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Perception of Industrial Heritage Tourism Destination Image Based on Web Text Analysis: A Case Study of Beijing Shougang Park

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Abstract: With the transformation of China's economic structure, industrial heritage tourism has gradually become a new form of tourism. This paper uses Beijing Shougang Park as a case study. Utilizing Octopus software to collect reviews from Dazhong Dianping and Mafengwo, and employing ROST CM6 software, the paper analyzes tourists' image perceptions of Shougang Park based on the "Cognitive-Affective" model. The results indicate: Firstly,natural landscapes, cultural landscapes, and activity experiences are the basic cognitive images for tourists; Secondly, tourists generally have a positive emotional response to Shougang Park, with negative emotions primarily stemming from issues such as fees, holiday crowding, service attitude, and the park's large size; Thirdly, overall image perception mainly involves six aspects: tourism motivation, tourist attractions, tourism environment, tourism support system, tourism experience, and tourism evaluation. There is strong perception of natural and cultural landscapes, but weaker and more fragmented perception of historical culture. The study identifies problems in the scenic area and provides suggestions to offer effective practical guidance.

Keywords: Web text analysis, tourism destination image, industrial heritage tourism, "Cognitive-Affective" model

1. Introduction

The protection of industrial heritage has become a hot topic in recent years. Industrial heritage, essentially industrial cultural remnants, holds historical, technical, social, architectural, or scientific value [1]. By deeply exploring these factors and transforming them into attractions, industrial heritage tourism can develop, converting abandoned industrial sites through preservation and reuse into a new form of tourism where modern people can experience industrial culture and unique sightseeing and leisure functions [2]. This paper selects Shougang Park as a case study for analyzing the image perception of an industrial heritage tourism destination.

Since Hunt, Gunn, and Mayo introduced the concept of destination image into tourism research in the early 1970s [3], the study of tourism destinations has continuously garnered attention [4]. Baloglu and McCleary proposed the "Cognitive-Affective" model of tourism destination perception, which includes cognitive image, affective image, and perceptual image [5]. This paper adopts this model for analysis.

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In the context of big data, content analysis is a fundamental method for studying tourism destination images [6]. This study uses Octopus software to crawl tourist reviews and travel notes from Dazhong Dianping and Mafengwo platforms. After data processing, ROST CM6 software is used to perform word frequency, sentiment, and semantic network analysis based on the "Cognitive-Affective" model, thereby obtaining tourists' perceptions of the destination image and providing deeper insights into tourist needs, offering reference suggestions for further development of the park.

2. Overview of the Study Area

Shougang Park is located in Shijingshan District, Beijing. Its predecessor, Shijingshan Steel Plant, is not only one of the largest steel industrial heritages in China but also the only large-scale industrial area renewal project in the core area of a mega-city [7], serving as a new urban revitalization landmark. According to the latest city master plan of Beijing, Shougang Park is assigned multiple important roles: it is a benchmark for the transition of traditional industry to green development, a source of high-end industrial innovation in the western region of Beijing, and a convergence point for post-industrial culture and sports innovation.

3. Data Sources and Research Methods

3.1. Data Sources

By searching for "Shougang Park" in the Dazhong Dianping search box, 2310 reviews were found, and by searching for "Shougang Industrial Heritage Park" in the Mafengwo search box, 29 travel notes were obtained, totaling 2339 entries with a total word count of 234357. Data screening followed the principles of relevance, validity, and timeliness [8], selecting online reviews about Shougang Park from January 31, 2023, to January 31, 2024. After removing 231 invalid reviews, 2108 valid reviews were obtained.

3.2. Research Methods

Content analysis is a research method that converts qualitative content into quantitative data [9]. This paper uses ROST CM6 software to mine online texts about Shougang Park. After processing the textual content and then performing word segmentation, high-frequency vocabulary analysis is conducted based on the segmentation results. Subsequently, sentiment analysis, social semantic network analysis, and tourism image perception analysis are carried out.

4. Online Review Text Analysis

4.1. High-Frequency Vocabulary Analysis

Tourists' travel experiences begin with the cognitive image of the destination. From the ROST CM6 software, the top 100 high-frequency words are selected (Table 1). The parts of speech are mainly nouns, adjectives, and verbs, with nouns accounting for 56%, adjectives 23%, and verbs 21%. Nouns reflect tourists' attention to tourism objects, locations, festival activities, tourism subjects, and tourism times; adjectives indicate tourists' experiences and evaluations of the scenic area, resulting from feelings and perceptions, showing that tourists generally hold a positive attitude. However, summary words such as interesting, happy, and worthwhile rank relatively low, reflecting fewer tourist insights and relatively low travel experiences at Shougang Park [10]; verbs mainly relate to ways of playing and transportation methods.

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Table 1: High-frequency Vocabulary List of Shougang Park

High-frequency Word	Word Frequency	High-frequency Word	Word Frequency	High-frequency Word	Word Frequency	High-frequency Word	Word Frequency
Shougang	3594	cultural	224	blast furnace	165	facility	121
child	546	historical	223	coffee	161	happy	116
Beijing	539	weekend	220	cycle	160	view from afar	113
Big Jump Platform	524	LiuGongHui	218	temple fair	158	all have	111
stroll	498	wander	217	artistic	153	fairly good	109
Winter Olympics	456	convenient	209	pet	153	scenic spot	109
vast	414	Qunming Lake	206	self-driving car	151	time	107
check-in	405	industrial style	204	visit	150	subway	106
area	402	night	200	Xiuchi Pond	149	choose	105
industry	381	play	197	eat	145	worthwhile	103
suitable	347	surroundings	196	first time	145	entertainment	102
take photos	338	Spring Festival	195	hotel	144	China	101
beautiful	315	feel	195	lighting	144	drive	101
delicacy	314	industrial heritage	194	photogenic	142	recall	99
scenery	313	modern	192	interesting	142	hold	98
No.3 Blast Furnace	297	elevated walkway	191	factory area	142	store	98
experience	278	shopping mall	190	free	139	spectacular	93
park	269	weather	186	tourist	138	region	93
Shijingshan	267	parking lot	183	open	132	develop	92
architecture	262	various	180	distinctive	129	New Shougang Bridge	88
renovate	256	winter	180	amazing	127	ticket	87
restaurant	247	cost	171	friend	127	Starbucks	86
steel	246	excellent	169	internet celebrity	127	entirety	86
less crowded	230	environment	168	project	121	lake	84

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Table 1: (continued)

park	228	leisure	167	cross the new year	121	creative	82

4.2. Tourist Sentiment Analysis

Sentiment analysis focuses on analyzing online review texts to determine whether the expressed sentiment is positive, negative, or neutral [11]. Using the sentiment analysis feature of ROST CM6, the study finds that tourists generally have a favorable emotional attitude towards Shougang Park, with positive sentiments accounting for 82.07%, among which highly positive sentiments reach 39.04%. Neutral sentiments account for 5.69%, and negative sentiments account for 12.24%. Words like "not bad," "pretty good," and "worth it" indicate high satisfaction among tourists. Conversely, when tourists are dissatisfied, they frequently use words like "mediocre" and "disappointing"[12]. However, the proportion of negative sentiments being higher than neutral sentiments indicates significant shortcomings in the park that need urgent improvement. The appearance of the word "suggest" further supports this observation.

Regarding product pricing, issues such as parking fees, park tickets, and in-park consumption prices are prominent. In terms of the park environment, its large area increases visitor fatigue. Crowding also negatively impacts visitor experience; although weekdays and weekends are usually less crowded, holidays see heavy crowds that severely affect visitor experiences and cause parking shortages. In terms of park services, the lack of a comprehensive guide system means visitors cannot receive timely help. Many tourists also mention "security" attitude problems, highlighting that service personnel's attitudes directly affect visitors' overall impression and experience of the park.

4.3. Social Semantic Network Analysis

The social semantic network is a single-centered structure with "Shougang" as the central node, demonstrating the diversity and complexity centered around Shougang as the activity and cognitive center. The social semantic network map shows that Shougang's spatial design features diversity and inclusiveness. The "Shougang—children—suitable" combination indicates that Shougang, once an old steel industrial area, has transformed into a child-friendly space after extensive renovation and development. The "Shougang—friends" combination shows that Shougang Park aims to transition from historical to youthful, creating a rich social environment for people with different interests. The "Shougang—check-in—Internet-famous" combination demonstrates Shougang Park's integration of "technology," "culture," and "modern" elements, making it a lasting attraction in the internet celebrity realm. The "Shougang—stroll—Beijing" combination reflects the concept of "micro-vacation," promoting short trips to nearby destinations over weekends or multiple holidays for easy and joyful travel, boosting tourism in western Beijing. The "Shougang—Winter Olympics—big air—check-in" combination highlights a classic check-in spot based on special themes and events. Despite the end of the Winter Olympics, the big air remains open to the public, allowing visitors to experience the Winter Olympics culture closely, extending the influence of the Winter Olympics heritage.

4.4. Tourism Image Perception

Tourists' overall image perception consists of cognitive and affective images of the destination [13]. This study evaluates tourism image perception mainly from six aspects: tourism motivation, tourist attractions, tourism environment, tourism support system, tourism experience, and tourism evaluation, further subdividing into 11 subcategories (Table 2).

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Table 2: High-frequency Words Categorized by Main and Sub-categories in Tourism

Main Category	Sub-category	High-frequency Words
Travel Motivation	Travel Motivation	Winter Olympics, Industrial Heritage, Culture, History, Modern, Art, Internet Celebrity, Check-in, Memories, Children, Friends
Tourist Attractions	Natural Scenery	Beautiful, Lakes, Scenery, Scenic Spots
	Cultural Landscape	Big Air Ramp, Three High Furnaces, Architecture, New Shougang Bridge, Lighting, Skywalk, Starbucks, Spectacular, Shocking, Creative, Renovation
	Activity Experience	Photographing, Strolling, Walking, Cycling, Coffee, Visiting, Driverless Cars, Temple Fairs, Hosting, Projects, Distant Viewing
Tourism Environment	Weather	Weather, Wind, Winter, Sunbathing, Spring, Too Sunny
	Location Environment	Beijing, Shijingshan District, Surrounding Area, Area, Vast, Factory Area
	Ecological Environment	Parks, Environment, Qunming Lake
Tourism Support System	Tourism Services	Dining, Gourmet, Hotels, Facilities, Entertainment, Recreation, Shopping Malls, Liu Gong Hui, Shops, Fees, Parking Lots, Tickets, Free, Available
	Infrastructure	Subway, Driving, Development, Time, Convenience
Tourism Experience	Tourism Experience	Leisure, Interesting, Happy, Experience
Tourism Evaluation	Tourism Evaluation	Acceptable, Worthwhile, Few People, Selection

In terms of tourism motivation, based on Shougang Park's core "industrial" characteristics, creative transformation and innovative development have made it a famous industrial heritage tourism site combining history and modernity, technology and art. Thus, tourists' motivations revolve around social sharing for internet fame, nostalgia, and the pursuit of individuality through diverse elements. Regarding tourist attractions, natural landscapes' boundless beauty, combined with the grandeur of cultural landscapes, lays a solid foundation for various activities, greatly attracting tourists. As for the tourism environment, both the locational and ecological environments are stable, while weather factors vary. For instance, in winter, tourists enjoy ice and snow activities at Shougang Park, while in summer, they might feel tired and hot, and in spring, the sunny, leisurely feeling peaks. Regarding tourism experience, Shougang Park offers complete elements of eating, lodging, transportation, touring, shopping, and entertainment, each with unique characteristics. For example, McDonald's, Starbucks, and the Shangri-La Hotel within the park adapt to the local industrial style, creating the most industrial-themed Winter Olympics Park in Beijing. In terms of tourism evaluation, it reflects tourists' satisfaction and willingness to revisit. When tourists rate "pretty good," it indicates moderate satisfaction with the destination, services, or activities, though not very high. Positive evaluations like "worth it" show that tourists had a pleasant and memorable experience. Additionally, the word "choose" suggests that they may consider revisiting the destination in the future.

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5. Conclusion and Recommendations

5.1. Conclusion

The main conclusions of this study are as follows:

Cognitive Focus of Visitors: Visitors primarily focus on the captivating natural scenery, unique industrial landscape, and diverse activity experiences offered by Shougang Park.

Emotional Response of Visitors: Visitors have an overall positive emotional response towards Shougang Park. Negative emotions mainly arise from high product prices, unreasonable fee structures, incomplete guiding systems, large holiday crowds leading to congestion, difficulty in finding parking spaces, and subpar service attitudes from some staff members.

Perception of Tourism Image: Visitors' perception of Shougang Park's tourism image is relatively superficial, with a weak understanding of its historical and cultural significance. This is evident in their limited knowledge of the historical stories and cultural meanings behind the buildings, and a lack of comprehension regarding the role of Shougang Park as industrial heritage in urban revitalization during the post-industrial era.

5.2. Recommendations

(1) Tourist Attractions:

Conduct market research to analyze visitor needs and upgrade less competitive attractions based on the findings. Introduce related activities or use these sites as venues for events to enhance their popularity. Currently, the visitor base of Shougang Park is mainly local. To attract tourists from across the country and expand the visitor market, Shougang Park can host various large-scale events such as conferences, exhibitions, competitions, and music festivals.

(2) Pricing:

Reevaluate all charging items within the park. Adjust prices based on a comparison with similar parks, considering both market demand and cost changes, to avoid high pricing with low cost-effectiveness. Offer diverse ticket packages and increase discounts for niche attractions to provide more options for visitors.

(3) Guiding System:

Optimize guide signs by placing conspicuous guideposts and direction signs at key points within the park, clearly indicating the direction and distance to various attractions. Upgrade the mobile app to provide real-time visitor location tracking and suggest the best routes to reach different attractions. To deepen visitors' understanding of Shougang Park's history and culture, leverage "technology+" to explore the rich historical and cultural resources of Shougang Park over the past century. Establish a detailed knowledge base and create digital virtual characters to serve as tour guides.

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