goals. to effectively promote the ultimate realization of the above goals.

Limitations and Suggestions for Future Research

1) This study mainly collected data by means of questionnaires and web questionnaires, and there are certain limitations in the sample data. The objectivity of the data needs to be strengthened because the collection of questionnaires was restricted by COVID-19 in the process of conducting the survey and various factors such as the location of questionnaire distribution, the participating population, and the understanding of some questions, which may affect the judgment of tourists' evaluation. From the descriptive analysis, it can be found that the survey respondents are mainly from Zigong city, which is not enough in terms of geographical coverage. In future research, it is necessary to conduct survey research more comprehensively, systematically and accurately in order to improve the accuracy and universality of the conclusions.

2) This paper is only a preliminary construction of indicators based on tourists' expectation and satisfaction, and the selection of measurement items is mainly based on literature combing, but due to the lack of research time, there may be problems of incomplete information collection, some indicators have bias and there may be limitations for some intelligent factors.

Therefore, in the future, we can dig deeper along these 2 directions in order to improve the reliability of the intelligent factors of scenic area intelligence construction.

Acknowledgements

I am about to finish my life at Walailak University in Thailand, and although it is not a long time, I feel very fulfilled. First of all, I would like to thank my most respected Associate Professor Dr. Onanong Cheablam for her profound academic attainments and unique personal charisma, and this thesis was completed under her careful guidance. From the immaturity of the first draft to the gradual mastery of the essay writing, all of them are the result of my teacher's hard work and her rigorous academic attitude, which have benefited me for life. I would like to express my sincere gratitude and respect to my supervisor.

References

Aksu, A., İçigen, T. E., & Ehtiyar, R. (2010). A comparison of tourist expectations and satisfaction: A case study from Antalya region of Turkey. *Turizam, 14*(2), 66-77.

China Government Network. (2022). *General Office of the CPC Central Committee General Office of the State Council issued the 14th five-year plan for cultural development*. Retrieved from http://www.gov.cn/gongbao/content/2022/content_5707278.htm

Cheng, X. P., & Sun, H. (2012). Analysis of tourists' satisfaction in Chinese historical and cultural cities based on IPA method: Hancheng City as an example. *Resource Science, 7*, 1318-1324.

Han, C. X. (2015). The relationship between perceived tourism value and satisfaction and behavioral intention. *Human Geography, 3*, 137-150.

Kirn, Y. H., Kim, M. C., & Goh, B. K. (2011). An examination of food tourist's behavior: using the modified theory of reasoned action. *Tourism Management, 32*(5), 1159-1165.

Lin, J. (2017). *Wuyi Mountain scenic area wisdom construction demand analysis and evaluation research* (Master's thesis). China: Xiamen University.

Ma, T., Li, X., & Xie, Y. J. (2017). Changing the soup but not the medicine? Myths of tourist satisfaction measurement. *Journal of Tourism, 6*, 53-63.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*, 460-469.

Shen, W. N. (2018). *Research on the satisfaction of recreation tourism in Huangshan City based on IPA analysis* (Master's thesis, Guangxi University). Retrieved from https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201802&filename=1018133019.nh

Sun, Q. (2020). *Research on the construction and development of intelligent scenic spot of Qingzhou ancient city from the perspective of visitor experience* (Master's thesis, Guilin University of Technology). Retrieved from https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202101&filename=1020389466.nh

Teng, F. (2018). *Research on intelligent tourism strategy of Xikou based on tourists' satisfaction* (Master's thesis). China: Ningbo University.

Ye, T. W. (2011). *Smart tourism: the second revolution in tourism* (*in Chinese*). China Tourism News.

Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: A structural model. *Tourism Management, 26*(1), 45-56.

Yang, G. (2012). *A study of tourists' satisfaction based on expectation difference model* (Master's thesis). China: Chongqing Normal University.

Zigong City Culture. (2021). *Radio, television and tourism bureau pointed out in the 2021 annual report on government information disclosure, Zigong City shenghaijing salt well scenic street visitors over 98,000*. Retrieved from http://www.rongzhou.gov.cn/web/swgxj/-154/-/articles/14666550.shtml