

## ORIGINAL RESEARCH ARTICLE

# Assistance strategies for the information disadvantaged in the context of smart tourism—A study based on Dalian Tiger Beach scenic area

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### ABSTRACT

It is pointed out that with the progress of social development and science and technology, people have entered the era of mass tourism. Tourism industry relies on information more and more, but there are still some groups who cannot obtain tourism information in time, cannot share the fruits of information society, and become information disadvantaged, which affects their own development and even the harmonious development of society. Taking the elderly tourist group in Dalian Tiger Beach Scenic Area as an example, we explored the tourism market assistance strategy for the elderly tourists group in the context of intelligent tourism by using literature analysis, SWOT posture analysis and questionnaire survey. The results of the study show that the elderly have low curiosity, distrust and operational barriers in the access to information, the operation of smart tourism devices and the application of tourism app. For this reason, it is proposed that the development and promotion of smart tourism should be strongly supported at the government level; at the level of scenic spots themselves, they should scientifically and rationally design tourism routes and use unique tourism resources to build a big data platform for senior tourism information to attract tourists; at the level of smart tourism APP design, application and security, they should strive for continuous improvement and active promotion to increase user experience and trust; at the level of information disadvantaged groups themselves At the level of improvement, they should actively accept and learn new things, improve their learning enthusiasm and keep pace with the times.

**Keywords:** smart tourism; information vulnerable groups; elderly; information assistance strategy

## 1. Introduction

With the continuous development of society, mankind has ushered in the era of big data. More and more people begin to use smart phones to obtain tourism information and carry out mobile ticket purchase services, traffic reservation services, artificial intelligence explanation services, etc.,

which not only brings new opportunities and challenges when tourism enters a new field Tourism plays an important role in social economy, which can promote domestic and international exchanges and interregional exchanges, and increase people's happiness index and employment opportunities. On February 28, 2019, China's Internet Network Information Center released the third statistical

### ARTICLE INFO

Received: July 16, 2021 | Accepted: September 1, 2021 | Available online: September 17, 2021

### CITATION

Wang X, Shi X. Assistance strategies for the information disadvantaged in the context of smart tourism—A study based on Dalian Tiger Beach scenic area. *Smart Tourism* 2021; 2(2): 11 pages.

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report on Internet development. The report makes statistics from the aspects of Internet infrastructure, application status, technological development and security. By the end of 2018, the number of Internet users in China reached more than 800 million, an increase of 3.8% from 2017, and the proportion of using mobile phones to access the Internet reached more than 98%. With the deepening of social informatization, more and more people have more information exchange channels than in the past. Tourism and informatization are closely combined, but due to various reasons, there are still vulnerable groups of information, resulting in insufficient information utilization efficiency. With the development of population aging, the elderly have also become the main information vulnerable groups.

Based on the review and analysis of literatures and journals at home and abroad, we draw relevant conclusions. Lian and Yu mostly focus on qualitative description. The evaluation methods and objects are more traditional and the sample representation is limited. On this basis, we look forward to the research direction of Intelligent Tourism in the future<sup>[1]</sup>. Chen briefly described the significance of Intelligent Tourism from the macro and micro levels<sup>[2]</sup>. Gong elaborated on the meaning, tasks, current situation and existing problems of smart tourism, as well as measures and suggestions for the development of smart tourism<sup>[3]</sup>. Huang summarized the concept, application value, system construction and application of intelligent tourism, as well as the shortcomings of Intelligent Tourism Development<sup>[4]</sup>. Luo classifies, arranges and summarizes the application of intelligent technology at home and abroad, such as travel agencies, hotels and scenic spots, through various channels such as network information, previous studies and literature, so as to make it a system, and looks forward to the development trend of intelligent technology in tourism<sup>[5]</sup>. According to the above research results, most researchers pay more and more attention to intelligent tourism, expand their research to deeper fields, and

gradually pay attention to the reasons for the existence of information vulnerable groups in the information society.

In the era of big data, with the continuous improvement of people's living standards, more and more people choose tourism as an important means of leisure and entertainment, and "Intelligent Tourism" has a great impact on the tourism industry, so that people can experience tourism more conveniently. Intelligent means can be used for everything related to tourism, but when intelligent tourism brings a series of benefits to the tourism industry. There are also many people who don't know much about intelligent tourism products and have certain obstacles in application, so we need to adopt certain methods and means to help "information vulnerable groups". The research focuses on providing information assistance to the elderly group to keep up with the pace of the times and adopt more convenient means in the process of tourism so that people can enjoy tourism. In the context of intelligent tourism, it is of great significance to build a help model for vulnerable information groups.

## **2. Object and method**

### **2.1. Research object**

The research is aimed at the elderly in Dalian Tiger Beach Scenic Spot, which is located in the middle of the south coast of Dalian, Liaoning Province. There are Jurassic happy island, sea crossing aerial ropeway and large sightseeing ships in the park, which receive more than 2 million tourists every year, covering an area of 1.18 million m<sup>2</sup> and a winding coastline of about 4,000 m. There are five theme venues in the scenic area: polar Pavilion, coral Pavilion, happy theater, sea animal Pavilion and bird whispering forest. In addition, there are 180 degree interactive experience, 360 degree high-tech interactive project-extreme flying ball and other marine characteristic entertainment projects. Dalian Hutan scenic spot is a modern marine theme park integrating marine life

exhibition, marine leisure and marine science education.

## 2.2. Investigation contents and methods

### *Information vulnerable groups*

Taking the elderly over 60 years old in Dalian Tiger Beach Scenic Spot as an example, the study found that the information vulnerable groups have the following characteristics: First, the elderly lack the desire and enthusiasm to learn new technology, and the learning effect is poor; secondly, the elderly have a sense of distrust of Intelligent Tourism devices, especially payment devices; finally, the elderly have obstacles in operating smart phones and smart devices, and there is no special guidance and training place.

### *Investigation methods*

Literature analysis, questionnaire survey and SWOT analysis are mainly used. Literature analysis method is mainly to summarize and analyze by consulting and sorting out relevant literature and consulting relevant government tourism report materials. The questionnaire survey method is to distribute, collect, sort out and summarize the questionnaire to tourists during the May Day golden week. SWOT method mainly analyzes the advantages, disadvantages, opportunities and threats of Dalian Tiger Beach Scenic spot.

## 2.3. Smart Tourism

For the concept of intelligent tourism, each scholar has different definition standards. The main representative definitions of intelligent tourism are shown in **Table 1**.

**Table 1.** Main representative definitions of smart tourism

Representative figure	Representative definition
Jin Weidong <sup>[6]</sup>	Smart tourism is a comprehensive application platform, supported by high technologies such as Internet of things and cloud computing, through various service terminals such as smart phones, computers and touch screens Provide various tourism public services for tourists, tourism enterprises and tourism management departments.
Zhang Lingyun <sup>[7]</sup>	It is suggested that intelligent tourism should be based on the new generation of information technology and provide high-quality and satisfactory services to meet the personalized needs of tourists Realize the reform of systematic and intensive management, and realize the sharing and effective utilization of tourism resources and social resources.
Yao Guozhang <sup>[8]</sup>	Intelligent tourism is a kind of tourism operation mode, focusing on tourists Use Internet, Internet of things, cloud computing, 3G communication, triple play, GIS and other "intelligent technologies"; Use computers, mobile devices, intelligent terminals, etc. as tools; The use of intelligent services, intelligent commerce, intelligent management and intelligent government are the main forms of expression In order to fully meet the service needs of tourists for "food, accommodation, transportation, tourism, shopping and entertainment", it has created a new tourism business model for tourists, travel agencies, scenic spots, hotels, government agencies and tourism bureaus, and created greater value for the fundamental task.

It can be seen from **Table 1** that although scholars have different definitions of intelligent tourism, the essence of the definitions is the same. They all believe that providing personalized tourism services for tourists is the ultimate goal of intelligent tourism, which is an intelligent tourism marketing method that saves tourists worry and effort in the process of tourism. Combine tourism with intellectualization to make the tourism industry move towards an intelligent development path. Apply intelligent technologies such as triple play, Internet of things, cloud computing, 3G and to carry

out tourism service and management innovation, so as to realize the intellectualization of the whole process of tourism activities, the whole process of tourism management and the whole tourism industry chain and apply them to modern projects. Apply intelligent information technology to all relevant elements and links of tourism industry.

## 3. Results and analysis

### 3.1. SWOT analysis on Intelligent Tourism Development of Laohutan scenic spot in

## **Dalian**

### ***Strength analysis***

S1: Climate advantage: Dalian Tiger Beach Scenic Spot has temperate monsoon climate and marine climate. There is no severe cold in winter and no intense heat in summer, and the annual average temperature is about 10 °C.

S2: Location advantage: it is in the middle of the south coast of Dalian, Liaoning Province. It is only 40 minutes' drive from Dalian station and about 35 minutes' drive from Dalian Zhoushuizi International Airport. It has a very superior geographical location, a wide range of means of transportation and convenient transportation from other scenic spots in Dalian.

S3: Popularity advantage: Dalian Tiger Beach Scenic Spot is a national AAAAA scenic spot with beautiful natural scenery and facing mountains and seas. It is the largest scenic spot in the south of the urban area and the largest modern seaside amusement park in China.

S4: Advantages of scenic spots: there are more than 10 kinds of scenic spots in Dalian Tiger Beach Scenic Spot, such as four-dimensional cinema, coral Museum, Polar Ocean Museum, sea animal museum, bird language forest, etc. It is a modern seaside playground.

S5: Tourist market advantages: Dalian has held various activities in recent years, such as beer festival, Cherry Blossom Festival, Davos forum, international clothing festival and other large-scale programs, so that more foreign and foreign friends can know and understand Dalian. As a famous tourist attraction in Dalian, Dalian Tiger Beach Scenic spot can attract many tourists, so it maintains the stability of Dalian tourist market.

### ***Weakness analysis***

W1: The tour route is not reasonable: at the entrance of the scenic spot, there is a map of Dalian Tiger Beach Scenic spot. As the most distinctive scenic spot, the polar Pavilion is also the first stop

for most tourists. It displays all kinds of polar marine animals, polar bears, penguins, diving birds, etc. Tourists will reduce their pleasure of traveling to other pavilions after visiting the polar Pavilion.

W2: Destruction of tourism resources: tourism resources are divided into renewable tourism resources and non renewable tourism resources. Tiger beach has many non renewable tourism resources. Based on having a good source market, the number of tourists is increasing day by day. Littering and spitting have caused great damage to the environment without knowledge. The decline of environmental pollution and ecological environment quality will lead to the decline of tourist satisfaction, which will be a major problem faced by the scenic spot.

W3: Publicity needs to be improved: during the distribution of the questionnaire and the communication with elderly tourists, it is found that many tourists have not heard of intelligent tourism. Even if some have used intelligent devices, they do not know that they belong to Intelligent Tourism devices. In addition, the distribution of Intelligent Tourism equipment in the scenic spot is uneven. The Intelligent Tourism equipment in the polar Pavilion is abundant, but the distribution of other scenic spots is less, and even some scenic spots do not involve intelligent tourism equipment.

### ***Opportunity analysis***

O1: The development space of theme parks is large: the number of tourists is increasing year by year, and the peak tourism period has brought a huge tourist market to the scenic spots. The scenic spots of theme parks are distributed all over the country, but, they are still few Tiger beach is located in Dalian, Liaoning Province. It has unique climate and geographical conditions, and the marine theme park is relatively novel, involving parent-child tourism, couple tourism, family tourism, elderly tourism and other groups. The theme park has broad development space and a bright future.

O2: Strong support from local governments: as the first batch of pilot cities of Intelligent Tourism in China, Dalian has received strong support and expectation from the government and provided strong support for capital and construction.

### Threat analysis

T1: Competition of other similar scenic spots: Dalian Tiger Beach Scenic Spot has a unique natural environment, but the natural and ecotourism environment of Tiger Beach Scenic Spot is not a monopoly Dalian is a coastal city with many scenic spots related to coastal areas, such as Jinshitan tourist resort and Dalian Shengya ocean world. It is similar to Dalian Tiger Beach Scenic Spot in biology and hydrology. Although Dalian Hutan scenic spot has the largest polar Pavilion, Dalian Shengya ocean world has the longest 118 m submarine transparent channel in Asia. Similarly, Dalian yahai world is also a national AAAAA scenic spot. Therefore, there is no difference in the viewing of marine life and natural resources. The two famous scenic spots are located in the same area, which is easy to cause tourists to visit selectively between the two scenic spots.

## 3.2. Investigation and research on information vulnerable groups in Dalian

### Tiger Beach scenic spot

Study whether the elderly understand smart tourism in tourism activities and how to apply smart tourism in tourism activities, and understand various needs and obstacles of information vulnerable groups, so as to better put forward assistance strategies<sup>[9]</sup>. The demand of information vulnerable groups is conducive to the improvement and implementation of intelligent tourism. Based on the survey results, integrate and analyze the questionnaire, and draw a conclusion by using frequency analysis, cross analysis and descriptive analysis in SPSS analysis method.

### Descriptive analysis of sample characteristics

150 questionnaires were collected and valid. Descriptive analysis of the respondents' age, gender, education level, travel times and duration.

As shown in **Table 2**, there are 150 respondents, including 77 males, accounting for 51% of the total; there are 73 women, accounting for 49% of the total, and the ratio of men to women is 1:1. Mainly elderly tourists aged 60–70, meeting the requirements of questionnaire survey. The overall educational level of the respondents is mainly concentrated in junior middle school.

**Table 2.** Analysis of age and gender

Age		60–65	66–70	71–75	76–80	Over 80	Total	Percentage%
Gender	Female	40	22	4	5	2	73	49
	Male	36	20	8	6	7	77	51
Education	Primary school and below	10	5	4	3	4	26	17
	Middle school	21	16	9	12	0	46	31
	High school	23	9	2	0	0	34	23
	Junior college	18	12	3	2	3	40	27
	Master degree or above	4	0	0	0	0	4	2

**Table 3.** Analysis of annual travel times and duration

Travel duration		1–2 days	3–5 days	6–8 days	9–15 days	16–30 days	Total
Tavels per year/times	Hardly	14	12	2	0	0	28
	1–2	49	26	5	4	0	84
	3–4	15	10	2	1	1	9
	≥5	7	2	0	0	0	9
Total		85	50	9	5	1	150

It can be seen from **Table 3** that due to the limitation of the physical quality of the elderly, the travel duration is concentrated in 1–2 D and the travel times are concentrated in 1–2 times. The older the tourists, the fewer the travel times and the

shorter the travel duration *Analysis on the application of Intelligent Tourism to information vulnerable groups.*

**Analysis on the application of Intelligent Tourism to information vulnerable groups**

Table 4 is a cross analysis of whether the respondents are willing to use smart phones and have heard of smart tourism.

It can be seen from Table 4 that 80% of respondents are willing to use smart phones to understand tourist attractions; unwilling to use smart phones to understand tourist attractions accounted for 20%; never heard of smart tourism,

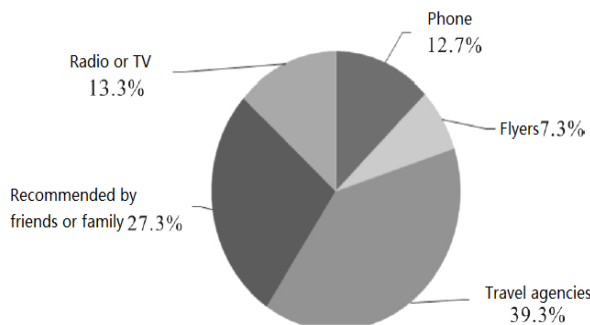
**Table 4.** Age and willingness to use smart phones to understand scenic spots and have you heard of smart tourism analysis

Age		60-65	66-70	71-75	76-80	Over 80	Total	Percentage%
Are you willing to use smart phones to understand scenic spots and have you heard of smart tourism	Willing	60	35	11	8	7	121	80
	Unwilling	16	7	1	3	2	29	20
Never heard of it	Don't know it very well	63	33	8	10	9	123	82
	Know it very well	10	6	3	0	0	19	13
	Know it very well	3	3	1	1	0	8	5

**Analysis on the use of Intelligent Tourism app for information vulnerable groups**

Analyze the channels and methods of the respondents to understand the information, the reasons why they did not choose to use the intelligent tourism service, whether they are interested in the voice explanation of the scenic spot, the way of ticket purchase and the way of tourism experience sharing.

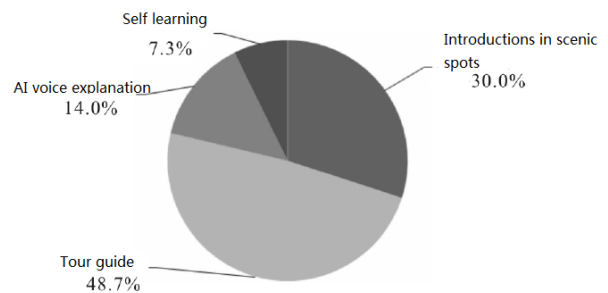
As can be seen from Figure 1, the proportion of using mobile phones to push information about scenic spots accounts for only 12.7%, which is caused by the respondents' inability to use or inner exclusion of using smart phones to understand scenic spot information, which has become one of the key assistance contents.



**Figure 1.** Channels for understanding scenic spot information.

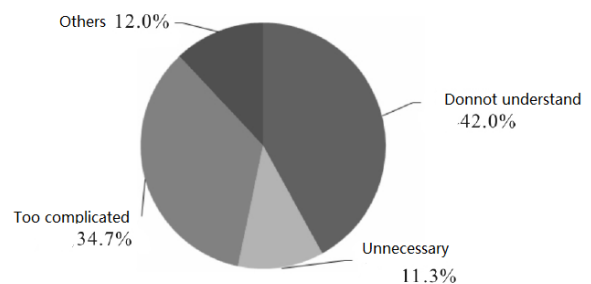
accounting for 82%; heard of but not very familiar with, accounting for 13%; 5% have heard and understood the specific content. In the field investigation, it is found that even if the respondents have used intelligent tourism products, they do not know their concept. After explaining to them, they can understand that the older they are, the lower their enthusiasm for using and learning intelligent devices.

It can be seen from Figure 2 that only 14% of the surveyed chose to use artificial intelligence to explain the information of the scenic spot. Intelligent tourism equipment is not widely used in the elderly group.



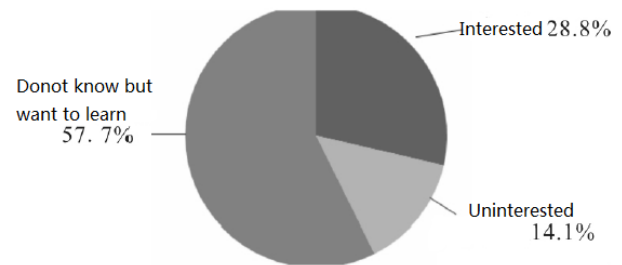
**Figure 2.** Ways to understand scenic spot information.

It can be seen from Figure 3 that 42% of the respondents did not choose to use Intelligent Tourism equipment in the scenic spot because they did not know it very well. Scenic spots should be publicized and guided to enable tourists to actively grasp and use intelligent tourism services.



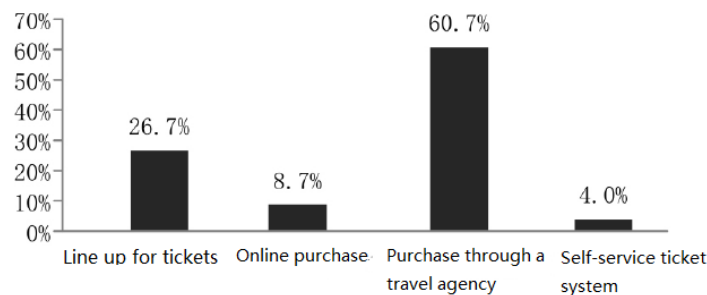
**Figure 3.** Reasons for not choosing to use smart travel.

As can be seen from **Figure 4**, 57.7% of the respondents are interested in intelligent tourism but will not use it and want to learn. Although the respondents will not use the intelligent tourism products in the scenic spot, they are willing to learn if they have the opportunity. Scenic spots should strengthen the promotion of intelligent tourism products, improve the elderly's understanding of intelligent tourism products, and through the promotion and guidance of scenic spots. Promote elderly tourists to actively master and use intelligent tourism products, so that they can obtain convenient services in tourism activities.



**Figure 4.** Interest in voice explanation in the scenic spot.

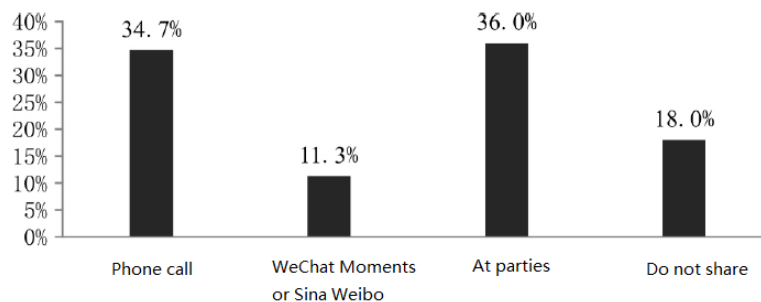
As can be seen from **Figure 5**, 8.7% of the respondents purchase tickets online, and 4% of the respondents use the scenic spot self-service ticket purchase system. The reason why the elderly do not use intelligent devices to buy tickets is that the elderly can't operate and think that online payment is unsafe.



**Figure 5.** Ticket purchase methods.

As can be seen from **Figure 6**, the respondents who choose to share on the phone and at parties are the most, 11% will choose to use smart app for

sharing, and the utilization rate of smart phones is low among the elderly.



**Figure 6.** Tourism experience sharing mode.

### ***Demand analysis of information vulnerable groups for smart tourism APP***

Based on modern information technology, Intelligent Tourism actively obtains tourism information through intelligent mobile terminals. Intelligent mobile terminal is also an important device in intelligent tourism. It is very important to analyze the use and demand of intelligent devices of respondents and understand the needs of

respondents<sup>[10]</sup>.

As can be seen from **Figure 7**, the most widely used intelligent products are wifi and QR code in scenic spots. With the growth of age, people's thirst for knowledge gradually decreases. More and more tourists are afraid of trouble and mistakes. They will choose the most traditional way of tourism. If they are not smooth in use, they will reject the intelligent devices.

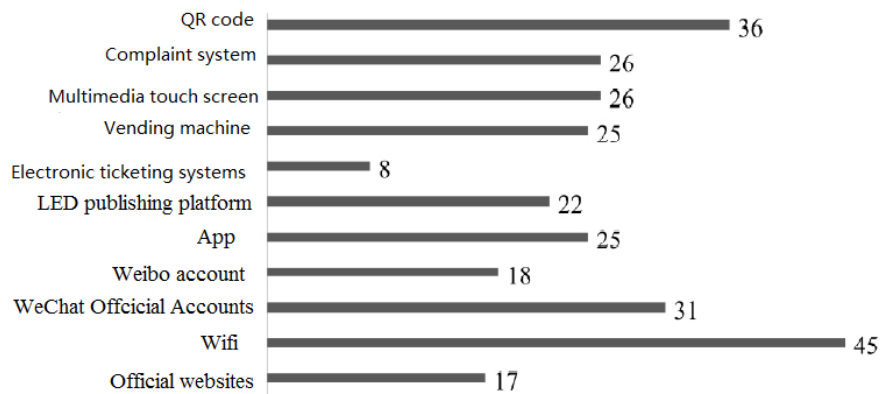


Figure 7. Use of intelligent products in scenic spots.

It can be seen from Figure 8 that everyone has different needs for the functions of tourism app, and

the focus is mainly on ticketing service, traffic and safety, map navigation and so on.

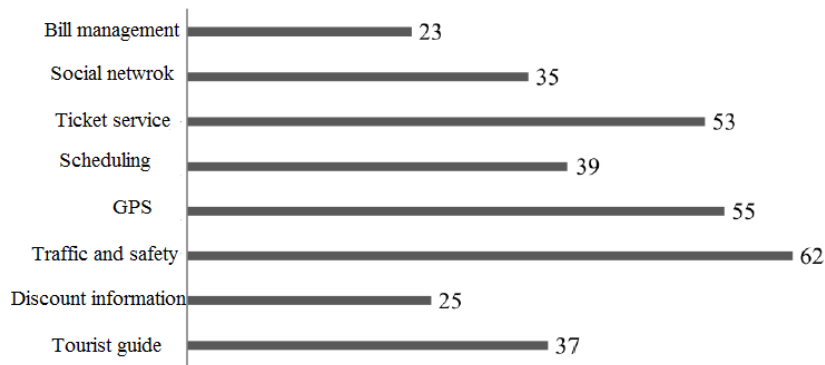


Figure 8. Tourism app functions.

As can be seen from Figure 9, the largest proportion of respondents' experience of tourism app is that the app needs convenient operation and simple structure, followed by safety and reliability. If the operation is complex, the respondents will have a psychological rejection. Mobile phone

security is also an important aspect, especially when the respondents make careless operation mistakes and charge items in the process of operating mobile phones, the respondents will lose confidence in this aspect and may not even use it again.

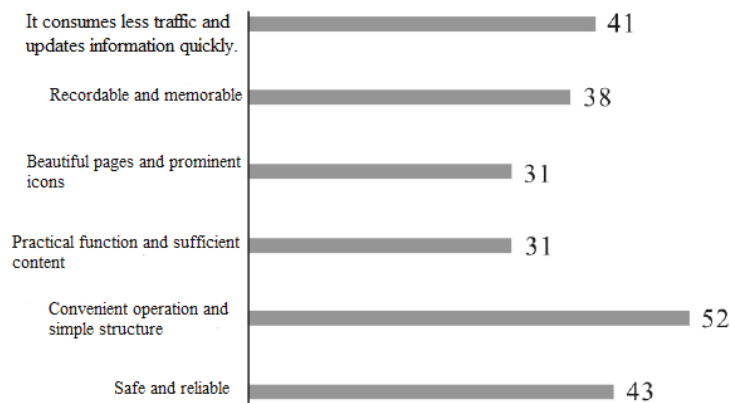


Figure 9. Tourism app user experience.

## 4. Conclusions and discussion

It is found that any industry in modern society depends on information, and tourism, as the tertiary



industry, is no exception. The rapid development of tourism industry today is inseparable from the promotion of information. The emergence of Intelligent Tourism is the most important factor for the development of tourism to science, technology, information and intelligence. Among them, there are both good aspects and “vulnerable groups” caused by insufficient access to information. The state responds to intelligent tourism. If the number of vulnerable groups increases gradually, it will lead to disharmony and unstable development of society, so corresponding solutions must be taken.

In the construction and implementation of intelligent tourism, it needs the joint efforts of individuals, scenic spots, the government and society to reduce the information vulnerable groups of the elderly. The elderly should have the psychology of active learning; Scenic spots should strengthen the publicity of Intelligent Tourism and simplify intelligent tourism services and products; The government will increase the popularization of education and science and technology for the elderly, so that they can understand and accept science and technology, and enjoy the intelligent tourism life brought by science and technology. After SWOT analysis of the scenic spot, it is concluded that the scenic spot should give full play to the advantages of climate, location, popularity, scenic spots and tourist market, and seize the opportunity in combination with the great development space of theme parks in today’s era and the strong support of local governments. Design a reasonable tour route for the scenic spot and build resource protection facilities; Orderly disposal of garbage in the scenic area; Organize activities regularly to improve the promotion of intelligent scenic spots; Make use of various advantages of the scenic spot to distinguish it from other similar scenic spots and highlight the characteristics of the scenic spot; Actively publicize scenic spots and carry out various tourism projects; Improve the use of Intelligent Tourism and avoid external risks<sup>[11,12]</sup>.

The services and products provided by intelligent tourism for information vulnerable

groups are in the early stage, and further research and practice are needed to better provide assistance strategies for vulnerable groups to make the elderly tourism market fully intelligent is an arduous and long-term task with great challenges. Analyzing theoretical knowledge is a small step to solve the problem. However, if all social departments and institutions pay attention to the information vulnerable groups and adopt corresponding assistance strategies, the development of intelligent tourism will face the public. Therefore, this article puts forward corresponding assistance strategies in terms of government support and dissemination, self-improvement of scenic spots, self-improvement of information vulnerable groups and Intelligent Tourism app.

#### 4.1. Assistance strategy for SWOT analysis

It is a difficult and tortuous thing to popularize and promote intelligent tourism and become the only way for popular tourism activities. We should further improve the government, scenic spots, information vulnerable groups themselves and Intelligent Tourism app.

As shown in **Table 5**, it is the SWOT matrix analysis of Dalian Tiger Beach Scenic Spot and puts forward corresponding assistance strategies<sup>[13-15]</sup>.

#### *Countermeasures against unreasonable tourist routes*

There are many Ocean Parks in China, such as Fushun Royal ocean world, Hong Kong Ocean Park, etc. Therefore, Dalian Tiger Beach Scenic Spot should be distinguished from Ocean Parks in other regions. The most important thing of Dalian Tiger Beach Scenic Spot is that it has unique beach tourism resources. It should make good use of it, hold different activities related to the beach, attract many repeat visitors, and make tourists look forward to the opportunity to experience different activities. Scientific and reasonable design of tourism routes and utilization of unique tourism resources are essential to the scenic spot.

**Table 5.** SWOT matrix of Dalian Tiger Beach scenic spot

<b>Strengthen weakness</b>	<b>S strengthen</b>	<b>W weakness</b>
	S1 climate advantage S2 location advantage S3 popularity advantage S4 scenic spot advantages S5 customer source market advantage	W1 tourist routes lack rationality W2 tourism resources destroyed W3 publicity needs to be improved
<b>Opportunity threat</b>	<b>SO strategy</b>	<b>WO strategy</b>
<b>O opportunity</b>	Give full play to the advantages of climate, location, popularity, scenic spots and tourist market of the scenic spot, and seize the opportunity in combination with the great development space of theme parks in today's era and the strong support of local governments.	Design reasonable routes for scenic spots and build resource protection measures. The garbage in the scenic spot shall be disposed in an orderly manner, and regular activities shall be held to improve the publicity of the intelligent scenic spot.
O1 Theme park with large development space. O2 Strong support from local governments.		
<b>T threat</b>	<b>ST strategy</b>	<b>WT strategy</b>
T1 Competition from other similar scenic spots.	Make use of various advantages of the scenic spot to distinguish it from other similar scenic spots and highlight the characteristics of the scenic spot.	Actively publicize the scenic spots, develop a variety of tourism projects, improve the use proportion of Intelligent Tourism and avoid external risks.

### ***Countermeasures against the destruction of environmental resources***

A series of solutions must be adopted to avoid damage to the environment. First, strict quantitative control can be carried out, and tourists can increase their interest in the scenic spot; finally, take certain punishment measures for tourists who cause serious environmental pollution and persist in teaching, and place the provisions on environmental protection in each clearly visible position of the scenic spot.

### ***Countermeasures for inadequate publicity of scenic spots***

The scenic spot should vigorously publicize smart tourism and encourage people to use smart tourism equipment to visit the scenic spot and understand scenic spot information and other tourism activities, which can not only provide more convenient tourism activities for tourists, but also reduce the labor force in the scenic spot. The scenic spot can publicize through TV media and cooperate with mobile tourism app, such as Ctrip, flying pig, tuniu, etc., to carry out various tourism activities for elderly tourists. Provide easy to understand operation instructions for intelligent devices when purchasing tickets.

## **4.2. Assistance strategies for research**

### ***Government support and communication***

The government plays an important role in social life. Especially for the elderly tourists, they believe and support the government's decision-making and pay close attention to it. The government should vigorously publicize smart tourism, popularize smart tourism and delegate it to local publicity and guidance. Organize various activities related to smart tourism, and implement dynamic monitoring and financial subsidy policies for scenic spots. Establish local educational institutions for the elderly, publicize the importance of science and technology to the elderly, teach the use of smart phones, and create a place for the elderly to learn and communicate with each other, starting from the actual needs of information vulnerable groups.

### ***Self improvement of scenic spots***

The scenic spot takes corresponding measures to make full use of various resources, build a big data platform for elderly tourism information, integrate elderly tourism information, and provide solutions according to relevant data. First of all, the elderly tourists can be organized to learn the operation of intelligent devices. If the elderly are willing to use intelligent devices independently to purchase tickets, intelligent tours and other behaviors in the scenic spot, the scenic spot can provide corresponding preferential policies. Secondly, simplify the intelligent equipment in the

scenic spot, make the operation of elderly tourists more convenient, and increase the publicity and dissemination of intelligent tourism. Finally, the scenic spot should make full use of the official account and official microblog to popularize smart tourism and the convenient life it brings to the society, so that people can fundamentally accept and use smart tourism and integrate smart tourism into life.

### ***Self improvement of information vulnerable groups***

Information vulnerable groups should actively accept and learn new things. Even if they encounter difficulties at the beginning of learning, they will become more and more proficient in multiple operations until they can operate and apply independently. It is of great benefit to itself and paves the way for more convenient tourism activities in the future.

### ***Smart travel APP***

Mobile app and various applications need to be continuously improved, promoted and increased user experience, which is an important means to improve the core competitiveness of the scenic spot. First, in terms of APP Design, it should be easy to operate and simple in structure, which is also the most important aspect of information vulnerable groups. Integrate the functions of tourism app, delete false and wrong information, and cooperate with businesses. Secondly, in terms of APP experience: the travel app should run fast and easy to operate and the update speed of information should be timely. There should be no inconsistency between the information in the app and the actual information of the scenic spot. Finally, in terms of APP security: the reason why most elderly people do not use mobile payment and smart devices is due to distrust, so app must be safe and reliable, strict encryption system and upgraded firewall.

### **Conflict of interest**

The authors declare no conflict of interest.

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