

# Survey Report on the Combination of Digital Development and Cultural and Tourism Transformation under the Background of the New Era ——Takes Pan'an Lake Scenic Spot as an Example

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**Keywords:** Transformation, digital, Internet, cultural travel, travel notes.

**Abstract:** Pan lake area is the country's first coal mine collapse area repair wetland, with the restoration of damaged ecological improvement of environmental quality, the improvement of traffic conditions, Pan lake as mining subsidence water area through ecological restoration and regulation become the success of the national ecological wetland, make the area ecological, economy and society are different degrees to the road of benign development. However, as a gradually transformed coal mine area, how to balance the relationship between ecological protection and economic development is still prominent contradictions, how to guide the regional transformation of a reasonable choice of path is particularly important. Therefore, this article takes Pan'an Lake regional scenic spot as the research object, based on the era background of rural revitalization, new rural construction and resource-based regional cultural and tourism transformation, focuses on Pan' an Lake area in Jiawang District, Xuzhou City, and focuses on the sustainable development after regional cultural and tourism transformation. Relying on the regional existing industry diagnosis its development problems, conform to the consumer convenient, intelligent, the use of Internet technology, combined with its development advantages and characteristics, build integration online and offline channel wisdom platform, form the "online APP+ offline service + wen gen output" service pattern, through the point with operation mode, integrate regional resources, highlight industrial advantages and highlights, build regional industrial cluster, promote the sustainable development of regional industry. Through the survey method of questionnaire and interview, understand the current development status and problems of Pan 'an Lake regional scenic area, investigate consumers' acceptance and product expectations of digital scenic area services, and provide development suggestions for the subsequent development of Pan'an Lake scenic area and digital cultural tourism.

## 1. Introduction

### 1.1 Overview of Pan'an Lake Area Development

Pan'an Lake Scenic Spot is the first coal mine collapse area ecological restoration wetland park in China, located in Jiawang District, Xuzhou City, 18 kilometers away from Xuzhou city. The main tourist attractions of Pan 'an Lake include: Nanhu Park, Pan' an Ancient Town, Bird Island, Shennong statue, 24 solar term sculpture, 4,000-meter water system landscape belt, Pan 'an Ancient Temple, Four American Men's Hall, Coal Mine Museum, etc. In 2016, the former National Tourism Administration and the former Ministry of Environmental Protection identified the Pan'an Lake Wetland as a national ecological tourism demonstration area. On December 12, 2017, General Secretary Xi Jinping visited the Shennong Wharf in Pan'an Lake, stressing that the coal mining subsidence area should adhere to the road of transformation and development in line with the national conditions. In recent years, with the development of science and technology and the continuous improvement of people's living standards, ecotourism has been becoming more and more popular with tourists. In addition to the continuous improvement of the ecological environment, Pan'an Lake Mazhuang Village has become a national famous demonstration country. The ecological

tourism industry of Mazhuang Village has developed rapidly. Nongjiale, villagers' orchestra and sachet production have led more than 500 villagers to start businesses and find jobs, increase their income and become rich. In 2018, the annual number of tourists in Pan'an Lake area reached 3.8 million, and the annual sales volume was more than 20 million yuan; In 2019, the main island of Pan'an Lake Scenic area increased by 362% year on year, and the income increased by 80% year on year, both hitting a record high of Pan'an Lake. However, in recent years, the development of cultural tourism in Pan'an Lake has been hit by peer competition and the epidemic. The number of visitors has decreased, the publicity degree is low, and the effect of traditional offline construction and publicity has been greatly reduced, which has brought significant resistance to the future sustainable development of Pan'an Lake.

## **1.2 Research background**

New era of rural social governance task has complexity and difficulty, for Xuzhou city, Jiangsu province to explore the "four one" social good governance mode, strengthen grassroots party organization construction, relying on the "big data + grid + iron" governance path, established the "community + park" sharing mechanism, "police" grid highly integration, culture consciously open sachet culture industrialization construction, and from the grassroots party leading, multiple subject participation, digital technical support to China's rural social governance provides experience and enlightenment.

At present, homogenization is one of the key problems restricting the benign development of rural tourism under the background of rural revitalization. The essence of rural tourism homogenization is in the background of consumerism to the process of approaching and unity, among them, the capitalization of space is attributed to the scenic spots and the flow of spatial significance, product symbolization in the planning and design and the evolution of tourism activities, the homogenization of image comes from the homogenization of tourism propaganda and tourists expected stereotypes. Due to the impact of the epidemic and the continuous intervention of technologies such as 5G and AI, digital capacity is very important in the development of The Times. Digital transformation is to use digital capabilities to upgrade and reconstruct businesses.

In this context, whether digital cultural tourism will become the need for the follow-up development of tourism transformation after rural revitalization is a problem that needs to be considered for the transformation of national cultural tourism.

## **1.3 Current status**

After the successful transformation of Xuzhou City to the coal mine collapse area in Pan'an Lake area, Many domestic scholars have made relevant research on the transformation and development of Pan'an Lake area, Wang Hui studied the formation, development and transformation of Pan 'an Lake in her article Research on Regional Development and optimization Strategy of Pan' an Lake, In total, the negative influence of regional coal mine development and mining mining sites on road traffic, urban pattern, industrial development, spatial pattern and planning guidance are studied; Wang Wenlong, Luo Xi and others studied the advantages and role of school-local integration in boosting the transformation of resource-based cities in the path Analysis of boosting the transformation of school-based integration-Based on the Practice of Pan'an Lake in Xuzhou City; Hu Xinzhe summarized the current problems and problems existing in Pan 'an Lake Ecotourism in the article "Thoughts and Suggestions on Pan' An Lake Ecotourism", And combined with the problem to give appropriate suggestions and countermeasures. However, the research on whether the development of cultural and tourism in Pan'an Lake area needs to be upgraded or transformed into a combination with the emerging digital background of The Times is still in an unknown area. It is the purpose of this survey to investigate the consumer acceptance of digital cultural tourism APP in the current era, and to apply digital to the transformation and innovative development of culture and tourism, and to solve the current homogenization of culture and tourism in Pan'an Lake and other development resistance.

## 1.4 Study Significance

In Xuzhou pan lake area coal mine collapse after successful transformation, many scholars on the green tourism transformation development made related research, but in the background of "Internet +" rural revitalization, with consumer perspective, using big data, artificial intelligence and other modern information technology to integrate pan lake area existing industries such as pan lake wetland park, zhuang research is few at present.

### (1) Theoretical significance

Based on the era background of rural revitalization, new rural construction and resource-based regional cultural and tourism transformation, this project focuses on Pan'an Lake area, Jiawang District, Xuzhou City, and focuses on the sustainable development after the regional cultural and tourism transformation. From the perspective of consumers, this research analyzes the consumer preferences and the existing cultural tourism problems in Pan'an Lake in Xuzhou, break the traditional regional development mode, and promote the integration of online and offline intelligent tourism. To provide inspiration and design suggestions for the development of the same cultural transformation village and the cultural and tourism industry.

### (2) Practical significance

Against the background of the rural revitalization strategy, we will implement the general requirements of "thriving industries, livable ecology, civilized local customs, effective governance and rich life" for rural revitalization, start the integrated development of urban and rural areas, reconstruction of rural culture, and achieve common prosperity for farmers. After building a well-off society in an all-round way, to consolidate the expansion of poverty crucial achievements, rural revitalization, sustainable development of pan an lake area sustainable development, response to the call of digital industrialization, digital, using Internet technology to build financing online, offline channel wisdom platform, highlight industrial advantages, highlights, build regional industrial cluster, and promote Xuzhou pan an lake regional public brand shaping, expand regional brand influence. To provide source water for the development of cultural tourism industry and similar cultural transformation villages, and promote the sustainable development of the industry.

## 1.5 Research ideas

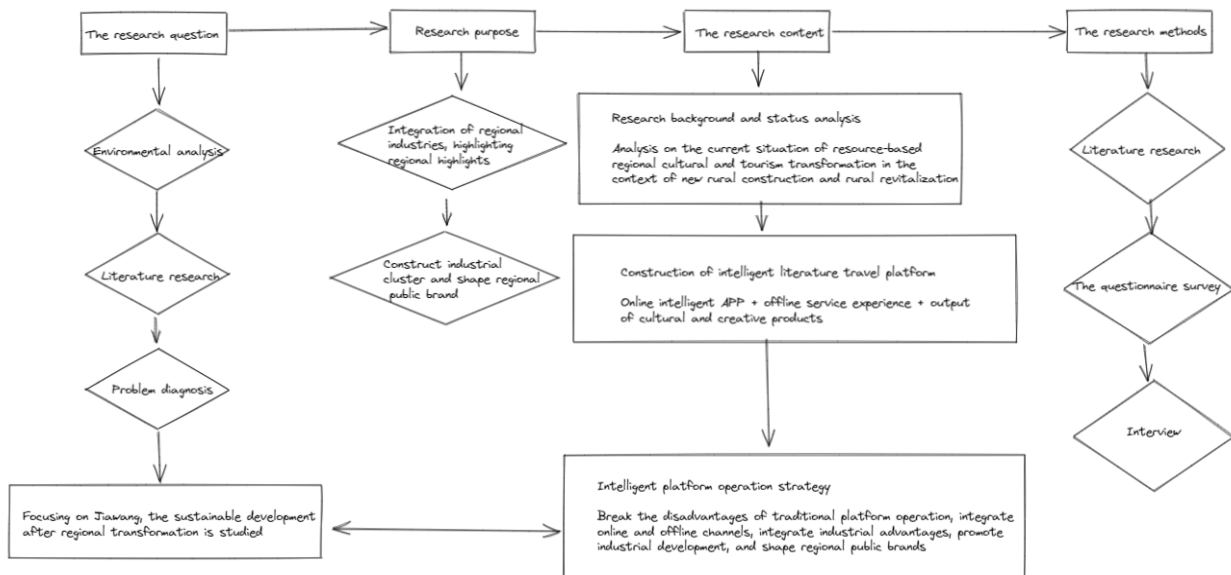


Figure 1. Technology Roadmap

## 1.6 Research characteristics and innovation

### (1) The timeliness of the research theme

The theme of this research closely pays close attention to the hot spots of "rural revitalization" and "new rural cultural industry development and construction" of the two sessions. The topic

selection of this article is close to the changes of The Times, grasp the actual situation of rural cultural transformation, tap the consumer purchase demand, and provide effective suggestions for the follow-up development of Pan'an Lake area from the perspective of consumers.

(2) Innovation of the research content

Combined with the development of today's information sharing era and the development of Xuzhou Jiawang Pan an Lake area, the consumption habits of consumers (mainly for tourists) and the factors affecting their selection, mining the influence of different environmental factors on consumers, put forward effective suggestions for the development of digital tourism.

(3) Speciality of the research methods

This survey adopted a survey method of questionnaire and interview to collect relevant information and opinions from the public, build a model for the relationship between consumption choice and purchase behavior and influencing factors, and then conduct reliability, validity, independence analysis, correlation analysis and regression analysis to verify the model assumptions.

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## **2. Investigation Scheme**

### **2.1 In-depth interview**

To test the robustness of the qualitative research results and information on the impact of factors in the consumer behavior model on choosing play and digital cultural travel acceptance and price positioning in the Pan'an Lake area, we studied in the form of in-depth interviews. According to the survey results, the consumer source of Pan'an Lake scenic area are mainly in East China. Therefore, to make the sample more representative, we classified the respondents according to x and y to investigate the impact of tourism theme factors on the choice of consumer tourist destinations.

#### **2.1.1 Purpose of the interview**

(1) Understand consumers' choice preference for outbound travel and the general consumer psychological positioning when traveling.

(2) Understand the theme development and online service development of scenic spots in Pan'an Lake and other areas.

(3) Understand consumers 'acceptance of paid APP and its potential purchasing power, and make adjustments for the subsequent development of Pan'an Lake digital cultural tourism.

(4) Jointly discuss the personalized suggestions on the APP of Pan'an Lake, summarize the discussion content, and provide effective suggestions for the improvement and development of Pan'an Lake Digital Cultural Tourism APP and online and offline scenic spot services.

### 2.1.2 Interviews

We classified the basic information of respondents' age and family status. According to whether they have been to the Pan'an Lake scenic spot, the interviewees will be mainly divided into two categories of consumers and potential consumers, for data sorting and analysis.

### 2.1.3 Interview process



Figure 2. Interview flow chart

### 2.1.4 Results of the interview

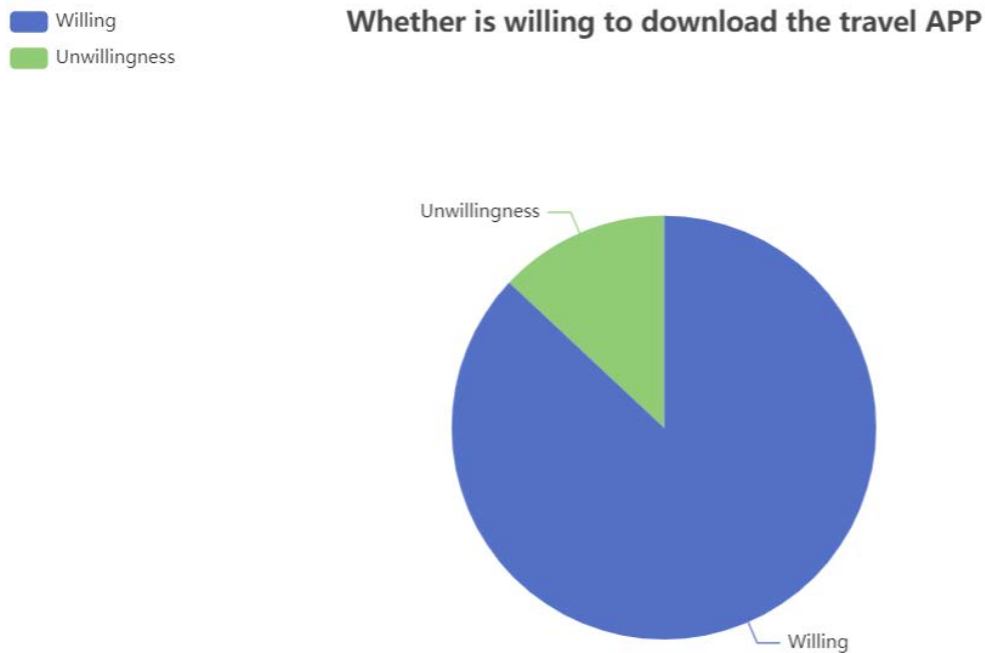


Figure 3. Percentage of respondents receiving the digital cultural tourism APP in Fig

According to the interview question design to the respondents cultural tourism preference choice and feeling questions, as well as the use of online query, predetermined function and digital brigade acceptance of the comprehensive analysis of the following: the information age background of consumer demand is online and offline demand, so cultural tourism only stay offline facilities, service construction is not enough to meet the consumer psychology. According to the comprehensive analysis of the respondents' main tourism expenses and economic strength, the current consumers are more inclined to choose the cultural and tourism model with both cost performance and comfort, and pursue a higher tourism consumption quality when the economic strength allows. In addition, consumers have a high acceptance of online travel APP, and they can accept online service consumption under the general economic conditions.

Pan an lake scenic area consumers compared with other cultural tourism scenic area consumer experience, found in pan an lake area of the region of the first travel impression is flat, the emergence of the problem exposed the pan an lake in green brigade transformation after the short board —— area different scenic area theme content dispersion and participation.

To solve this problem, it is need to add or improve the current online marketing and services to enhance consumer understanding of pan lake brigade area content, to improve the trust of digital service content and quality, to expand the online scenic consumers, improve consumers to the recognition of pan lake scenic area and satisfaction.

## 2.2 Questionnaire survey

### 2.2.1 Investigation Purpose

In order to understand the frequency of consumers' travel and the average travel cost, collect the basic data of the proportion of different modules to consumer expenses, measure the degree that different factors influence passenger destination choice and consumption, and make a reasonable explanation and analysis. Based on the above research and analysis, the in-depth analysis of the main problems of attracting consumer groups and service experience around Pan'an Lake in Xuzhou, and gives suggestions on the direction that should be adjusted for future development.

### 2.2.2 Survey items

This survey mainly includes three parts: the basic information of the respondent, the travel frequency and travel expenses, the theme and service satisfaction survey and digital services and acceptance of various scenic spots in Pan'an Lake. The questionnaire for this survey was formed combined with the item table, as detailed in the Appendix.

### 2.2.3 Survey objects

The subject of this questionnaire is a national population, which is widely distributed and not limited by time and space. Therefore, the Internet network questionnaire can obtain a large basic recyclable data, and the conclusions based on this data are generally applicable. At the same time, in order to strengthen the authenticity and effectiveness of the survey results, in-depth interviews were conducted simultaneously with the questionnaire survey. The conclusion will be universal.

### 2.2.4 Investigation methods and investigation methods

This study used the questionnaire method and the deep interview method to scientifically obtain a series of information and data. Due to the large overall range of the survey, to ensure the consistent probability of sampling in each object in the surveyed group and reduce the random error, we adopted the stratified sampling and two-phase unequal probability SPSS sampling method.

First, the survey group was divided into 0 to 18 years old, 25 to 36 years old, 37 to 50 years old and over 50 years old by age. The sampling ratio was stratified sampling determined according to the proportion of the survey subjects of different ages in the overall survey (the stratified sampling weight ratio is shown in Fig).

According to the systematic sampling method, and then the student group and the social group were selected according to the first stage to get the primary sampling unit. In the second stage, simple random sampling was used. The number of consumers who have participated in cultural tourism was selected and online questionnaires were distributed.

### 2.2.5 Sampling survey design

#### 2.2.5.1 Prepare the sampling box

This study used a method of a combination of stratified sampling and the second phase unequal probability sampling, the sampling box of the primary unit is all populations in each layer, and the first stage was drawn out as the primary sampling unit. The sampling box of the secondary unit is all of the first stage, and the second stage extracts the respondent travel frequency as the secondary sampling unit by simple random sampling.

#### 2.2.5.2 Determination of the sample size

The survey object of this survey is national consumers, and after stratified sampling, the attribute is not repeated sampling. The proportion of tour participation in the areas surrounding Pan'an Lake in the pre-survey is estimated, and the best sample size formula before correction is:

$$n_0 = \frac{t^2 Q / (\gamma^2 P)}{1 + \frac{1}{N} \left[ \frac{t^2 Q}{(\gamma^2 P)} - 1 \right]}$$

Where N is the overall number, with a sampling relative permissible error of 5%, and p is the sample proportion, it was determined as p=0.45 in the pre-survey. With confidence is 95%, t=1.96. In practice, if P is valued around 0.5, the sample size can be calculated based on the overall variance reaching the maximum at P=0.5. Therefore, taking P=0.5 and the total target N=10000, the approximate optimal sample size is:

$$n_0 = \frac{t^2 Q}{(\gamma^2 P)} = \frac{1.96^2 * 0.5}{(15\%)^2 * 0.5} = 170.738$$

Because

$$\frac{n_0}{N} \ll 0.05$$

Therefore, the sample size is no longer corrected, to determine the approximate optimal sample size of  $n_0 = 171$ .

The optimal sample size was adjusted according to the design effect coefficient Deff of the actual sampling scheme. The pre-sampling design effect coefficient deff=1.85 was calculated.

The effective sample size to be recovered is:

$$n_0 = 1.85 * 171 = 316$$

Under the rule of thumb, the valid filling rate is 0.95, so the final number of questionnaires that should be issued is:

$$n = \frac{n_0}{0.95} = 333$$

### 2.2.5.3 Pre-investigation

In order to ensure the operability of the questionnaire and the scientific nature of the recovery data, a pre-survey was conducted before the formal issuance of the questionnaire. A total of 97 digital cultural tourism questionnaires in Pan'an Lake, Xuzhou were distributed on online social media platforms, and 94 valid questionnaires were finally collected. We can test the reliability and validity of the initial questionnaire according to the pre-sampling data.

### 2.2.5.4 Formal sampling survey

In total, 355 questionnaires were actually issued, and 352 valid questionnaires were recovered, and the actual effective recovery rate was%. On the basic information, the actual gender ratio of the recovery of the questionnaire did not reach the assumed ratio of 3:7, and the questionnaire was reissued on the recovery date of the delayed completion of the questionnaire. At the same time, some effective female respondents were removed by tail interception, and a total of 15 effective interviews were finally recorded.

## 2.3 Investigation and implementation

### 2.3.1 Quality control

In the field survey, we adopted the form of "electronic questionnaire" to replace the traditional paper questionnaire with the paperless questionnaire. This method can obtain data more efficiently and quickly: the built-in questionnaire jump control and quality control will automatically prompt missed and missed; the respondent can enter the saving progress of exit; electronic questionnaire can eliminate data entry, reduce the non-sampling error due to input error; monitor the number of questionnaires and export the data in real time. In order to reduce the non-sampling error of the age groups, the in-depth interviews conducted simultaneously with the questionnaire were conducted in multiple areas outside of the school, and we selected people from different regions of Xuzhou for interviews and investigations. Finally, we eliminated the invalid questionnaire and appropriately additional additional questionnaire to ensure sample size.

### 2.3.2 Sampling effect control

The whole sampling process in this study was random sampling. In order to determine the sampling effect and control the accuracy of the sampling estimation, the sample design effect should be determined.

If the named respondent is directly selected by a simple random sampling method, the unbiased estimator of the overall mean variance can be calculated as:

$$V(P_{srs}) = \frac{1-f}{n-1} P(1-P)$$

Where,  $f$  is the sampling ratio under the random sampling mode, and  $n$  represents the total amount of samples.

Survey data can be calculated as  $V(P_{srs}) = 0.00068..$

The sampling scheme was designed relatively well and achieved the expected target.

## 3. Analysis of survey results

### 3.1 Descriptive statistics

In total, 355 questionnaires were distributed, 355 questionnaires were recovered, and 353 valid questionnaires were collected, with an efficiency of 99.15%. The pre-questionnaire results were only corrected by the preliminary questionnaire, with no descriptive statistics. The descriptive statistics part mainly includes two parts: demographic characteristics analysis of the research objects and consumer tourism preference data analysis. The specific analysis results are as follows:

#### 3.1.1 Analysis of demographic characteristics

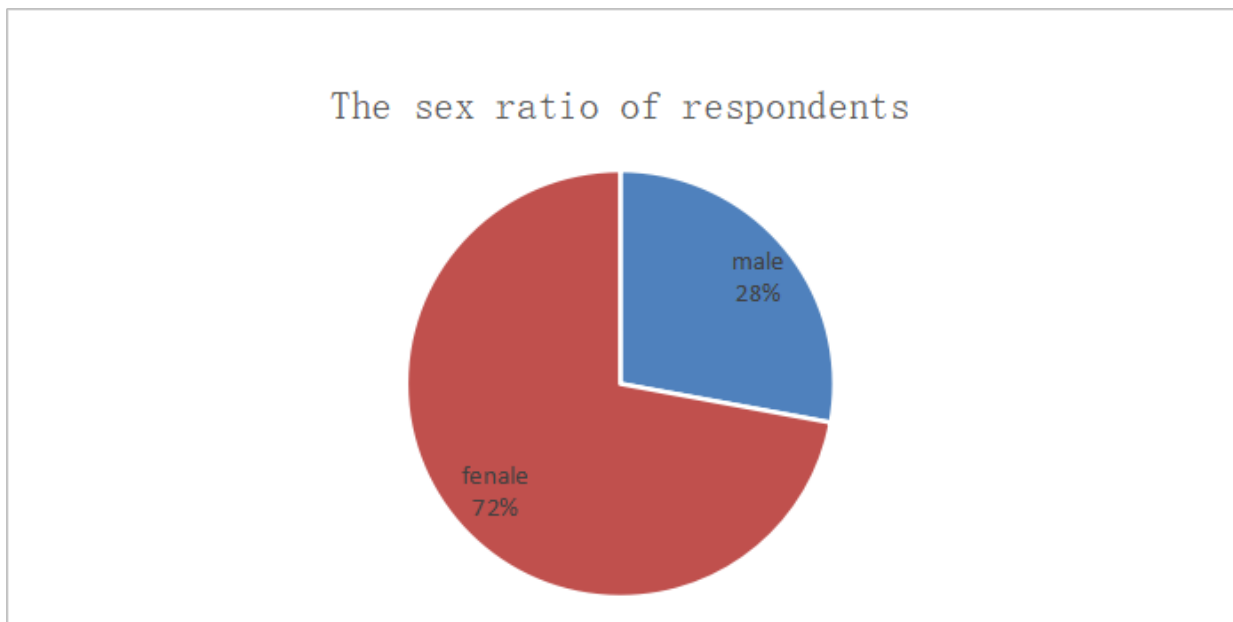


Figure 4. Percentage of gender of the respondents

Of the gender ratio of respondents, 186 women, 72.09%, 72 men, 27.91%, and women (72.09%) were much higher than men (27.91%). The analysis of the data found that invalid questionnaires from men could be the main cause of the bias.



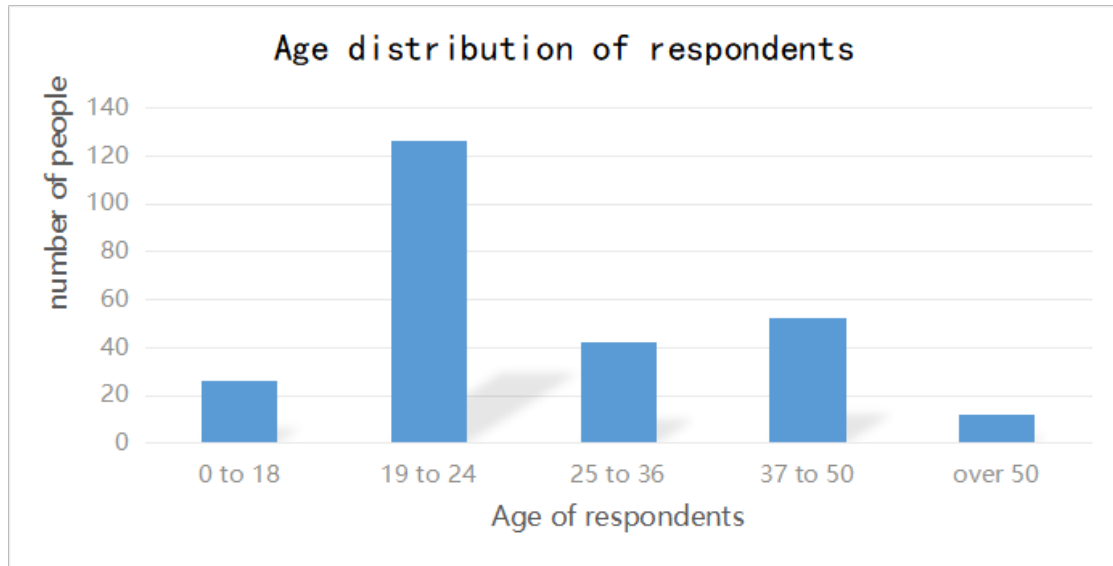


Figure 5. Bar graph of the age distribution of the respondents

In the age distribution of respondents, 26 were 10.08% aged 18 and under, 126 from 19 to 24, 48.84%, 42 from 25 to 36, 16.28%, 52 from 37 to 50, 20.16%, 12 over 50, 4.65%. According to the above data, each age group was involved, but most of the research subjects were concentrated between 19 and 24 years old, and the research subjects were relatively representative.

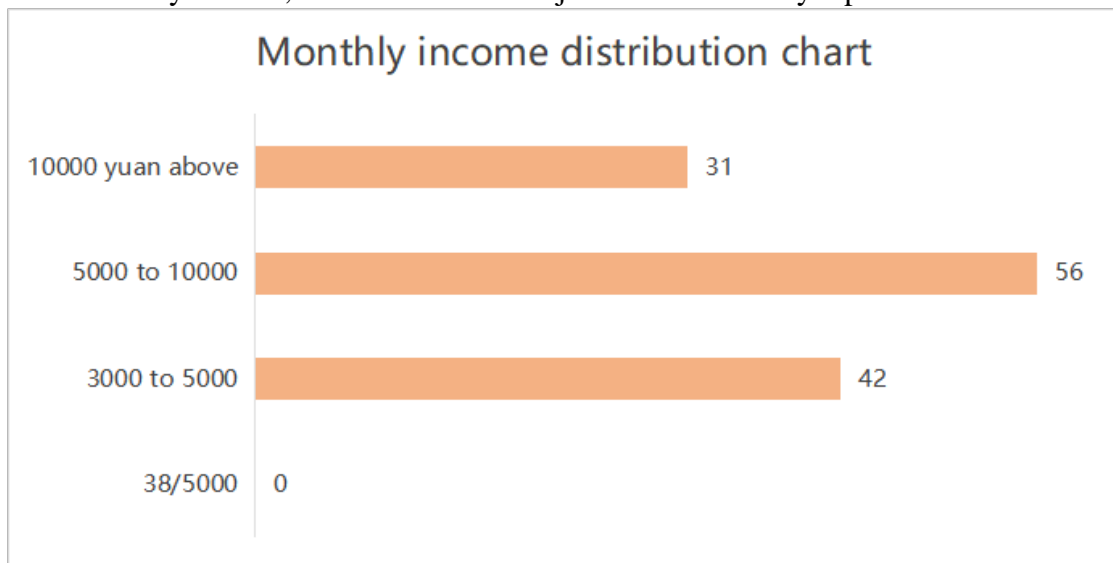


Figure 6. Income level chart of the respondents

Among the income distribution of respondents, the number of people below 3000 yuan is 129, 50%, 423000-5000 yuan, accounting for 16.28%, 5000-10,000 yuan is 56, accounting for 21.71%, 10,000 yuan, accounting for 12.02%. From the above data, the income of survey respondents is mostly below 5000 yuan, and the monthly income is low, which provides data support for the subsequent formulation of the digital cultural and tourism service charging price strategy.

### 3.1.2 Analysis of consumer travel preferences

This part is mainly the analysis of historical travel behavior, mainly including the frequency of travel, travel expenses, travel location selection, etc., through the data analysis of consumer behavior preferences, can understand the consumer travel consumption and the use of digital services, to further analyze the factors affecting consumer demand choice lay a basis.

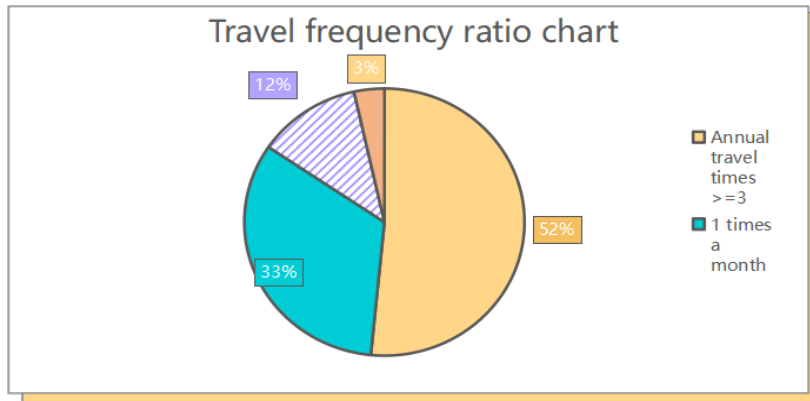


Figure 7. Percent travel frequency chart

Statistical analysis showed that 3% of respondents only traveled each week, 31 monthly trips 2 to 32,12.02%, 85 only once per month, 32.95% of the total; 133 more or equal to 3 annual trips, 51.55% of the total.

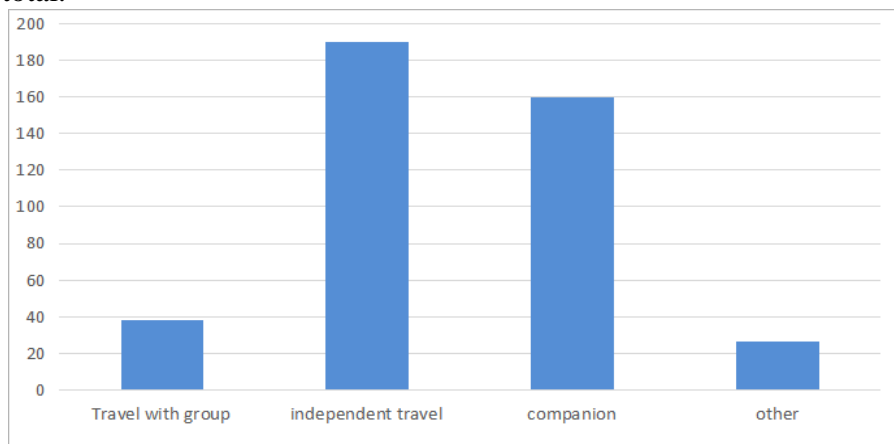


Figure 8. Distribution diagram of the respondents' travel mode selection

According to the survey, the number of respondents choosing to travel with the group was only 38,14.73%, 190,73.64%, 160 people who chose to travel with the same enthusiasts was 160,62.02%; 26 people chose other travel modes, accounting for 10.08%. From the picture above, we can more intuitively understand that most consumers now are no longer satisfied with the choice of group travel, and are more willing to choose a more flexible and independent travel mode than the traditional travel methods. This lays a good development background for the subsequent development of online cultural and tourism services, and also provides a design guidance for the digital service sector.

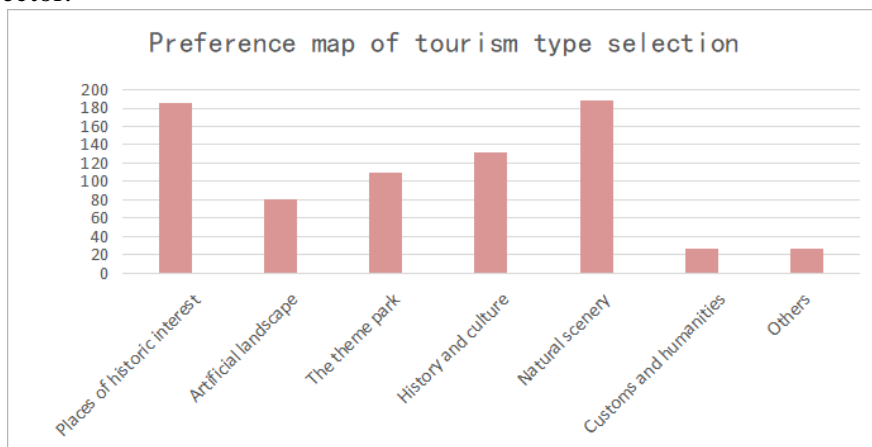


Figure 9. Type preference plots of respondents choosing tourist areas

According to statistics, 186 respondents selected scenic sites as tourist destination, 80,109,131 historical and cultural destination, 189 natural scenery, 133 customs and 27 others. Other questionnaire answers cover food and snacks, web celebrity punching points and other words.

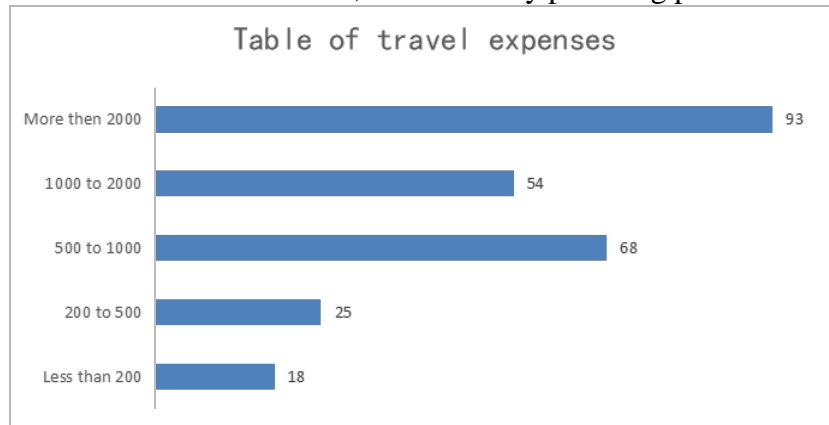


Figure 10. Map of the respondent's travel expenses

Participants spent 18 with 20.20; 25 with average expenses of 200 to 500; 68 with average expenses of 500 to 1,000; 54 with average expenses of 1,000 to 2,000; 93 with average expenses exceeding 2,000. According to the survey and analysis, the cost of 500 to 1000 yuan and more than 2000 yuan are relatively high.

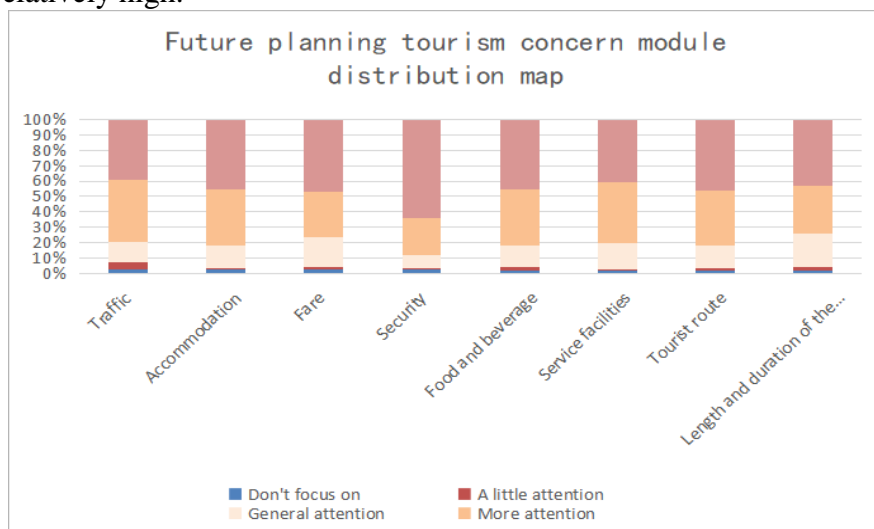


Figure 11. Distribution map of different modules during previous travel

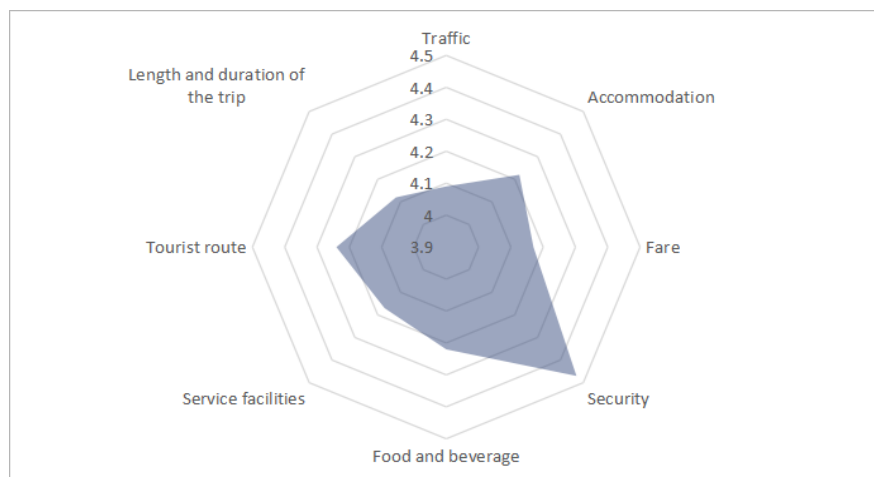


Figure 12. Attention mean radar distribution map of different modules

As shown in Figure 9, the respondents paid different degrees of attention to the modules set by the questionnaire. Based to statistical analysis of table data, For the traffic modules during the previous planning travel, Seven people answered "No Attention", The "slightly focused" were 11, "General concern" had 35 people, "More focused" were 104, "Very attentive" were 101; For the accommodation module, Six people answered "No Attention", "A little attention" of 2 people, "General concern" had 39 people, The "more concerned" were 94, "1 Very Attention" was 117; For the expense module, Six people answered "No Attention", Five people were "slightly focused.", "General concern" had 49 people, "More focused" has 76 people, The "very attentive" were 122; For the security module, Six people answered "No Attention", "A little attention" of 2 people, "General concern" had 23, The "more attention" were 62 people, The "very attentive" were 165; For the catering module, Five people answered "No Attention", The "slightly attention" were 37, "General concern" had 37 people, The "more concerned" were 93, "Very attentive" were 118; For the service facility modules, Four people answered "No attention", "A little attention" of 2 people, "General concern" had 45, "More focused" were 101, "Very attentive" were 106; For the travel route module, Four people answered "No attention", Four people were "slightly focused on", "General concern" had 38, The "more concerned" were 93, There were 119 people; For the length of travel and the time module, Four people answered "No attention", Six people were "slightly focused.", "General concern" had 57 people, "More focused" were 80, There were 111 people "very concerned".

Since the stacking bar chart cannot clearly reflect the attention of the consumers of the different modules, the mean radar distribution map of the consumer attention of the different modules of FIG. 10 is summarized according to the data of FIG. 9. Through the radar map, it can be more intuitively concluded that consumers pay the most attention to the safety module. Travel route, accommodation and catering can be used as secondary modules, service facilities, cost and journey length and time modules as tertiary modules, and the traffic module is the least concerned module.

The main module for the current planning and construction of Pan'an Lake Scenic Spot is improving the construction of transportation and service facilities. Through data investigation, it can be seen that the planning of the later development needs to be adjusted.

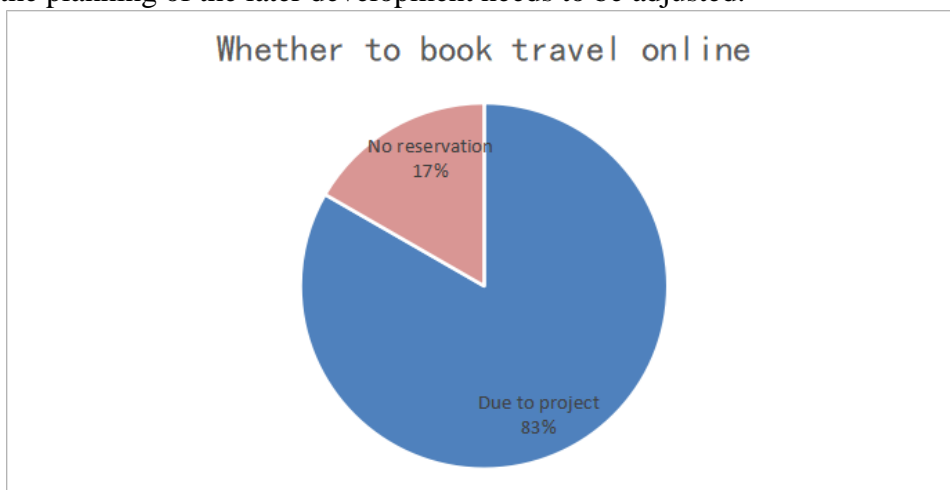


Figure 13. Percentage of project usage online

Table 1. Reasons for not choosing to book an item online

Reasons for not choosing to book an item online		
Offline is more convenient	Online is more complex	It doesn't feel necessary
15	6	22

In the historical tourism survey, 215,83%, were 43,17%. According to the data, the number of users of online reservation projects is more.

A survey on the reasons why respondents did not choose to book online showed that most consumers who did not book online felt that the online booking function was not as fast and convenient, and wireless booking is necessary.

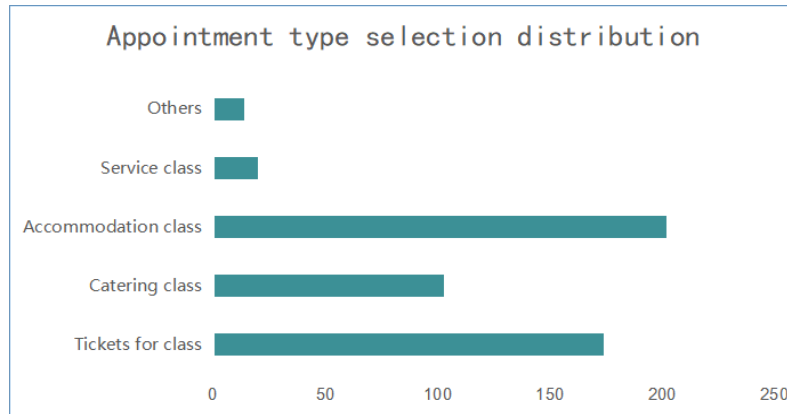


Figure 14. Statistical chart of different types of respondent appointment service

According to the questions above asked, the respondents who chose to use the online reservation function made a statistical analysis of the type of reservation content. The data showed that 174 people had booked tickets, 103 in catering, 202 in accommodation, 20 in service, and 14 in other types. Other respondents belong to traffic (high-speed rail tickets, plane tickets, etc.).

### 3.1.3 Status quo and digital planning analysis of Pan'an Lake Scenic Spot

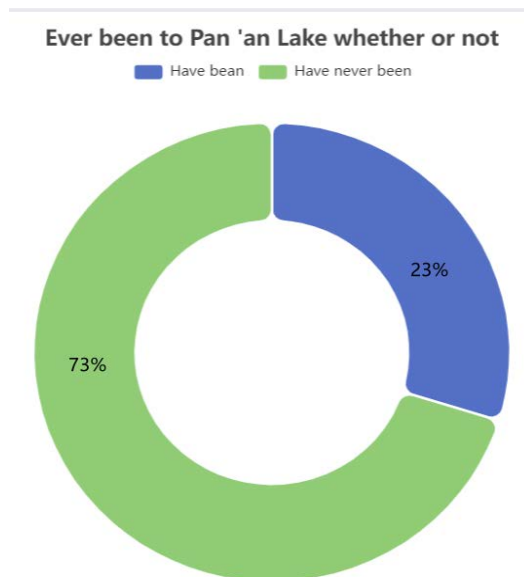


Figure 15. Analysis chart of the respondents visiting the Pan'an Lake area

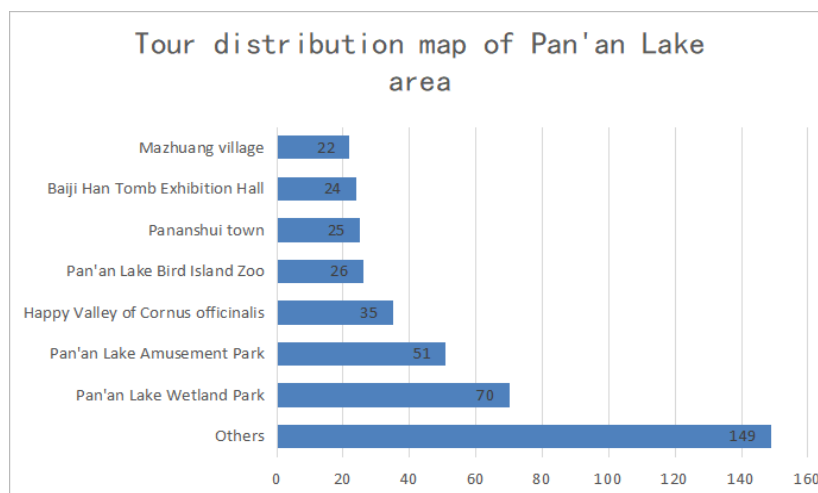


Figure 16. Distribution map of the respondent visiting the Pan'an Lake area

According to the analysis of the tour situation of Pan'an Lake scenic area involved in the third part of the questionnaire design, 79 of the respondents had been to Pan'an Lake, accounting for 69.38%, and 179 did not. Of the 179 people who had not been there, 30 who had actually been to Pan 'an Lake mistakenly considered Pan' an Lake Park or amusement park as other areas of Xuzhou. Among the remaining 149 people, more than half had not visited Xuzhou, and the remaining college students who had not been out to school due to the epidemic.

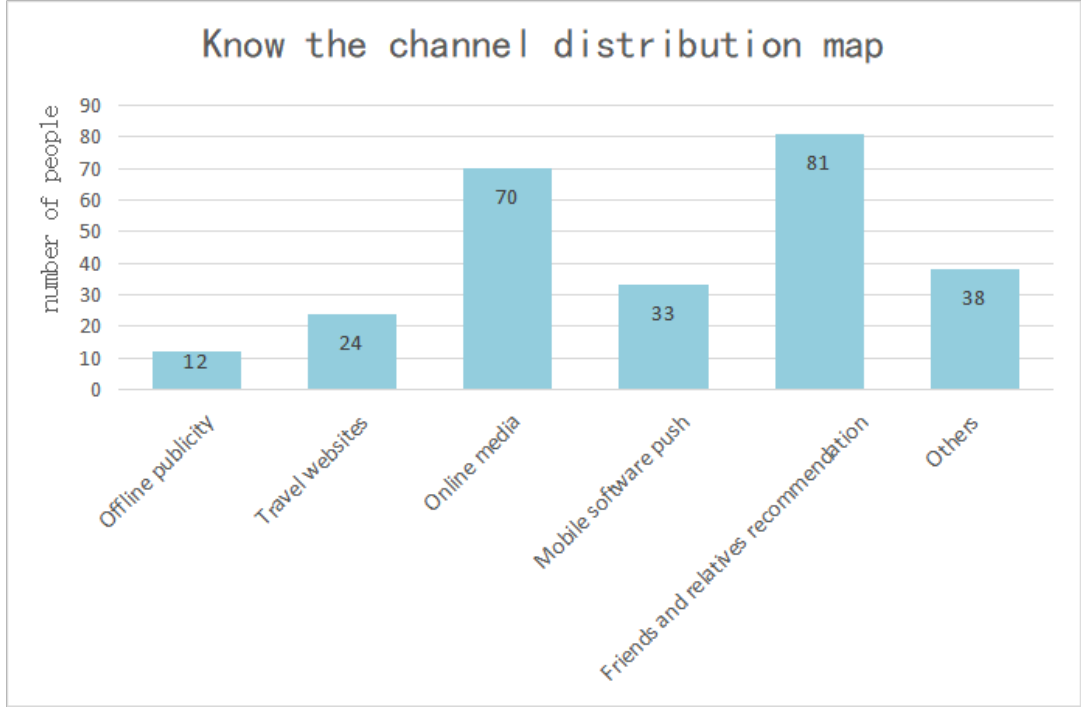


Figure 17. Respondent understands channel distribution map

### The effect of advertising on consumers

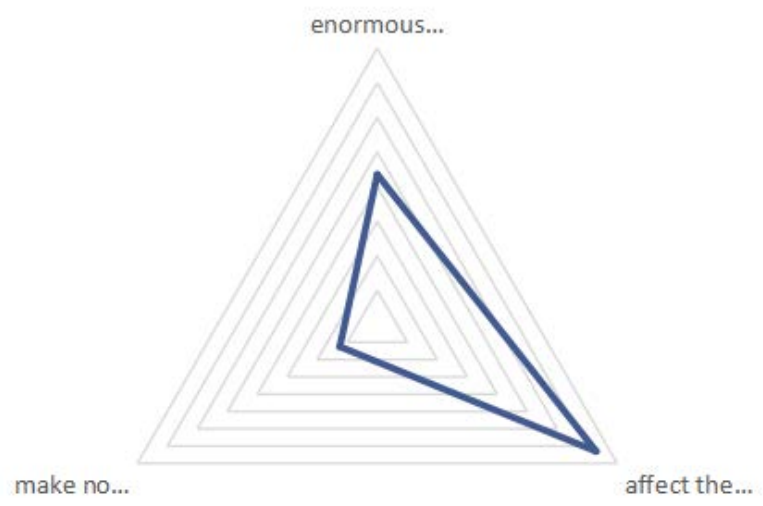


Figure 18. Impact map of scenic spot advertising on consumers

Further understanding of consumers Pan Lake and surrounding scenic spots channels, found that through news, newspapers, magazines and other offline posters understand Pan Lake characteristic scenic spots accounted for 4.65% of the total, 12.79% of consumers are through WeChat, public accounts and other network push, 31.4% of consumers through friends and friends; 9.3% of consumers are through tourism platform or software publicity; 27.13% of consumers through the popular network media such as TikTok and Xiaohongshu, the remaining 14.73% is tourism information through other ways.

According to the above data, it can be seen that most consumers obtain information about tourist attractions through the recommendation of their surrounding friends and relatives, or through the popular digital entertainment and media platforms, and the number of people understanding through the traditional offline publicity is relatively small. The data preliminarily show that the network marketing channels of Pan'an Lake Cultural Tourism need to be expanded and improved.

Figure 11 Survey data map on the impact of scenic spot advertising on the choice of the respondents shows that the traditional scenic spot publicity mode has a weak impact on consumers, and the current scenic spot publicity needs to be combined with the Times background, innovative development and publicity. This reflects the necessity and innovation of the establishment and development of digital cultural tourism APP, and provides fresh impetus for the sustainable development of Pan'an Lake Scenic Area.

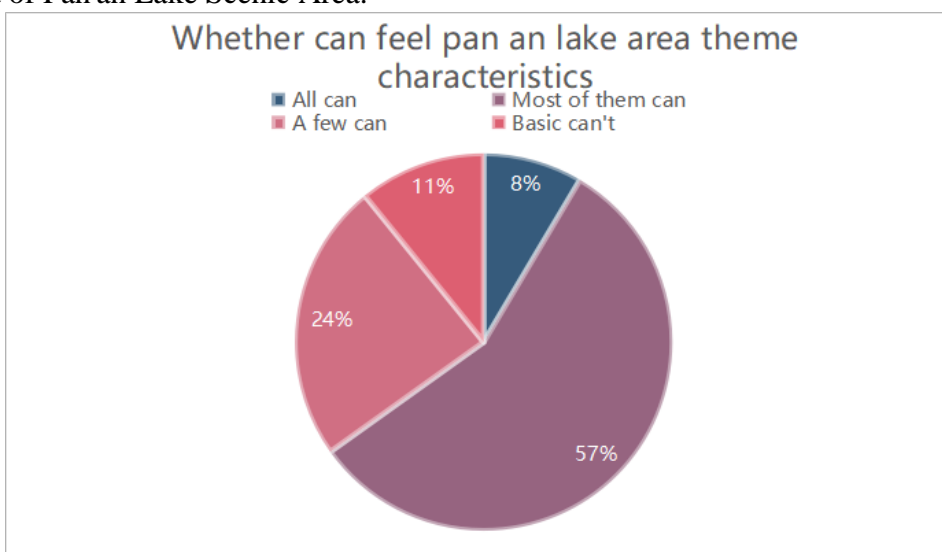


Figure 19. Percentage perception of respondents about the scenic spot

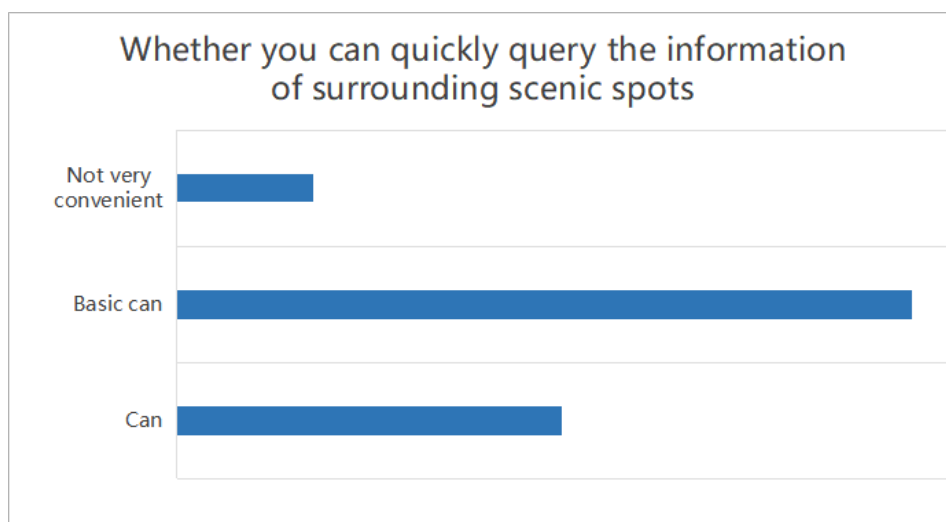


Figure 20. The network information construction service map of the scenic spot

In the survey of whether the respondents could personally feel the theme characteristics of the Pan'an Lake scenic spot, more than half of the respondents answered that "most can", accounting for 57%. It shows that the theme of scenic spots in Pan'an Lake area is good, but there are still some deficiencies. Combined with the data in Figure 12, respondents replied that 58.53% of the total was "basically available", while only 30.62% were "can" and 10.85% were "less convenient". To sum up, the network information construction and online publicity of the scenic spots in Pan'an Lake scenic spot still need to be improved.

### Whether the signs in the scenic area are clear and easy to understand

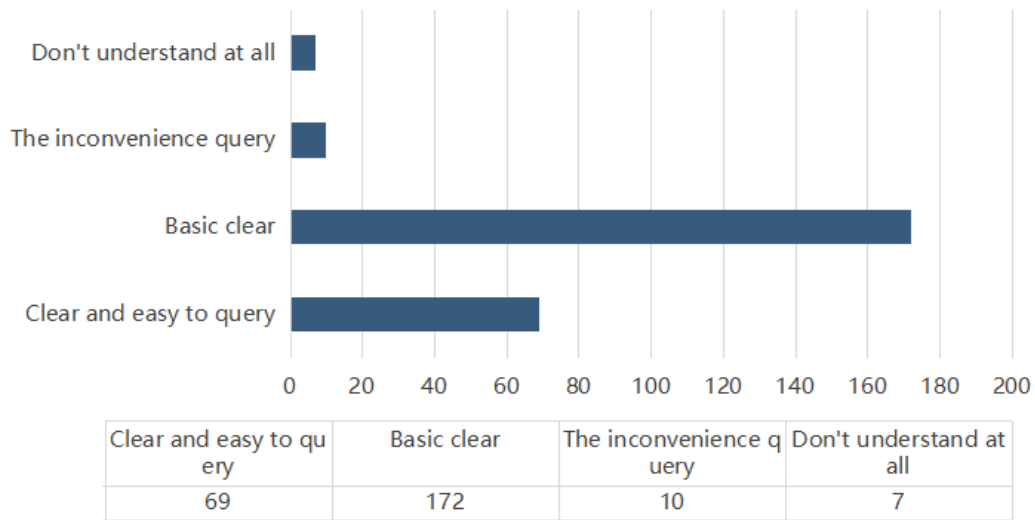


Figure 21. Table of facilities construction in the scenic spot

According to the data analysis of the survey chart, the guide icon construction in Pan'an Lake scenic area is relatively perfect, but the tourists visiting for the first time can not fully understand the direction or meaning of some signs. This data provides a constructive guidance for the internal design of the Pan'an Lake Digital Cultural Tourism APP.

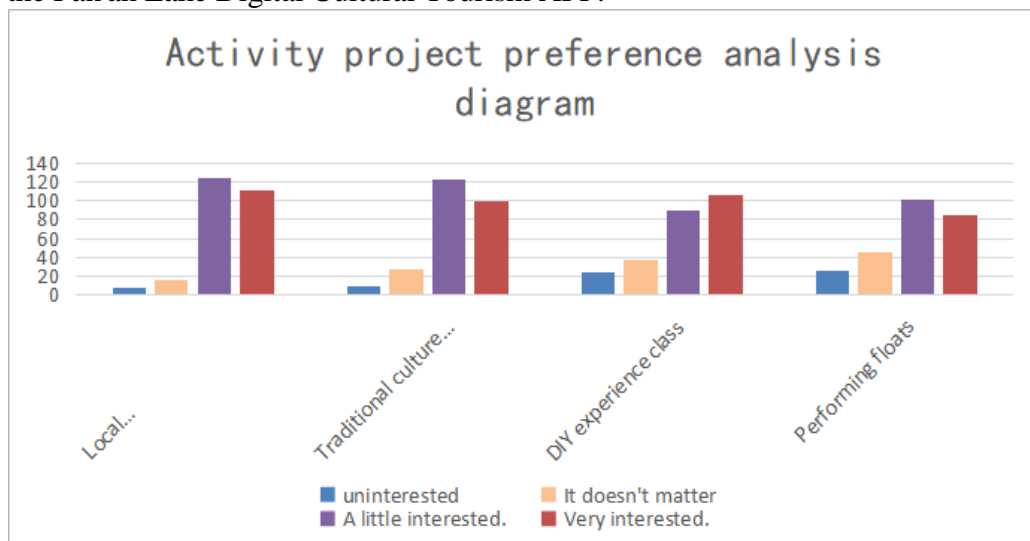


Figure 22. Statistical chart of the respondent's tourism project selection preference

Based on the different attraction of different types of activity projects to respondents and thus affecting the choice of tourist destination, the attraction analysis of scenic spot activity projects was conducted.

According to the findings, There were 111 people who were very interested in the local characteristic customs, Slightly interested in the 125 people, The indifferent 15 people, Seven people who are not interested; There were 99 people who were very interested in the types of traditional cultural projects, Slightly interested in the 123 people, indifferent 27, Nine people were not interested; There were 107 people very interested in the DIY experience, Slightly interested in the 90 people, indifferent 46 people, 24 people not interested; There were 85 people who were very interested in artistic performances, One hundred and two slightly interested, indifferent 46 people, Not Interested in 25 people.



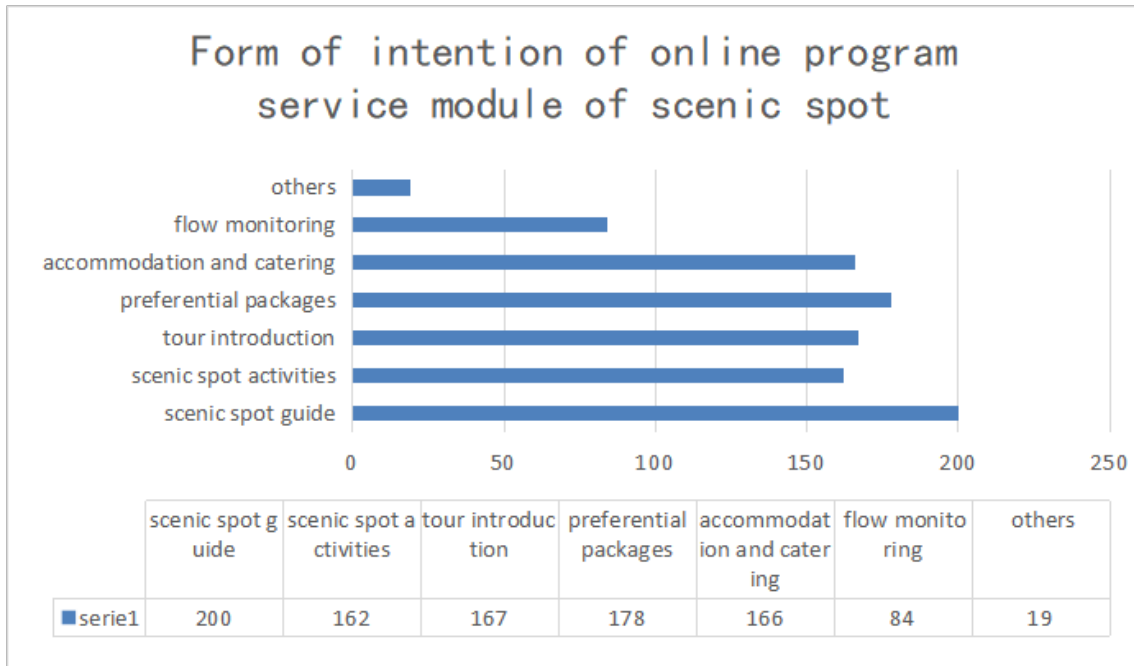


Figure 23. Survey questionnaire of online service content

Investigate the service content of digital scenic spots, the data statistics show that 200 people want to add scenic guide module in the APP / mini program; 162 people want to add scenic activities, 167 people want to add tour introduction, 178 people want to understand the preferential package, 166 people want to understand accommodation and catering; 84 people monitoring requirements. Half of the other options answer the reservation function, and the few who do not want to play due to the epidemic.

This survey provides a data basis for the design content of the subsequent digital cultural tourism APP.

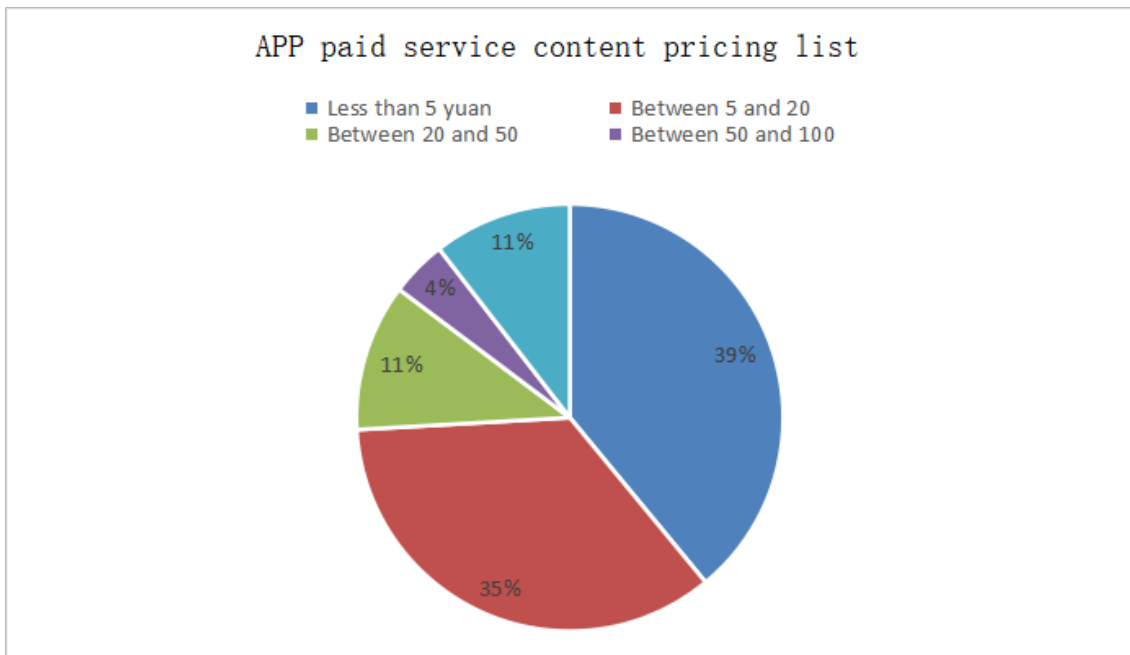


Figure 24. Statistical chart of the respondent paid service price acceptance range survey

According to the data of respondents, 119 were within 5 yuan, 46.12%, 107 between 5 and 20, 41.47%, 34 between 20 and 50, 13.18%, 13 between 50 and 100, 12.4%, 32 in any price range, 12.4%.

This data provides a data basis for the pricing of digital cultural and tourism APP services.

Table 2. The market share of tourism APP services

Integrated service Travel convenience	Online booking Save time	Scenic area theme Planning trip	inform Save expenses	Describe the real Easy to choose	Others
185	162	135	131	94	12

Statistics of the use of the APP value expectations table statistical analysis, as shown in the table, the first four types of value expectation is greater than 50% of the total number of people selected, need to be reflected as the core element when designing APP, "describe real" and "other" options belong to the secondary content, the other accounted for 4.65% and no detailed answer, will not be considered.

#### 4. Conclusion and suggestion

##### 4.1 Study Conclusion

At present, the tourism culture of the scenic spots around Pan'an Lake has certain scale benefits, but the cultural benefits of consumers who come outside or first visit the scenic spots have not yet become a climate. It still needs to improve this situation through the follow-up cultural tourism construction, so as to further enhance the cultural tourism culture and brand image of Pan'an Lake area.

In the answer of "What do you think about Pan an Lake ecotourism", more than half of the words "publicity" appeared, followed by the integration of health services and ecological culture.

According to the tourism survey around Pan'an Lake Scenic Area, the respondents have a high acceptance of online procedures of scenic spots, a large proportion of online reservation and inquiry demand for scenic spots, and a generally high tolerance of such paid projects within the programs. Therefore, the development of digital cultural tourism APP is a new way to adapt to the development background of The Times and solve the current needs of consumers. At the same time, the digital APP will also expand the publicity channels of Pan'an Lake and its surrounding scenic spots, and alleviate the problem of expanding the publicity needs repeatedly raised in the questionnaire.

To sum up, the construction of digital cultural tourism is necessary and The Times. The development of digital cultural tourism is conducive to enhance the popularity of the scenic spot, to increase the passenger flow of the scenic spot, but also conducive to the construction of the theme of the scenic spot, to help visitors to further understand the culture of the scenic spot, and to enhance the cultural or historical background of the scenic spot itself.

##### 4.2 Design of APP development module

According to the descriptive statistical analysis, the improvement and expansion of the two modules of Panan Lake Scenic spot status analysis and consumer demand analysis are conducted, and the conceptual flow chart of product value is obtained:

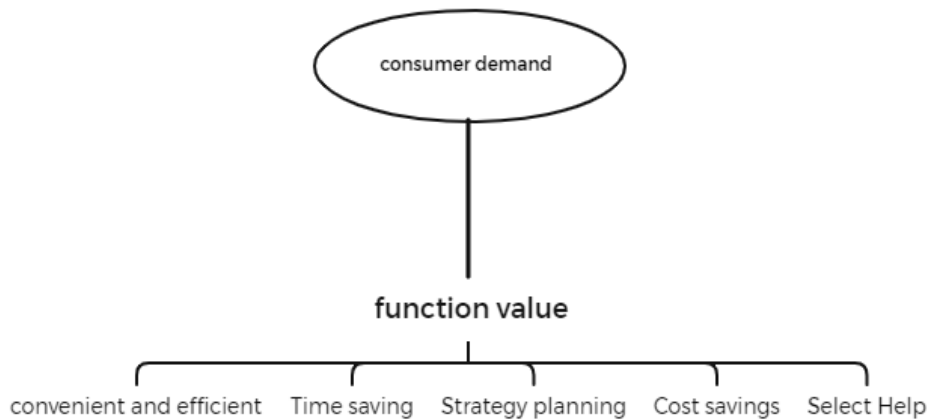


Figure 25. Functional structure

In terms of core functions, digital cultural tourism APP should reflect the necessity of products, let consumers can intuitively feel its diversified functional value, make the original traditional customers without a sense of online service feel the charm of digital service, so as to increase the potential customers in the existing market, stimulate the consumer travel desire, and expand the existing consumer market.

The modules contained in digital cultural tourism should meet the five consumer needs shown in the figure, and the five value needs are interrelated and complement each other. According to the questionnaire and interview statistical results show that more than half of the consumers for the unknown tourist destination need location information, tour experience help, most consumers through the browser or network social platform to collect tour information, various information and there is no lack of false information, the digital platform information to authority, with authenticity. The tour guide view in the scenic spot can not be flexible to fully reflect the public facilities and service facilities, which can be improved through the online AR guide view, which can not only meet the needs of consumers for their own convenient tour, but also improve the tour quality and service experience of consumers. At present, although consumers have a higher tolerance of online paid services, the actual psychological price is low. Therefore, the service pricing of digital cultural tourism APP needs to be controlled in the price between the lowest price and the highest price acceptable to consumers, and it is not excluding the pricing. The original price of the service products can be discounted in half through the purchase and gift promotion methods in the early stage, attracting consumers to pay to buy and use them at low prices, and infiltrating the existing market. When consumers increase the price acceptance of the product, the price increase increases appropriately.

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