Analyzing Tourist Perception of Heritage Destinations Using Semantic Network and Sentiment Analysis

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Abstract. Using user-generated online reviews, this study examines tourists' cognitive and affective perceptions of Shawan Ancient Town, a representative Lingnan heritage destination in southern China. Based on 3,407 reviews collected from major Chinese travel and social media platforms between 2022 and 2025, the analysis integrates word frequency analysis, semantic network analysis, and sentiment analysis. The results show that tourists' perceptions are centered on cultural–historical attributes, with heritage architecture and cultural atmosphere forming the cognitive core, while experiential and consumption-related elements are closely interconnected. Overall emotional evaluations are predominantly positive, whereas negative sentiments mainly relate to commercialization intensity, pricing, crowding, and management issues. By combining perception structure analysis with affective evaluation, this study extends heritage tourism research to Lingnan ancient towns and provides practical insights for balancing cultural preservation and tourism development.

Keywords: Tourist perception; Heritage tourism; Lingnan ancient towns; Text mining; Sentiment analysis

1 Introduction

In recent years, cultural tourism has emerged as a prominent segment of the global tourism market, driven by tourists' increasing demand for authentic cultural experiences and heritage-based destinations. Ancient towns, as important carriers of historical memory, architectural heritage, and local cultural traditions, have become key attractions within cultural tourism systems. In China, ancient towns are widely distributed across different regions and cultural zones, each reflecting distinctive regional characteristics shaped by geography, history, and socio-cultural evolution. However, rapid tourism development has also brought mounting challenges, including excessive commercialization, cultural homogenization, and declining experiential authenticity, which may undermine tourists' overall perceptions and long-term destination competitiveness.

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Tourist perception plays a central role in destination evaluation and tourism decision-making. It reflects tourists' cognitive and affective responses formed through direct interaction with destination environments, cultural elements, facilities, and services. Existing studies have consistently demonstrated that positive tourist perceptions are closely associated with higher satisfaction, stronger behavioral intentions, and enhanced destination loyalty, whereas negative perceptions may generate dissatisfaction, discourage revisit intentions, and damage destination image. For heritage destinations such as ancient towns, tourist perception is particularly critical, as it mediates the relationship between cultural preservation efforts and tourism development outcomes. Understanding how tourists perceive cultural authenticity, historical atmosphere, service quality, and commercialization intensity is therefore essential for achieving a balanced and sustainable development trajectory.

With the widespread diffusion of digital platforms and social media, tourists increasingly share their travel experiences, emotions, and evaluations online. User-generated content (UGC), including online reviews, travel notes, and social media posts, provides a rich and spontaneous source of data that reflects tourists' perceptions and emotional responses. Compared with traditional survey-based methods, web-based text analysis enables researchers to capture large-scale, real-time, and experience-driven perceptions without the constraints of questionnaire design and response bias. Consequently, text mining and sentiment analysis have been widely adopted in tourism research to explore destination image, tourist satisfaction, and experiential dimensions from a bottom-up perspective.

Despite the growing body of literature on tourist perception and destination image based on online textual data, several research gaps remain. First, existing studies have predominantly focused on well-known ancient towns in the Jiangnan region, while relatively limited attention has been paid to Lingnan ancient towns in southern China, which possess distinctive architectural styles, folk customs, and cultural traditions. This regional imbalance constrains a comprehensive understanding of cultural heritage tourism in China. Second, many prior studies emphasize overall destination image or satisfaction levels, but fewer investigations systematically examine the internal structure of tourist perception by integrating both cognitive attributes and affective evaluations. Third, although sentiment analysis has been increasingly applied in tourism studies, its combination with semantic and perception-structure analysis remains insufficient, particularly in the context of heritage destinations facing commercialization pressures.

To address these gaps, this study takes Shawan Ancient Town in Guangzhou as a case study and employs web-based text mining methods to investigate tourists' perceptions of Lingnan ancient towns. Drawing on online reviews collected from multiple platforms, this research integrates high-frequency word analysis, semantic network analysis, and sentiment analysis to reveal the key perception dimensions and emotional tendencies of tourists. By doing so, the study aims to answer the following questions: (1) What are the core perception elements that shape tourists' evaluations of Shawan Ancient Town? (2) How are these perception elements structurally related in tourists' narratives? (3) What are the dominant emotional tendencies expressed by tourists, and which issues are most closely associated with negative perceptions?

This study makes several contributions to the existing literature. First, it enriches heritage tourism and tourist perception research by focusing on Lingnan ancient towns, thereby extending empirical evidence beyond the commonly studied Jiangnan context. Second, methodologically, it adopts an integrated analytical framework that combines perception structure analysis with sentiment analysis, offering a more comprehensive understanding of tourists' cognitive and affective responses. Third, from a practical perspective, the findings provide evidence-based insights for destination managers and policymakers seeking to balance cultural preservation, tourism development, and visitor experience enhancement in ancient town destinations.

2 Literature Review and Theoretical Framework

2.1 Tourist Perception in Cultural and Heritage Tourism

Tourist perception has long been regarded as a core concept in tourism studies, originating from psychological theories of perception and cognition (Skavronskaya et al., 2017[1]). In the tourism context, tourist perception refers to tourists' subjective evaluations formed through their interaction with destination attributes, including physical environments, cultural elements, service quality, and experiential settings. These perceptions are shaped by tourists' prior expectations, on-site experiences, and post-visit reflections, and they play a decisive role in satisfaction formation and behavioral intentions.

In heritage and cultural tourism, tourist perception assumes particular importance. Unlike mass tourism destinations, heritage sites and ancient towns rely heavily on cultural authenticity, historical atmosphere, and symbolic meaning to attract visitors (McKercher and Ho, 2023[2]). Previous studies suggest that tourists' perceptions of cultural value, architectural integrity, and local traditions significantly influence their overall evaluation of heritage destinations. When perceived authenticity aligns with tourists' expectations, destinations are more likely to generate positive emotional responses and stronger attachment; conversely, excessive commercialization or cultural dilution often leads to negative perceptions and dissatisfaction (Jeon et al., 2016[3]; Weng et al., 2020[4]).

Empirical research on tourist perception has explored multiple dimensions, such as destination image, perceived value, service quality, and experiential satisfaction (Fakfare and Wattanacharoensil, 2023[5]; Yin et al., 2024[6]). However, many studies treat tourist perception as a relatively homogeneous construct, focusing primarily on aggregate satisfaction or overall image. This approach may overlook the internal structure of perception, particularly the interaction between cognitive evaluations (e.g., historical significance, facilities, environment) and affective responses (e.g., pleasure, disappointment, nostalgia), which is especially salient in heritage tourism contexts.

2.2 Web-Based Text Analysis in Tourism Research

With the rapid development of digital technologies and social media platforms, user-generated content (UGC) has become a major data source for tourism research. Online

reviews, travel blogs, and social media posts capture tourists' spontaneous expressions of experiences, opinions, and emotions, offering valuable insights into how destinations are perceived in real-world contexts. Compared with traditional survey-based methods, web-based text analysis allows researchers to access large-scale, naturally occurring data that are less constrained by questionnaire design and respondent bias.

Text mining techniques, including word frequency analysis, semantic network analysis, and topic modeling, have been widely applied to examine destination image, tourist satisfaction, and experiential attributes. In recent years, sentiment analysis has further enriched tourism research by enabling the quantitative assessment of tourists' emotional tendencies embedded in textual narratives. These methods facilitate a more nuanced understanding of both what tourists talk about and how they feel about destinations.

In the context of heritage and ancient town tourism, web-based text analysis has proven particularly useful for identifying tourists' concerns regarding authenticity, commercialization, and service quality (Bi et al., 2024[7]). Nevertheless, existing studies often apply a single analytical technique or focus on descriptive outcomes, such as positive–negative sentiment ratios, without systematically linking perception content to emotional evaluation. As a result, the potential of integrated text analysis frameworks to uncover the structural relationship between perception elements and emotional responses remains underexploited.

2.3 Cognitive–Affective System Theory as an Analytical Lens

To better capture the complexity of tourist perception, this study adopts Cognitive–Affective System Theory as its theoretical foundation. The cognitive–affective perspective posits that individuals' responses to external environments are generated through the interaction between cognitive appraisals and affective reactions. Cognition involves individuals' interpretation and evaluation of environmental stimuli, while affect refers to the emotional responses elicited by these cognitive processes (Zheng et al., 2023[8]).

In tourism settings, tourists first cognitively evaluate destination attributes—such as cultural significance, architectural style, accessibility, and service quality—based on their experiences and expectations. These evaluations subsequently trigger affective responses, including enjoyment, admiration, disappointment, or frustration. Cognitive and affective components are not independent; rather, they interact dynamically to shape overall perception and post-visit evaluation.

Applying this theoretical framework to heritage tourism allows for a more structured interpretation of tourists' online narratives. High-frequency words and semantic networks primarily reflect tourists' cognitive focus, revealing which destination attributes are most salient in their perceptions. Sentiment analysis, in turn, captures affective responses associated with these attributes. By integrating cognitive structure analysis with emotional evaluation, researchers can gain a more comprehensive understanding of how tourists perceive and emotionally respond to heritage destinations.

2.4 Analytical Framework of the Study

Based on the above literature and theoretical considerations, this study constructs an integrated analytical framework to examine tourists' perceptions of Shawan Ancient Town. First, word frequency and semantic network analyses are employed to identify the core cognitive elements and perception structure reflected in tourists' online reviews. Second, sentiment analysis is conducted to assess tourists' emotional tendencies and to distinguish between positive, neutral, and negative evaluations. Finally, the cognitive and affective findings are jointly interpreted to reveal key issues influencing tourists' overall perceptions and emotional experiences.

By embedding web-based text analysis within a cognitive–affective theoretical framework, this study moves beyond descriptive sentiment measurement and contributes to a deeper understanding of tourist perception formation in heritage destinations. This integrated approach provides a solid theoretical and methodological foundation for subsequent empirical analysis and discussion.

3 Data and Methodology

3.1 Study Area

This study selects Shawan Ancient Town, located in Panyu District, Guangzhou, China, as the empirical case. With a history of more than 800 years, Shawan Ancient Town is a representative Lingnan (Cantonese) cultural heritage site characterized by traditional architecture, ancestral halls, folk customs, and rich intangible cultural heritage. It has been officially recognized as a National Historical and Cultural Town and is one of the most well-preserved ancient towns in southern China.

In recent years, Shawan Ancient Town has experienced rapid tourism development driven by cultural heritage promotion and urban leisure demand. Alongside the growth in visitor numbers and tourism revenue, issues related to commercialization, visitor management, and service quality have gradually emerged. These features make Shawan Ancient Town an appropriate and representative case for examining tourist perception and emotional responses in the context of heritage tourism development.

3.2 Data Sources and Collection

Tourist perception data were collected from multiple major Chinese online platforms that host large volumes of user-generated travel content. To ensure data diversity and representativeness, this study draws on four widely used platforms: Ctrip, Dianping, Xiaohongshu, and Douyin. These platforms differ in user demographics and content formats, including structured reviews, experiential narratives, and short-form comments, thereby capturing heterogeneous tourist perspectives.

Using Python-based web crawling techniques, textual reviews containing the keyword "Shawan Ancient Town" were collected for the period from January 2022 to January 2025. After removing duplicated records, advertisements, and irrelevant entries, a total of 3,407 valid tourist reviews were retained for analysis. The use of multi-platform

data helps mitigate platform-specific bias and enhances the robustness of the empirical analysis.

3.3 Data Preprocessing

To ensure the reliability and accuracy of subsequent text analysis, a standardized preprocessing procedure was applied. First, irrelevant symbols, advertising content, and meaningless entries (e.g., empty reviews) were removed. Second, all texts were converted into simplified Chinese to maintain linguistic consistency across platforms. Third, emojis and special characters were transformed into corresponding textual expressions to preserve emotional information relevant for later analysis.

Chinese word segmentation was conducted using the Jieba segmentation tool, supplemented by a customized tourism-related dictionary. A stop-word list was applied to eliminate high-frequency but semantically insignificant terms. The cleaned and segmented texts were stored in structured text format and served as the final corpus for analysis. These preprocessing steps ensured that the dataset was suitable for subsequent textual and sentiment analyses.

3.4 Analytical Methods

3.4.1 Textual Analysis of Tourist Perception.

To explore the core elements of tourist perception, this study employs text mining technology to identify significant keywords and perception-related attributes embedded in online reviews. Firstly, the original review texts are preprocessed: duplicate entries are deleted, and non-Chinese characters and punctuation marks are filtered out to enhance the recognition rate of domain-specific terms. Subsequently, the importance of terms in the entire corpus is calculated and ranked, and high-frequency words are selected as candidate perception indicators. Their association patterns in the context are investigated through co-occurrence analysis. This procedure can effectively extract the key themes emphasized by tourists when describing their experiences, thus providing insights into the cognitive dimensions of their perception without presupposing a survey structure.

3.4.2 Semantic Relationship Analysis.

Based on the identification of individual perceptual elements, this study further analyzes and extracts the relationships between keywords to reveal the structural organization of tourist perceptions. A semantic co-occurrence network is constructed based on the co-occurrence frequency of word pairs, and it is visualized and analyzed. Core perceptual attributes are identified through centrality indicators, and thematic groupings are explained based on keyword clustering. This method captures the inherent connections between different perceptual attributes in tourists' narratives, helps identify core themes and their interdependencies, and further facilitates a more systematic understanding of the internal structure of tourist perceptions in tourist destinations.

3.4.3 Sentiment Analysis.

To assess tourists' emotional reactions, this study conducted sentiment analysis on the text corpus. Each comment was categorized based on its sentiment polarity to distinguish between positive, neutral, and negative evaluations. This method effectively captured tourists' emotional tendencies and complemented the cognitive insights obtained from text and semantic analysis. By combining sentiment analysis with perception-oriented methods, this study adopted a comprehensive cognitive-emotional perspective.

3.5 Research Design and Analytical Framework

By integrating the aforementioned methods, this study constructs a cognitive-affective analysis framework to examine tourists' perceptions of Shawan Ancient Town. Text and semantic analysis are utilized to reveal the cognitive components of perception, while affective analysis captures tourists' emotional evaluations. This comprehensive framework enables systematic exploration, based on online narratives, of how tourists perceive, interpret, and emotionally respond to their tourist destinations.

4 Results

4.1 Core Elements of Tourist Perception

Based on the cleaned textual corpus, word frequency analysis was conducted to identify the most salient perception elements emphasized by tourists in their online reviews (Table 1). High-frequency words reflect the attributes and experiences that tourists most frequently mention, thereby providing insight into the cognitive focus of tourist perception.

Table 1. High-Frequency Vocabulary List of Tourists' Perception in Shawan Ancient Town

Serial number	Vocabulary	Word Frequency	Serial number	Vocabulary	Word Frequency
1	Ancient Town	2010	21	Antique	181
2	Shawan	1300	22	Panyu	180
3	History	410	23	Ancient Architecture	173
4	Place	403	24	Recommend	160
5	Not Bad	350	25	Delicious	159
6	Feature	339	26	Double-layer Milk Custard	155
7	Culture	324	27	Weekend	155
8	Ticket	309	28	Retain	150
9	Guangzhou	300	29	Ancestral Hall	147
10	Building	280	30	Taste	146
11	Worth	274	31	Charge	135

Serial number	Vocabulary	Word Frequency	Serial number	Vocabulary	Word Frequency
12	Take Photo	270	32	Business	128
13	Lingnan	269	33	Play	121
14	Attraction	268	34	feel	114
15	Feeling	228	35	Good-looking	110
16	Really	200	36	A Lot of	110
17	Delicacy	200	37	Experience	103
18	Street Food	189	38	Visit	103
19	Suitable	188	39	Parking lot	98
20	Stroll Around	187	40	Nothing.	92

The results indicate that tourists' perceptions of Shawan Ancient Town are strongly centered on its identity as an ancient town and its cultural–historical attributes. Words related to ancient town, history, culture, architecture, and Lingnan characteristics appear with notably high frequencies, suggesting that historical atmosphere and cultural authenticity constitute the core attraction of the destination. In addition, experience-related terms such as visiting, strolling, and photography frequently occur, indicating that tourists perceive Shawan Ancient Town as a leisure-oriented destination suitable for casual exploration and experiential consumption.

Food-related words also emerge as prominent perception elements. References to local snacks and traditional desserts suggest that culinary experiences play a meaningful role in shaping tourists' overall impressions. Together, these findings reveal that tourist perception of Shawan Ancient Town is structured around three primary cognitive dimensions: cultural–historical resources, experiential and leisure activities, and supporting consumption elements. Figure 1 presents a word cloud visualizing the dominant perception elements expressed by tourists, with font size reflecting relative word frequency.

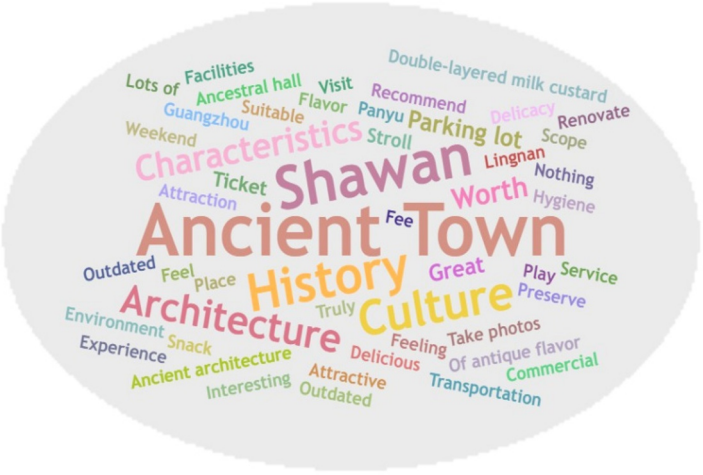

Fig. 1. Word Cloud of Tourist Perception in Shawan Ancient Town

4.2 Semantic Structure of Tourist Perception

To further explore the internal structure of tourist perception, semantic network analysis was conducted based on keyword co-occurrence relationships. This approach reveals not only which perception elements are salient, but also how these elements are cognitively connected in tourists' narratives.

The semantic network shows a clear core–periphery structure. Central nodes such as Shawan, ancient town, culture, history, and ancient architecture occupy dominant positions within the network and exhibit strong connections with multiple secondary nodes. This pattern suggests that tourists' perceptions are organized around a stable cultural–historical core, with other experiential elements radiating outward.

Several thematic clusters can be identified within the network. A cultural heritage cluster links historical buildings, ancestral halls, and traditional customs, reflecting tourists' emphasis on cultural authenticity and heritage value. A tourism experience cluster connects words related to sightseeing, photography, and leisure activities, highlighting the experiential dimension of the visit. In addition, a food and consumption cluster emerges around local cuisine, indicating that gastronomic experiences are cognitively associated with overall destination perception.

These interconnected clusters illustrate that tourist perception of Shawan Ancient Town is not fragmented but forms an integrated cognitive structure in which cultural meaning, experiential enjoyment, and consumption activities are closely intertwined. Figure 2 illustrates the semantic network of tourist perception, highlighting core nodes and thematic clusters.

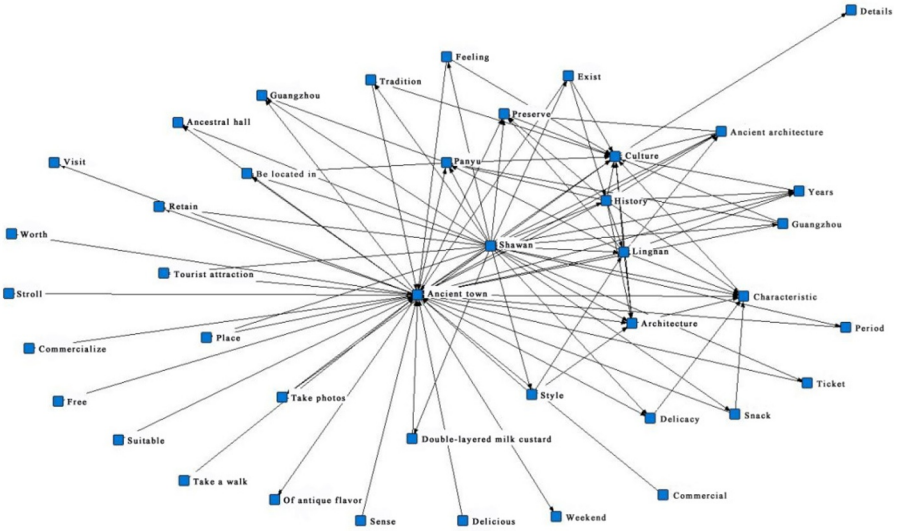

Fig. 2. Semantic Network of Tourist Perception

4.3 Sentiment Distribution of Tourist Reviews

To capture tourists' affective responses, sentiment analysis was applied to classify online reviews according to emotional polarity and intensity. The results reveal that overall emotional evaluations of Shawan Ancient Town are predominantly positive, although negative sentiments are also present and warrant attention.

Positive sentiment accounts for the largest proportion of reviews, indicating that most tourists express favorable emotions toward their experiences. These positive evaluations are commonly associated with appreciation of historical atmosphere, architectural style, cultural heritage, and local food. Neutral sentiment constitutes a substantial share, reflecting descriptive or emotionally moderate evaluations in which tourists report their experiences without strong affective judgment.

Negative sentiment, although less prevalent, highlights specific issues that detract from tourist experience. Reviews expressing negative emotions frequently mention concerns related to commercialization, pricing of facilities, crowding, transportation convenience, and environmental management. These affective responses suggest that while the core cultural appeal of Shawan Ancient Town remains strong, deficiencies in management and service provision can generate dissatisfaction. Table 2 summarizes the classification of tourist sentiment, including the distribution of positive, neutral, and negative emotions and their respective intensity levels.

Table 2. Classification of Tourist Sentiment

Emotion Classification	Ratio	Intensity	Ratio
Positive Emotions	56.08%	Generally (0—10)	28.09%
		Moderate (10—20)	15.35%
		Height (20 and above)	12.63%
Negative Emotions	14.98%	Generally (10—0)	11.63%
		Moderate (20—-10)	2.28%
		Height (Below 20)	0.31%
Neutral Emotion	28.95%		

4.4 Summary of Key Findings

Taken together, the results demonstrate that tourist perception of Shawan Ancient Town is characterized by a strong cultural–historical cognitive core accompanied by generally positive emotional evaluations. However, the presence of negative sentiment linked to commercialization pressure and management issues indicates potential risks to destination image and visitor satisfaction if these challenges are not adequately addressed.

The combined analysis of perception content, semantic structure, and emotional tendencies provides a comprehensive understanding of how tourists cognitively interpret and emotionally evaluate a Lingnan ancient town. These findings lay the empirical

foundation for the subsequent discussion of theoretical implications and management strategies.

5 Discussion and Implications

5.1 Discussion of Key Findings

This study provides empirical evidence on tourist perception of a Lingnan ancient town by integrating text mining and sentiment analysis of online reviews. Several important findings emerge from the results.

First, the findings confirm that cultural–historical attributes constitute the cognitive core of tourist perception in Shawan Ancient Town. High-frequency words and semantic network structures consistently highlight elements such as history, traditional architecture, and Lingnan cultural characteristics. This result aligns with prior heritage tourism studies emphasizing the central role of cultural authenticity and historical atmosphere in shaping destination image. However, compared with research focusing on Jiangnan ancient towns, where aesthetic scenery and commercial leisure functions often dominate perception narratives, tourists' discourse in Shawan Ancient Town places stronger emphasis on cultural symbolism and everyday cultural practices, reflecting the distinctive cultural logic of Lingnan heritage destinations.

Second, the semantic network analysis reveals that tourist perception is structurally integrated rather than fragmented. Cultural heritage, experiential activities, and consumption-related elements are cognitively interconnected within tourists' narratives. This finding extends existing literature that often treats tourist perception dimensions in isolation. It suggests that tourists do not evaluate cultural heritage sites solely based on static attributes, but rather through an experiential system in which culture, leisure, and consumption mutually reinforce or weaken overall perception. Such structural integration highlights the importance of holistic destination management strategies that consider the interaction between heritage preservation and visitor experience design.

Third, sentiment analysis indicates that overall emotional evaluation of Shawan Ancient Town is predominantly positive, confirming the destination's strong cultural appeal and experiential value. Nevertheless, the presence of negative sentiment related to commercialization, pricing, crowding, and management issues signals emerging tensions between tourism development and visitor satisfaction. This pattern echoes concerns raised in heritage tourism literature regarding the risk of over-commercialization eroding perceived authenticity. Importantly, negative emotions in this study are not directed at cultural heritage itself, but rather at management and service-related factors, suggesting that dissatisfaction is contingent and potentially reversible through targeted interventions.

Together, these findings respond directly to the research gaps identified in the literature. By focusing on a Lingnan ancient town and integrating cognitive structure analysis with affective evaluation, this study demonstrates that regional context matters in shaping tourist perception, and that emotional responses cannot be fully understood without considering the underlying perception structure.

5.2 Theoretical Implications

This study contributes to the tourism and heritage literature in several ways.

First, it enriches tourist perception research by extending empirical evidence to Lingnan ancient towns, a context that has been underrepresented in existing studies dominated by Jiangnan cases. The findings suggest that regional cultural characteristics influence not only perception content but also perception structure, thereby underscoring the need for more geographically diverse case studies in heritage tourism research.

Second, this study advances methodological approaches by adopting an integrated cognitive–affective analytical framework. By combining word frequency analysis, semantic network analysis, and sentiment analysis, the research moves beyond descriptive destination image studies and offers a more comprehensive understanding of how tourists cognitively interpret and emotionally evaluate heritage destinations. This integrated approach demonstrates the analytical potential of web-based text data for uncovering both perception structure and emotional tendencies.

Third, the findings provide empirical support for cognitive–affective system theory in tourism contexts. The results illustrate how cognitive evaluations of cultural attributes are closely linked to affective responses expressed in online narratives. This reinforces the theoretical proposition that tourist perception emerges from dynamic interactions between cognition and emotion, rather than from isolated evaluative processes.

5.3 Practical and Managerial Implications

From a practical perspective, the findings offer several implications for heritage destination management and policy-making.

First, destination managers should prioritize cultural authenticity and heritage integrity as the foundation of tourism development. Given that cultural–historical attributes form the cognitive core of tourist perception, excessive commercialization that undermines traditional architectural styles or local cultural expressions may weaken destination appeal. Management strategies should therefore emphasize context-sensitive commercial planning that aligns with local cultural identity.

Second, the results highlight the need for experience-oriented management. Since tourists perceive cultural heritage, leisure activities, and consumption as an integrated system, improving visitor experience requires coordinated efforts across multiple dimensions. Enhancing interpretive services, optimizing visitor flow, and improving facility design can strengthen positive emotional responses without compromising heritage values.

Third, negative sentiment related to pricing, crowding, and service quality suggests that management efficiency and governance capacity play a critical role in shaping tourist emotions. Transparent pricing mechanisms, improved transportation access, and effective crowd management during peak periods can help mitigate dissatisfaction and prevent negative perceptions from overshadowing cultural appreciation.

Finally, the findings suggest that online tourist reviews can serve as a real-time feedback mechanism for destination governance. Regular monitoring of user-generated

content allows managers to identify emerging issues, assess policy effectiveness, and adjust management strategies in a timely manner.

6 Conclusion

This study investigates tourists' cognitive and affective perceptions of Shawan Ancient Town, a representative Lingnan heritage destination, using user-generated online reviews collected from 2022 to 2025. By integrating word frequency analysis, semantic network analysis, and sentiment analysis, the research reveals that tourists' perceptions are centered on cultural-historical attributes, with heritage architecture and cultural atmosphere forming the cognitive core. The semantic network analysis further demonstrates that these core elements are structurally interconnected with experiential and consumption-related elements, forming an integrated perception system. Sentiment analysis indicates that overall emotional evaluations are predominantly positive, with appreciation for historical atmosphere, architectural style, cultural heritage, and local food driving positive sentiments. However, negative sentiments are associated with commercialization intensity, pricing, crowding, and management issues.

The findings contribute to heritage tourism research by extending empirical evidence to Lingnan ancient towns, addressing the regional imbalance in existing studies. Methodologically, the integrated cognitive-affective analytical framework combines perception structure and emotional evaluation, offering a more comprehensive understanding of tourist responses. Practically, the results provide insights for destination managers to balance cultural preservation and tourism development. Prioritizing cultural authenticity, enhancing experience-oriented management, addressing negative issues through improved governance, and leveraging online reviews for real-time feedback can help sustain the destination's appeal and visitor satisfaction.

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