

# Research on Tourism Image Perception of Urban Ecological Scenic Areas Based on Analysis of Online Travel Notes: A case study of Baiyun Mountain Scenic Area in Guangzhou

SHAO Na<sup>1</sup>, WU Zhenni<sup>2</sup>, WU Qing<sup>2</sup>

(1. College of Economics & Management, Zhaoqing University, Zhaoqing, Guangdong 526061, China; 2. College of Tourism and Historical Culture, Zhaoqing University, Zhaoqing, Guangdong 526061, China)

**Abstract** Taking Baiyun Mountain Scenic Area in Guangzhou as the research object, 300 online travel notes were selected as research samples, and text analysis and ROST CM6 data analysis software were used to analyze tourists' image perception of Baiyun Mountain Scenic Area in Guangzhou from three aspects of cognitive image, emotional image and perceptual image. It is found that: ① in terms of cognitive image, tourists' perception of the tourist attractions is not balanced, and the service facilities such as catering, entertainment, shopping and accommodation are generally negative perceptions, while the perception of the tourism atmosphere tends to be positive. ② In terms of emotional image, tourists have a positive attitude towards the overall evaluation of the scenic area. Most of these positive perceptions come from the natural landscapes and scenic spots of the scenic area. Part of the negative perception mainly comes from the lack of infrastructure, amusement facilities, service facilities or construction management, and the lag of maintenance management within the scenic area. ③ In terms of overall perception, the favorable rate accounts for 81%. The overall perception image of tourists is mainly concentrated in the three core vocabulary of "Baiyun Mountain Scenic Area", "ticket" and "cable car". At the same time, suggestions for improvement are proposed in four aspects, including integrating tourism resources in the scenic spot to improve the spatial balance of scenic spots in the scenic area, strengthening the maintenance of infrastructure construction and public environment to improve the service level of the scenic area, increasing the number of recreational tourism products and the entertainment experience of the scenic area, and deepening the reform of the ticket sales system to implement the combination of the set ticket system and the separate ticket system.

**Keywords** Perceptual image, Text mining, Online travel note, Ecological tourism scenic area, Baiyun Mountain Scenic Area

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With the rapid development of Internet marketing technology, online travel notes have become an important factor affecting tourists' travel perception. Online travel notes refer to the articles published by tourists to record their travel experiences relying on mainstream online blogs and major online tourism marketing websites, have a significant impact on other tourists' travel decisions, and are an important manifestation of tourists' tourism perception image. Tourism perception image is an important factor influencing potential tourists' choice of tourism destinations<sup>[1-2]</sup> and an important indicator related to the success of tourism marketing<sup>[3]</sup>. Due to the importance of tourism image perception to tourism marketing, since Hunt first proposed the concept of tourism image in 1971<sup>[4]</sup>, research on tourism destination image has attracted much attention from scholars at home and abroad. Foreign studies mainly focus on factors<sup>[5-7]</sup>, behavior model<sup>[8-10]</sup>, marketing management<sup>[11-13]</sup>, and behavior model of tourism image perception<sup>[14-16]</sup>. In China, tourism scholars have carried out extensive research on the basis of learning foreign research results, especially made a lot of

empirical research on the concept, connotation and marketing of tourism image design<sup>[16-22]</sup> and made great progress. Since the 20<sup>th</sup> century, with the rapid development of Internet technology, more and more scholars have studied the tourism perception image of destinations by collecting and analyzing online texts<sup>[23]</sup>, focusing on the tourism image perception of regions<sup>[24-26]</sup>, cities<sup>[23, 27-29]</sup>, scenic spots<sup>[30-34]</sup>, etc. Fruitful results have been achieved, and a new research direction of "big data + tourism" has been formed. This kind of research uses text analysis and qualitative analysis to mine online texts, provides massive tourist data information for destination image perception research that is different from traditional perception image research ideas, enhances the objectivity of sample selection, and obtain more comprehensive data.

Urban ecological scenic spots are not only the ecological barrier of a city but also the important destinations of urban leisure tourism, and are related to the shaping of the whole city's tourism image brand. In particular, with the continuous improvement of income level, people's desire to return to nature is

becoming more and more intense, so the traditional mass sightseeing tourism can no longer effectively meet the high-level pursuit of the core experience of tourism products in the large-scale tourist market<sup>[35]</sup>. Ecological scenic spots are favored by tourists because of their high environmental value, educational value and sightseeing experience value. However, the current tourism facilities, products and services of traditional ecotourism scenic spots are not updated and upgraded in time according to the changes in the consumer market, so that tourists' tourism perception is inconsistent with market image, which has caused a greater negative impact on the construction of the brand image of scenic spots. This problem needs to be highly valued and solved by the relevant competent authorities.

Baiyun Mountain Scenic Area is located in Baiyun District of Guangzhou, covering an area of 28 km<sup>2</sup>. It was rated as a national 4A-level scenic area in 2000 and a 5A-level scenic area in 2011. It is one of the famous mountains in southern Guangdong and known as "the first show in Yangcheng". It is also the only scenic

spot in Guangzhou that has both the honors of “National Civilized Scenic Area” and “National 5A-level Scenic Area”. It is not only a beautiful tourist resort, but more importantly, its complete forest ecosystem plays an important role in regulating the climate of Guangzhou, purifying the air, absorbing carbon dioxide, releasing oxygen, maintaining ecological balance, wind prevention and disaster resistance, so it is known as the “lungs” of Guangzhou. Presently, tourists’ destination image perception is not clear enough, and Baiyun Mountain Scenic Area still has great room for improvement in the construction and management of tourism destination image. In this study, text mining method was used to search online travel notes about Baiyun Mountain Scenic Area through Ctrip, Mahonong and Baidu travel website, in an attempt to dig out the tourism image perception characteristics of Baiyun Mountain Scenic Area and provide reference for related tourism management.

## 1 Research methods and data sources

### 1.1 Research methods

As a research method for objective analysis of explicit content, content analysis method can be used to deeply analyze the relevant content of the research object, so it was selected as the research method in this paper. ROST ContentMing software was used to obtain high-frequency characteristic words of tourism image perception of Baiyun Mountain Scenic Area. Then, based on the analysis results of high-frequency characteristic words, the analysis categories were established according to the cognitive image, emotional image and overall perception image proposed by Baloglu et al.<sup>[36]</sup> (Table 1). Rooted theory is a bottom-up method to establish the substantive theory. Through the three-level coding of the original data of Baiyun Mountain Scenic Area, the core concept reflecting the phenomenon essence of things was sought, and the related social theory was constructed.

### 1.2 Data sources and processing

**1.2.1 Data sources.** Ctrip (<http://www.ctrip.com/>), Mafengwo (<http://www.mafengwo.cn/>)

and Baidu travel (<https://lvyou.baidu.com/>) are famous tourism management and travel note websites in China, with a large number of users and heavy visits. “Baiyun Mountain Scenic Area” and “Baiyun Mountain” as keywords were retrieved in the above websites, and the relevant travel notes were extracted as first-hand information. Because Baiyun Mountain Scenic Area successfully applied for the 5A-level scenic spot in January 2011, the year 2011 was taken as the time cut-off point to explore the tourism image of the scenic spot after the successful application for the 5A-level scenic spot. Since 2011, a total of 300 effective online travel notes have been collected from Ctrip (91 notes), Mafengwo (110) and Baidu travel (99).

**1.2.2 Data processing.** In order to improve the accuracy and efficiency of the analysis, the text content of the selected samples was processed before the software analysis. The specific steps are as follows. ① The irrelevant content such as photos and network tags were removed from the travel materials. ② In a word document, synonyms were merged, and the description of the same place and scenic spot was unified, such as unifying Baiyun Mountain and Baiyun Mountain Scenic Spot into Baiyun Mountain Scenic Area. ③ Word documents were converted into text documents (.txt format) for analysis. ④ A custom dictionary was established. Before ROST CM6 was used for word segmentation, and a custom dictionary of main attractions and locations, tourism activities, etc. was set up. ⑤ A filter word list was built. Meaningless words such as “we”, “but”, “beginning” and “finally” were put into a filter word list. ⑥ A high-frequency word list was drawn up. Firstly, the .txt file of the material to be analyzed was imported, and word segmentation was conducted by using the “word segmentation” function, and then the high-frequency words for cognitive image analysis of Baiyun Mountain Scenic Area were obtained.

## 2 Results and analysis

### 2.1 Analysis of cognitive image

ROST CM6 frequency analysis software

was used to analyze the frequency of characteristic words in the 300 travel notes, and the top 100 high-frequency characteristic words were extracted (Table 2). Among the top 100 high-frequency words in the travel notes, most of them are nouns, reflecting mostly scenic spots and their facilities in the scenic area, such as Yuntai Garden, cable car, etc. Individual adjectives reflect the attitude of tourists towards the scenic area.

**2.1.1 Recognition of scenic spots.** The nouns in the high-frequency words mainly show tourists’ cognition of the scenic spots of Baiyun Mountain Scenic Area. “Moxing Ridge”, “Yuntai Garden”, “Taohuajian” and “Peak Square” rank 4<sup>th</sup>, 16<sup>th</sup>, 26<sup>th</sup> and 29<sup>th</sup>, respectively, and they are famous scenic spots of Baiyun Mountain Scenic Area. Among them, “Moxing Ridge” formerly known as Biyun Peak is a mountain peak between Shujia Temple and Longhugang, 382 m above sea level, and it is the highest peak of Baiyun Mountain. On Moxing Ridge, different scenery can be seen in different weather, so it has become one of the best choices for many citizens to take a far-sighted view. Yuntai Garden is the largest garden-style garden in China. “Taohuajian”, which is located in the north of Baiyun Mountain, Guangzhou City, is a scenic spot in the sightseeing area of Mingzhu Tower, and will attract many citizens to enjoy flowers and take photos during the Spring Festival. “Peak Square” is a more iconic scenic spot in Baiyun Mountain Scenic Area, where large-scale events such as concerts were held. Other scenic spots in Baiyun Mountain, such as Mingchun Valley, Fei’e Ridge, and Heyi Ridge, did not appear in the top 100. To sum up, tourists generally have an unbalanced understanding of the scenic spots in Baiyun Mountain Scenic Area, and there is a lack of cultural and historical construction in the scenic area. Seen from Table 2, the keywords of scenic spots for tour and sightseeing are mainly mentioned, and in addition to “Nengren Temple”, there are no keywords of scenic spots reflecting the humanistic history of Baiyun Mountain, such as “stone tablets”, “allusions” and “poems”. There is “Guangzhou Forest of Steles” in the scenic area of Moxing Ridge, with nearly 300 pieces of poems and calligraphic masterpieces praising the scenery to the south of the Five Ridges. The temples in the Luhui scenic area of Baiyun Mountain are rich in Buddhist culture, but they have not been well promoted. On the one hand, the distribution of tourism resources in the scenic area is unbalanced, and the development is uneven; on the other hand, the management unit of the scenic area has not

**Table1 Category of perceptual image analysis of Baiyun Mountain Scenic Area**

| Major category           | Minor category   |
|--------------------------|--|
| Cognitive image          | Tourism resources<br>Tourist facilities and services                         |
| Emotional image          | Social environment and atmosphere<br>Positive comment<br>Negative evaluation |
| Overall perception image | Overall evaluation<br>Network analysis diagram                               |

well developed and excavated the cultural and historical scenic spot, and it has not become an effective tourism attraction.

**2.1.2 Tourism facilities and services.** “Cable car”, “cableway”, “battery car”, “subway”, “bus” and other characteristic words are ranked higher in the high-frequency words, indicating that public transportation facilities are the main way for tourists to go to Baiyun Mountain, which reflects

the development of public transportation network construction in the scenic area. The word “cable car” ranks fifth, and the frequency is 125, showing that many tourists will choose to take the cable car up the mountain, which is related to the longer mountain road in the scenic area. It also reveals that the cable car is a popular tour in the scenic area and loved by tourists. In terms of food, “beancurd jelly” is mentioned in

the high-frequency words. As a famous snack in Baiyun Mountain, beancurd jelly is the favorite of many tourists and Guangzhou citizens. There is also a high-frequency word about food “honey” ranking 96<sup>th</sup>, which is related to a shop called Honey Garden in the scenic area. In the shop, there is honey and some snack products about honey. In addition to it, there are no other high-frequency words about food and catering. In the travel notes, some travelers said that there are Zhenggongfu, McDonald’s and other restaurant chain brands, but the name of a special restaurant was rarely mentioned, and some travelers mentioned the bad evaluation of restaurants on the mountain. For instance, “the dishes are expensive and the taste is plain”. It shows that the development of the catering industry in the scenic area is not prominent, and there is no standardized management and brand characteristics of the scenic spot, so it is less attractive to tourists. In terms of entertainment and play, there are words such as “bungee jumping”, “climbing” and “sports”, showing that the bungee jumping of Baiyun Mountain Scenic Area is more famous, and it is also a popular project among young people in the scenic area. However, there is no “grass skiing”, “flying chair” and other tour projects suitable for children in the high frequency words, indicating that the play projects of the scenic area are not fully developed, and only individual play projects have been developed. It can not form a good agglomeration effect, mainly staying in the tourism stage. There are no related words in tourism shopping and accommodation, indicating that the scenic area has no development in tourism souvenirs, shopping, and hotel accommodation, or the tourism products that have been developed are not attractive, which is the short board of the development of the scenic area. According to the above analysis, in terms of tourism facilities and services in the scenic area, in addition to relatively perfect transportation facilities, there are problems such as stagnant development in catering, accommodation, entertainment, tourism and shopping, and there is no standardization and scale. On the one hand, the management unit of the scenic area do not pay attention to the construction of these aspects and give timely guidance and support. On the other hand, due to the restriction of the mountain environment inside the scenic area, there are obstacles in the construction of many facilities and projects, so the management unit of the scenic area needs to conduct appropriate construction and development on the basis of respecting nature,

**Table 2 The top 100 high-frequency words in the travel note samples**

| No. | Characteristic word         | Frequency | Word class | No. | Characteristic word    | Frequency | Word class |
|-----|-----------------------------|-----------|------------|-----|------------------------|-----------|------------|
| 1   | Baiyun Mountain Scenic Area | 505       | Noun       | 51  | Student                | 23        | Noun       |
| 2   | Guangzhou                   | 268       | Noun       | 52  | Reach                  | 23        | Verb       |
| 3   | Admission ticket            | 185       | Noun       | 53  | Ride                   | 22        | Verb       |
| 4   | Moxing Ridge                | 127       | Noun       | 54  | Walk                   | 22        | Noun       |
| 5   | Cable car                   | 125       | Noun       | 55  | Bus                    | 22        | Noun       |
| 6   | Uphill                      | 120       | Adverb     | 56  | Nengren Temple         | 22        | Noun       |
| 7   | Hilltop                     | 104       | Noun       | 57  | Traffic                | 22        | Noun       |
| 8   | Scenic spot                 | 100       | Noun       | 58  | Overlook               | 22        | Verb       |
| 9   | Cableway                    | 94        | Noun       | 59  | Play                   | 22        | Verb       |
| 10  | Downhill                    | 93        | Adverb     | 60  | Mingchun Valley        | 22        | Noun       |
| 11  | On a hill                   | 86        | Adverb     | 61  | The aged               | 21        | Noun       |
| 12  | Scenery                     | 83        | Noun       | 62  | Sports                 | 21        | Noun       |
| 13  | Climb mountains             | 77        | Verb       | 63  | Weather                | 21        | Noun       |
| 14  | West gate                   | 66        | Noun       | 64  | Hike                   | 21        | Noun       |
| 15  | South gate                  | 62        | Noun       | 65  | Peach                  | 21        | Noun       |
| 16  | Yuntai Garden               | 62        | Noun       | 66  | Rest                   | 20        | Noun       |
| 17  | Suggestion                  | 60        | Noun       | 67  | Breathe                | 20        | Verb       |
| 18  | Battery cart Air            | 52        | Noun       | 68  | Get off the bus        | 20        | Verb       |
| 19  | Bungee jumping              | 50        | Noun       | 69  | Entrance               | 20        | Noun       |
| 20  | Friend                      | 48        | Noun       | 70  | Real                   | 19        | Adjective  |
| 21  | Air                         | 48        | Noun       | 71  | Fresh                  | 19        | Adjective  |
| 22  | Baiyun                      | 47        | Noun       | 72  | Free                   | 19        | Adjective  |
| 23  | Guangzhou City              | 44        | Noun       | 73  | Often                  | 19        | Adjective  |
| 24  | Park                        | 43        | Noun       | 74  | Facility               | 19        | Noun       |
| 25  | Weekend                     | 41        | Noun       | 75  | Climbing               | 19        | Noun       |
| 26  | Taohuajian                  | 41        | Noun       | 76  | Square                 | 18        | Noun       |
| 27  | Scene                       | 37        | Noun       | 77  | Pretty                 | 18        | Adjective  |
| 28  | Charge                      | 36        | Noun       | 78  | Doorway                | 18        | Noun       |
| 29  | Peak Square                 | 35        | Noun       | 79  | Front gate             | 17        | Noun       |
| 30  | Cheap                       | 34        | Adjective  | 80  | Citizen                | 17        | Noun       |
| 31  | Evening                     | 33        | Noun       | 81  | Take exercise          | 17        | Verb       |
| 32  | Climbing a mountain         | 33        | Verb       | 82  | Altitude               | 17        | Noun       |
| 33  | Peak park                   | 31        | Noun       | 83  | Hillside               | 17        | Noun       |
| 34  | Yangcheng                   | 30        | Noun       | 84  | Landscape              | 17        | Noun       |
| 35  | Tour                        | 29        | Verb       | 85  | Holidays and festivals | 16        | Noun       |
| 36  | Scenic spot                 | 29        | Noun       | 86  | Half price             | 16        | Noun       |
| 37  | Beancurd jelly              | 29        | Noun       | 87  | Mingzhu Tower          | 16        | Noun       |
| 38  | Sightseeing area            | 27        | Noun       | 88  | Nature                 | 16        | Noun       |
| 39  | Sightseeing                 | 27        | Noun       | 89  | Plum blossom           | 16        | Noun       |
| 40  | Lane                        | 27        | Noun       | 90  | Road                   | 15        | Noun       |
| 41  | Subway                      | 26        | Noun       | 91  | The highest            | 15        | Adjective  |
| 42  | Convenient                  | 26        | Adjective  | 92  | Worthy                 | 15        | Adjective  |
| 43  | Mountain road               | 25        | Noun       | 93  | Famous mountain        | 15        | Noun       |
| 44  | Tourism                     | 25        | Noun       | 94  | The elderly            | 14        | Noun       |
| 45  | First                       | 24        | Adjective  | 95  | Peak                   | 14        | Noun       |
| 46  | Leisured                    | 24        | Adjective  | 96  | Honey                  | 14        | Noun       |
| 47  | Public transportation       | 24        | Noun       | 97  | Feel                   | 13        | Noun       |
| 48  | Exercise                    | 24        | Verb       | 98  | Bus line               | 13        | Noun       |
| 49  | Whole                       | 23        | Adjective  | 99  | Garden                 | 13        | Noun       |
| 50  | Urban area                  | 23        | Noun       | 100 | Buy                    | 13        | Verb       |

and follow the harmonious coexistence between man and nature.

**2.1.3 Social environment and atmosphere.** Social environment is mostly expressed by adjectives in the high-frequency words. The high-frequency words “Guangzhou” and “Yangcheng” reflect the social and cultural environment in which Baiyun Mountain Scenic Area is located, showing that tourists have a clear location environment for Baiyun Mountain Scenic Area. Guangzhou is a first-tier city in China, with a large flow of people. Baiyun Mountain is located in the urban area of Guangzhou, which brings great opportunities for its development. Words such as “weather” and “climbing” indicate the topographic environment of Baiyun Mountain. Because its terrain is higher, it is conducive to watching the panoramic scenery of the city, sunset and stars on the top of the scenic area, which is also a highlight of the development and construction of the scenic area. At the same time, weather conditions have a great impact on the travel of tourists. The words “air”, “fresh” and “leisured” indicate that tourists’ perception of the atmosphere of the scenic area is more comfortable and relaxed, and it is a place for many tourists to exercise and relax. Meanwhile, the words “convenient”, “cheap” and “worthy” also reflect a good social atmosphere in the scenic area. Some individual tourists mentioned in the travel notes about the scenic spot fees, black cars and other adverse phenomena affecting the tourism environment and atmosphere of the scenic area. In general, tourists’ perception of the social environment

and atmosphere of the scenic area is mostly positive, but the lack of management and other factors also cause some bad perception, which should be improved and strengthened in the future.

## 2.2 Analysis of emotional image

Emotional image shows the attitude of tourists towards the tourist destination, and the analysis results can be obtained from the words in the travel notes that show the emotions and feelings of tourists. Through the analysis of 300 text materials, the top 60 characteristic words with the highest frequency are obtained (Table 3). The total frequency of 60 emotion characteristic words is 450. According to the dimension of “positive evaluation, neutral evaluation and negative evaluation”, the classification and analysis are carried out. The frequency of characteristic words of positive evaluation is 420, accounting for about 93%. The frequency of characteristic words of neutral evaluation is 9, accounting for about 2%. The frequency of characteristic words of negative evaluation is 21, accounting for about 5%.

In the characteristic words of positive evaluation, the most frequent characteristic words are “cheap”, “convenient” and “leisured”, which reflects the emotional image of most tourists to Baiyun Mountain Scenic Area. “Cheap” mostly means that the tickets and food on the mountain are relatively cheap and affordable. For example, some tourists said that it may be the cheapest 5A scenic spot in China, and beancurd jelly is fragrant and delicious and cheap. “Convenient” mostly means the traffic

facilities on the mountain are more convenient for tourists to go up and down the mountain. For instance, it is very convenient to go down the mountain by cableway. “Leisured” means that Baiyun Mountain Scenic Area is a public place for entertainment and leisure. Tourists said that it is simply a leisure walking place for all ages. In addition, the characteristic words of positive evaluation also include “fun”, “beautiful”, “feature”, “worthy” and other words, and most tourists think that the amusement facilities in the scenic area are fun and interesting and the infrastructure of the scenic area has its own characteristics. “Worthy” is the overall perception of tourists after visiting the scenic area, and they feel that it is worthy to play in the scenic area, indicating their affirmation and love to the scenic area. These words show tourists’ positive evaluation of the scenic spots, supporting facilities, atmosphere and so on.

In terms of negative evaluation, there are words such as “pity”, “regret”, “remorse”, “exhausted” and “discomfort” in Table 3. “Pity” means the lack of management in some scenic spots has caused the impact on landscape vision. For example, “it is a pity that the weeds are overgrown and the trees do not spoil the scenery”, and “there is a large sunflower, but it is a pity that the tourists have spoiled some of it”. It is regretful that on the mountain, foggy Guangzhou can be seen, and the air is seriously polluted. Because of the weather and the air pollution brought by urban development, the scenery on the mountain is not satisfactory. Some tourists were regretful. Tourists have also raised the issue of charging multiple tickets. Although these tourists are only a minority, the negative evaluation also reflects the gap in the development of amusement facilities and the maintenance and management of scenic spots.

## 2.3 Analysis of perceptual image

The overall perceptual image is the overall evaluation of tourists to the scenic area after travel, which is closely related to tourists’ willingness to visit it again. Among the 300 travel notes, tourists’ overall perception of Baiyun Mountain Scenic Area is shown in Table 4. Most of the tourists give good reviews, but a considerable number of tourists give medium and bad reviews, showing that all aspects of the

**Table 3 Top 60 high-frequency characteristic words of emotional image**

| No. | Characteristic word | Frequency | No. | Characteristic word      | Frequency | No. | Characteristic word | Frequency |
|-----|---------------------|-----------|-----|--------------------------|-----------|-----|---------------------|-----------|
| 1   | Cheap               | 34        | 21  | Pity                     | 7         | 41  | Unforgettable       | 4         |
| 2   | Convenient          | 26        | 22  | Quiet                    | 7         | 42  | Exhausted           | 4         |
| 3   | Leisured            | 24        | 23  | Enjoy                    | 7         | 43  | Persist             | 4         |
| 4   | Pretty              | 18        | 24  | Natural                  | 7         | 44  | Gently              | 4         |
| 5   | Nature              | 16        | 25  | Perfect                  | 6         | 45  | Remorse             | 3         |
| 6   | Worthy              | 15        | 26  | Benefit                  | 6         | 46  | Smoothly            | 3         |
| 7   | Appreciate          | 13        | 27  | Attract                  | 6         | 47  | Commemorate         | 3         |
| 8   | Comfortable         | 13        | 28  | Dense                    | 6         | 48  | Significance        | 3         |
| 9   | Fun                 | 12        | 29  | Environmental protection | 6         | 49  | Discomfort          | 3         |
| 10  | Clean               | 12        | 30  | Lively                   | 5         | 50  | Reputation          | 3         |
| 11  | Beauty              | 12        | 31  | Hygiene                  | 5         | 51  | Extremely beautiful | 3         |
| 12  | Lovely              | 11        | 32  | Tradition                | 5         | 52  | Happy               | 3         |
| 13  | Nice                | 11        | 33  | Cool                     | 5         | 53  | Pleased             | 3         |
| 14  | Exciting            | 11        | 34  | Conscience               | 5         | 54  | Complete            | 3         |
| 15  | Beautiful           | 10        | 35  | Rarely                   | 5         | 55  | Challenge           | 3         |
| 16  | Fresh               | 8         | 36  | Delight                  | 5         | 56  | Cool                | 3         |
| 17  | Preferential        | 8         | 37  | Ease                     | 4         | 57  | Fairyland           | 3         |
| 18  | Delicious           | 8         | 38  | Regret                   | 4         | 58  | Avoid               | 3         |
| 19  | Safety              | 8         | 39  | Relax                    | 4         | 59  | Simple              | 3         |
| 20  | Feature             | 7         | 40  | Blessing                 | 4         | 60  | Excitement          | 3         |

**Table 4 Evaluation form of overall perceptual image**

| Dimension     | Proportion//% | Number of travel notes |
|---------------|---------------|------------------------|
| Good review   | 81            | 245                    |
| Medium review | 13            | 41                     |
| Bad review    | 6             | 14                     |



scenic area need to be improved.

Compared with the analysis of high-frequency words, semantic network analysis can build a deeper network structure of materials based on the correlation between words. The semantic network map is composed of different nodes and directed lines. Nodes represent entities, such as scenic spots, activities, objects, etc., and lines represent semantic relationships between nodes<sup>[37]</sup>. According to the high-frequency words of tourists, ROST CM6 software was used to conduct semantic and social network analysis, and the tourists' comprehensive tourism image perception of Baiyun Mountain Scenic Area was excavated (Fig.1).

As shown in Fig.1, in the first part (the core area), there are three keywords "Baiyun Mountain Scenic Area", "ticket" and "cable car", indicating that these words have a high degree of centrality and are important network nodes, and together constitute the core image perception of the tourism image of Baiyun Mountain Scenic Area. Analysis of specific perception image analysis: ① the network nodes radiated from the "Baiyun Mountain Scenic Area" have the location perception of the scenic area "Yangcheng" and "Guangzhou", as well as the popular scenic spot Yuntai Garden; there are play items, transportation facilities, etc. in the scenic area. ② Scenic tour facilities, "cable car", "ropeway", "battery car" and "bungee jumping" are around the word "ticket". ③ The words radiated from the word "cable car" are "uphill", "south gate" and "downhill". These words show

the tourists' overall image of Baiyun Mountain Scenic Area, indicating that tourists pay more attention to the general situation, traffic, scenic spots, and entertainment projects of the scenic area. In the second part (the secondary core area), "Moxing Ridge", "scenic area", "Yuntai Garden" and other keywords appear, and these are indispensable content of tourists' tourism image perception, reflecting the attraction of tourism attractions in the scenic area to tourists. The third part (the peripheral area) is composed of "leisured", "scene", "charge", "electric car" and other words, and it is mainly the extension and enrichment of the core area and the supplement of the overall perception image of the core area and the embodiment of the edge image. Through these three parts, the semantic network map shows the overall image of the tourist destination more completely, and provides a basis for improving the tourist image and planning and publicity strategies of the scenic area.

### 3 Conclusions and suggestions

Based on online travel notes, Baiyun Mountain Scenic Area was taken as an example, the perception of tourism image of urban ecological scenic spots were studied, and the obtained conclusions are as follows. ① In terms of cognitive image, tourists' perception of the tourist attractions is unbalanced, indicating that the cultural history and culture of the scenic area are not well developed combining with the scenic spots. The perception of catering, entertainment, shopping, accommodation and other service

facilities is mostly negative, showing that the service reception facilities need to be improved. The perception of tourism atmosphere tends to be positive in general, but there are also some adverse effects caused by management loopholes. ② In terms of emotional image, tourists hold a positive attitude towards the overall evaluation of the scenic area, and these positive perceptions mostly come from the praise of natural landscape and scenic spots in the scenic area. The negative perception of tourists comes from the insufficiency of infrastructure, amusement facilities and service facilities, backward construction and management, and the lagging maintenance and management work inside the scenic area. ③ In terms of overall perception, the favorable rate accounts for 81%, and the overall perception image of tourists is basically concentrated in the three core words of "Baiyun Mountain Scenic Area", "ticket" and "cable car".

According to the conclusions and existing problems, suggestions for improvement are put forward as follows. ① It is needed to integrate and excavate tourism resources in the scenic area to improve the spatial balance of tourism spots in the scenic area. That is, it is necessary to integrate tourism resources, fully tap the cultural history of the scenic area, increase its cultural connotation and attraction, and create high-quality tourism spots. ② The construction of infrastructure and the maintenance of public environment should be strengthened, and the reception service level of the scenic area should be improved. That is, it is necessary to strengthen the infrastructure construction and environmental management and maintenance of the scenic area, form a sound supervision system, enhance the quality of tourists, improve road traffic, signage and other infrastructure, and enhance catering, shopping and other reception service level. ③ Recreational tourism products and the entertainment experience of the scenic area should be increased. It is needed to appropriately develop some interesting and ornamental entertainment projects based on the beautiful natural environment of the scenic area, such as setting up sightseeing photography areas, holding Baiyun Mountain greenway marathon, mountain biking cross-country races, etc. ④ Deepen the reform of the ticket sales system should be deepened, and the set ticket system and the separate ticket system should be combined. The ticket office at the gate of the scenic area should provide tourists with a variety of tickets, including a large ticket and set ticket of the entire scenic area. Ticket sales packages and

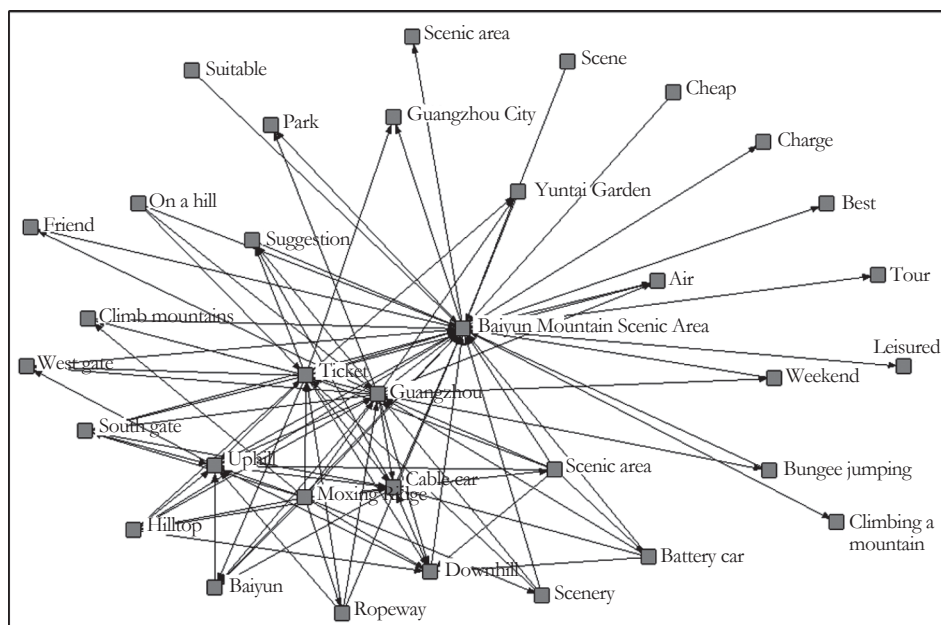


Fig.1 Semantic network and social network structure map of Baiyun Mountain Scenic Area

regulations should be clearly listed for tourists, and it accepts supervision and suggestions to increase transparency.

## References

- [1] Fakeye, P. C., Crompton, J. L. (1991). Image differences between prospective, first-time, and repeat visitors to the lower Rio Grande Valley. *Journal of Travel Research*, 30(2), 10-16.
- [2] Echtner, C. M., Ritchie, J. R. B. (1991). The meaning and measurement of destination image. *Journal of Tourism Studies*, 2(2), 2-12.
- [3] Tasci, A. D. A., Gartner, W. C. (2007). Destination image and its functional relationships. *Journal of Travel Research*, 45(4), 413-425.
- [4] Hunt, J. D. (1975). Image as a factor in tourism development. *Journal of Travel Research*, 13(3), 1-7.
- [5] Goodrich, J. N. (1977). A new approach to image analysis through multidimensional scaling. *Journal of Travel Research*, 16(3), 3-11.
- [6] Pearce, P. L. (1982). Perceived changes in holiday destinations. *Annals of Tourism Research*, 9(2), 145-164.
- [7] Phelps, A. (1986). Holiday destination image-The problems of assessment: An example developed in Menorca. *Tourism Management*, 7(3), 168-180.
- [8] Fakeye, P., Crompton, J. (1991). Image differences between prospective, first-time, and repeat visitors to the lower Rio Grande Valley. *Journal of Travel Research*, 29(2), 10-16.
- [9] Gartner, W. C. (1993). Image formation process. *Journal of Travel and Tourism Marketing*, 2(3), 191-215.
- [10] Echtner, C., Ritchie, J. R. B. (1993). The measurement of destination image: An empirical assessment. *Journal of Travel Research*, 31(4), 3-13.
- [11] Kotler, P., Barich, H. (1991). A framework for marketing image management. *Sloan Management Review*, 32(2), 94-104.
- [12] Sheth, J. N., Newman, B. I. & Gross, B. L. (1991). *Consumption values and market choices*. Cincinnati, OH: South-Western.
- [13] Andes, N. (1992). Social class and gender: An empirical evaluation of occupational stratification. *Gender & Society*, 6(2), 231-251.
- [14] Tideswell, C., Faulkner, B. (1999). Multidestination travel patterns of international visitors to Queensland. *Journal of Travel Research*, 37(4), 364-374.
- [15] Lue, C. C., Crompton, J. L. & Fesenmaier, D. R. (1993). Conceptualization of multi-destination pleasure trips. *Annals of Tourism Research*, 20(2), 289-301.
- [16] Guo, Y. Z. (2003). Summarize on the study results of tourism apperceiving image. *Economic Geography*, (2), 280-284.
- [17] Bao, J. G. (1996). *Research on tourism development: Principle, method and practice*. Beijing: Science Press.
- [18] Wu, B. H., Tang, J. Y. & Huang, A. M. (1997). A study on destination choice behavior of Chinese urban residents. *Acta Geographica Sinica*, (2), 97-103.
- [19] Chen, C. K., Wang, X. J. (1996). Image planning of fairy world and Taishan cultural tourism city. *Tourism Tribune*, (1), 48-52.
- [20] Gu, M. (2000). On the Positioning of Dalian's Urban Tourism Image and Overall Planning. *Tourism Tribune*, (5), 63-67.
- [21] Li, L. L. (1999). *Planning of Tourism Destination Image: Theory and Practice*. Guangzhou: Guangdong Tourism Press.
- [22] Wang, L., Liu, H. T. & Zhao, X. P. (1999). Research on connotation of tourist destination image. *Journal of Xi'an Jiaotong University: Social Sciences*, (1), 27-29.
- [23] Zhang, Z. Z., Li, J. Y. (2014). A comparative study on the data of a questionnaire and web texts in tourism image researches: A case study of Xi'an's tourism image perception. *Tourism Science*, (6), 73-81.
- [24] Xu, X. B., Zhao, L. & Liu, B. Y. et al. (2015). Study on perceived image of Chinese tourist cities. *Geographical Research*, (7), 1367-1379.
- [25] Yi, T. T. (2013). Image perception of tourism destination in Tibet through Internet communication: Based on the content analysis of tourist travel notes. *Consumer Economics*, (4), 84-88, 92.
- [26] Huo, H., Liang, Y. K. (2017). Research on image perception of tourism destination in Guangzhou based on online travel notes. *Social Sciences in Guangdong*, (6), 202-209.
- [27] Li, P., Chen, T. & Wang, F. Y. et al. (2017). Urban tourism community image perception and differentiation based on online comments: A case study of Beijing. *Geographical Research*, (6), 1106-1122.
- [28] Gao, J., Zhang, Y. G. & Zhuang, D. Q. (2009). A study on domestic tourists' perceived image of coastal tourism cities: Based on text analysis of online comments on Ctrip and Tongcheng. *Consumer Economics*, (3), 62-65.
- [29] Choi, S., Lehto, X. Y. & Morrison, A. M. (2007). Destination image representation on the web: Content analysis of Macau travel related website. *Tourism Management*, 28(1), 118-129.
- [30] Pi, R. Zheng, P. (2017). A research on Shaolin Temple's tourism cognitive image, affective image and overall image-Based on web text. *Journal of Arid Land Resources and Environment*, (4), 201-207.
- [31] Wang, Y. Xu, X. & Feng, X. G. et al. (2013). Research on tourists' perceived image of ancient town using web text mining methods: A Case Study of Zhujiajiao. *Tourism Science*, (5), 86-95.
- [32] Zhang, G. J., Li, J. Y. & Zhang, L. (2011). A research on tourism destination image perception of Huashan Scenic Spot: Based on text analysis of weblogs. *Tourism Science*, (4), 87-94.
- [33] Zhang, W. T., Luo, P. C. (2017). A comparative research on tourism destination image of tourists' perception and official dissemination based on network text: Taking Yongding Tulou in Fujian as the case. *Journal of Fujian Normal University: Natural Science Edition*, (1), 90-98.
- [34] Fu, Y. Q., Wang, X. J. & Zheng, X. M. (2012). Study on tourism image based on web text analysis: Case of Gulangyu. *Tourism Forum*, (4), 59-66.
- [35] Zhao, L., Wu, W. Z. & Li, J. et al. (2018). The formation mechanism of tourist loyalty in ecotourism scenic spots from the perspective of tourist perceived value: Evidence from Xixi National Wetland Park. *Acta Ecologica Sinica*, (19), 7135-7147.
- [36] Baloglu, S., McCleary, K. W. (1999). A model of destination image formation. *Annals of Tourism Research*, 26(4), 868-897.
- [37] Ba, Z. C., Yang, Z. J. & Zhu, S. W. et al. (2016). Research on the domain theme evolution analysis based on keywords semantic network. *Information Studies: Theory & Application*, (3), 67-72.

(Continued from P80)

- of Tadao Ando under humanistic perspective. *Anhui Architecture*, 19(5), 14-15.
- [10] Dai, Y. Q. (2015). *Emotional expression method of fair-faced concrete in architectural design* (Master's thesis). Retrieved from China National Knowledge Infrastructure.
- [11] Zhao, Y. H. (2018). Performance of fair-faced

- concrete in architectural design: A case study of design works of Tadao Ando. *China Housing Facilities*, (3), 80-82, 70.
- [12] Fang, Y. (2020). Detail structure and artistic expression of fair-faced concrete. *Concrete*, (12), 132-137.
- [13] Master Series Book Editing Department. (2005). *Tadao Ando's works and thoughts*. Beijing:

- China Electric Power Press.
- [14] Zhang, Q., Chen, H. (2018). Constructed of concrete poetics constructivism vision. *Chinese & Overseas Architecture*, (6), 174-177.
- [15] Christian, H. (2007). Development opportunities for fair-faced concrete in the precast industry. *Betonwerk und Fertigteil-Technik/Concrete Plant and Precast Technology*, (10), 4-11.