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Research Article

Exploring the Emotional Experience of Tourists in Immersive Service Scenarios: A Case Study of Super Wenheyou Restaurant

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Abstract

With the rapid development of the immersive service scenarios, the practical problems of the tourism industry have gradually undergone qualitative changes, and the core contradiction has changed from the simple "tourism attraction" to the more complex "tourism experience quality" problem. In the process of "immersive experience", "emotion" plays a powerful guiding role in the immersive scenarios design, guiding tourists to real-time interaction, immersive and emotional resonance. Therefore, emotional experience has become the key in the development of immersive service scenarios. This study collects the data of tourists in Wenheyou through a questionnaire of tourists' emotional experience test, and discusses the tourists' emotional experience needs, effects and improvement strategies under the background of the three-stage characteristics of immersive scenarios and emotional interaction. Tourists' emotional experience and Word frequency by ROST CM (ROST Content Mining System) 6.0, was employed for data analysis. The study elucidates that within the Wenheyou immersive service scenarios, the physical service environment, cultural stimuli, and service products serve as primary catalysts for fostering positive emotional experiences among tourists. Drawing on psychological theories and utilizing the PANAS (Positive Affect and Negative Affect Schedule) scale and Robert Plutchik's emotion wheel model, the research delves into tourists' emotional experiences within the Wenheyou immersive service scenarios. It identifies key factors shaping positive and negative emotional experiences, offering valuable insights for service enterprises to enhance tourists' emotional quality.

1. Introduction

The integrated high-quality development of culture and tourism is a key supporter of the sustained development of China's economy and society. In December 2021, the State Council announced a development plan for the tourism sector during the 14th Five-Year Plan period, which clearly stated the need to cultivate new business forms in the cultural in-

dustry and develop immersive tourism. Through scenarios building, content interaction, and space-time reconstruction, immersive tourism brings a shocking experience to tourists in an all-round and multi-angle manner and liquidates cultural and tourism products. However, with the rapid development of immersive service scenarios, industrial practices have

gradually changed qualitatively, with the core issue shifting from simple tourism attraction to complex tourism experience quality [1]. Different from traditional tourism experience, immersive experience has the following characteristics [2]. First, it is the context that tourists immerse in, with interaction as the goal. The design of the immersive scene is story-based and contextual, which stimulates the curiosity of tourists and encourages them to explore and experience more unknown spaces [3]. In this process, emotion has played an important role in guiding tourists to interact in real-time, immerse in the scene, and resonate emotionally. Second, it is the process that tourists experience, with cognition as the goal. From space production, and consumption to dissemination, immersive service scenarios has become a new activity carrier for the integration of culture and tourism [4]. Since people's understanding of presented content gradually moves from its appearance to its cultural essence, only by integrating the emotional experience into the immersive service scenarios can service companies truly tap the cultural value behind products [5]. By doing so, people can gain new cognition and perception, inherit the spirit of Chinese culture, and enhance cultural confidence. Therefore, emotional experience is essential for the development of immersive service scenarios [6].

Although some scholars have explored the temporal and spatial changes of tourists' emotional experience in immersive scape [7, 8], but the existing literature is silent regarding what kind of emotions do tourists experience? What stimuli trigger these emotions? How to measure and evaluate tourists' emotions? How to design the interactive relationship between the spatial scenes and the emotional experience? These are the issues that need to be sorted out and refined. Based on the three-stage characteristics, namely "entering the scene-emotional expectation", "integrating into the scene-emotional integration", and "leaving the scene-emotional perception", this study explores tourists' emotional experience needs (influencing factors), identifies and measures tourists' emotional experience effect (effect analysis), as well as innovate and improve tourists' emotional experience service (improvement strategies), so as to build an interactive cycle mechanism model of emotional experience and immersive service scenarios [1]. This paper can be used as a reference for improving the quality of the tourist experience, promoting the integration of the virtual economy and physical economy, and enhancing positive interplay between domestic and international economic flows.

2. Literature Review

2.1. Immersive Service Scenarios

The original form of immersive fields can be traced back to the religiously charged murals in ancient ruins, as well as the painted and sculpted works of medieval European churches [9]. In order to enable visitors or believers to better experience the will of the gods, designers used physical architecture,

combined with natural light and shadow effects, to trigger visitors' multidimensional perception of the environment, create emotional resonance, and bring a unique experience to people [10]. Along with the continuous integration, iteration and innovation of technology, immersive fields have been derived into expressions such as immersive performing arts, immersive exhibitions, immersive entertainment, immersive film and television, and immersive restaurants. Since Bitner proposed the concept of service scenarios in 1992, some scholars have combined the two and referred to "immersive service scenarios" as a carefully designed and controlled service place with various environmental elements. For more than 30 years, scholars have studied the conceptual definition, latitude, physical elements, overall role, and social elements of service scenes from various perspectives of psychology (cognitive psychology) [11-13].

The term "scene" originally refers to scenes in film, television, theater, and literary art [14]. Since Goffman [15] pioneered the theory of social mimesis, scene theory has evolved through three phases: "media scene", "information scene" [16], and "urban scene" [17], and has become an important area of research in urban sociology, management, communication, and communication technology. In the context of the deep integration of the digital technology cluster of the Internet and the real economy, scenes and products (services) are integrated and become an integral part of customer value creation and delivery, which in turn forms a business model, and thus research on the value creation of scenes and business logic begins to take shape [9].

Based on the study of tourists' experience, scenario was introduced into the field of tourism research by scholars with the concept of "tourism context". In 1975, Dr. Csikszentmihalyi, a psychologist, first introduced "immersion experience". Along with the development of digital technology, the cultural tourism industry has shown the characteristics of the era of iterative innovation in content, accelerated upgrade in technology and interactive empowerment in experience. From exchange, interaction to integration, it reflects the process of transferring cultural and tourism experiences towards the integration of virtual and real space, and the sense of immersion has gradually deepened, and has given rise to "cloud tour", "cloud exhibition" and immersive performing arts, virtual cultural and creative products, immersive entertainment, immersive film and television, immersive restaurants [18], etc. The immersive film and television, immersive restaurants and other forms of expression [19]. Some scholars have discussed the mechanism of immersive scenes, path strategies and development plans [20]. One is to analyze the basic operation mechanism of digital immersion scenes by constructing the law, characterization and framework deduction, and boundary reconstruction from the basic theory; the second is to analyze the basic operation mechanism of digital immersion scenes by combining practical cases for immersion cultural tourism business The second is to provide corresponding path innovation and response strategies based on

culture, technology, and audience based on the dilemmas and shortcomings of the development of the immersive cultural tourism industry by combining practical cases. In the cultural tourism industry, scholars have addressed different tourism formats such as museums [21], memorials, art galleries, tourism live-action, tourism towns [22], tourism industries, theme parks, festival tourism, agricultural tourism parks, tourism performing arts, and tourism APPs, from the perspectives of technology, new media, and communication and other perspectives to explore their immersive experiences, covering various segments such as immersive art, exhibition and display, market applications, humanities and arts [23].

The tourism industry encompasses a broad spectrum of sectors including accommodations, adventure and recreation, attractions, events and conferences, food and beverage, tourism services, transportation, and travel trade, all of which provide products and services to customers [24]. Immersive technologies redefine and transform the way experiences are staged and value is co-created in travel and tourism. These technologies blur the boundaries between the digital and real worlds, offering users a heightened sense of immersion. Within the tourism, travel, and hospitality sectors, virtual reality is commonly utilized for airline and hotel bookings as well as virtual tours [25]. Augmented reality enriches real-world environments by overlaying information such as customer reviews in restaurants, hotel maps, details about nearby attractions, interactive 3D maps, and 360-degree videos showcasing resorts, cruise ships, or tourist destinations [26]. The interactive, value-added, and co-creative attributes of immersive technologies enable the personalization of experiences throughout the tourist journey.

Kim and Moon emphasize that physical environments can positively influence consumer emotions by triggering specific feelings [27]. Hence, customers are more likely to respond favorably to an environment that fosters a sense of safety within clearly defined spatial and temporal boundaries [28]. While the travel and tourism industry is moving towards digitalization, the importance of human interaction cannot be overlooked, as humans are at the core of service provision. Immersive experiences, such as immersive secret room escapes, immersive experiences, and immersive viewing, can pique consumers' curiosity [29]. Immersion has the capability to heighten anticipation and create a virtual effect, leveraging human perception and cognition to construct a virtual world that engulfs the participant. The service environment plays a crucial role in shaping customers' perceptions and behaviors.

2.2. Tourists' Emotional Experience

According to The Comprehensive Dictionary of Psychology, emotion is people's attitude to whether objective things meet their needs. Emotional research in tourism academic circles at home and abroad mainly focuses on management, consumer behavior, and tourism experience [30]. Among them, the research on tourists' emotional experience mainly focuses on the dimensional composition of emotional experience, temporal and spatial dynamic changes of emotional experience, and tourists' evaluation of emotional experience [2]. Positive emotional experiences (such as pleasure and happiness) will arouse strong behavioral intentions to consume, including willingness to re-purchase, recommend to others, and make positive evaluations [31]. However, negative emotional experiences (such as boredom and sadness) will result in negative behavioral intentions, including making negative evaluations and the tendency to change brands [32]. Environmental psychologists believe that consumers will have internal and external reactions after being stimulated by external factors [23]. Judging from the "stimulus-organism-response" theory and the service scenarios model (cognition-emotion-evaluation and judgment), some scholars agree that the environmental elements of the service scenarios will influence the physiology, emotion, cognition, and behavior of customers, which then will have an impact on their service evaluation and willingness to consume [33].

In recent years, modern competition and role strain have made it more urgent to meet people's emotional needs, which tend to be satisfied in the form of market exchange, that is, in the form of emotional consumption [4]. Researches on service scenarios theory have promoted the development of consumers' emotional marketing [34]. The core of scene consumption and scene marketing is to allow consumers to obtain spiritual satisfaction through the construction of scene dimensions, sensory perception, and scene interaction, and make them consciously consume in the scene [35]. The results not only directly influence consumer buying behavior but also play a significant role in improving the quality of consumer experience [36]. All of the above are the basic research that can be used as references for this study.

3. Materials and Methods

3.1. Site Selection

Since ancient times, China has had a cultural tradition of using catering space as an outdoor place for public entertainment and leisure. As a social activity carrier with strong spatial agglomeration, catering space has become the reflection of regional images and humanistic feelings. The case study site of this paper is Wenheyou Laochangsha Lobster Restaurant (Hisense Plaza) in Changsha City, Hunan Province (hereinafter referred to as Wenheyou). Wenheyou is a well-known trendy place in China, with more than 6 billion exposures on WeChat, Weibo, and TikTok. It is known as the Laochangsha Cultural Museum and Landmark of Changsha. In 2019, it won the Red Dot Design Award and the title of Chinese Restaurant Brand, enjoying high popularity among tourists. With an area of 5,000 square meters, Wenheyou has seven floors, nearly 100 households, and more than 20 shops. In 2018, Wenheyou, a modern catering space, transformed from a transplanted static scene to a narrative dynamic space, by using the montage

technique to decorate interior architecture and matching multiple overlapping scenes with zoning layout and narrative techniques with space design. In addition, through special services, music, experience traffic flow, narrative orientation, operation cooperation, ultimate "real" sense of time and space, and open-end script, the old Changsha life inter-action space and immersive service scenarios in the 1980s have been reconstructed, as shown in Figure 1. In this scene, three links, namely waiting, dining, and experiencing traffic flow, are designed. For example, Wenheyou put benches like those in street food stalls in the waiting area, and the storefronts sell economical and affordable beverages that are specialties in the region, which is in sharp contrast with the high-end positioning of the CBD (Central Business District). It gives people experience with a human touch as they taste the drink that pulls them into memories when waiting. From the waiting area to the dining area, Wenheyou offers tour guides, which makes people seem to be visiting an old city and arouses the great expectations of non-local diners. In the interior space of the restaurant, music is used to adjust the time that customers stay in each functional area, so as to control the rhythm of the flow of people. The background music in the dining area is all popular songs from the 1980s and 1990s, which enhances the sense of immersion in the scene. The overall layout of Wenheyou is clear-cut, with the vertical experience traffic flow and the horizontal dining traffic flow. Then narrative orientation drives the flow of people in the restaurant so that the attention of experiencers is guided in each scene from the beginning to the end. Be it marks of the city like mottled black brick walls, the stone tables and chairs of the people in the market, or the memories of the old life aroused by the interactive experience, all serve the purpose to control overall spatial rhythm based on customers' traffic flow and personalize their emotional experience.
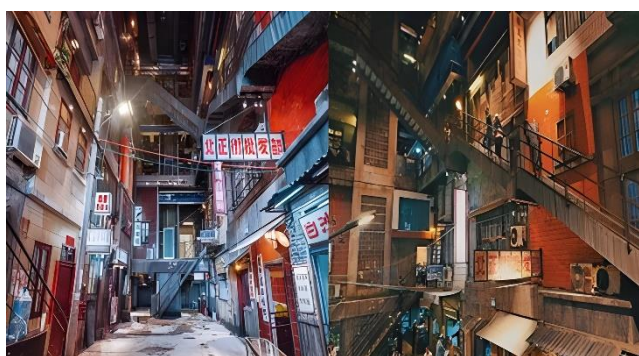

Figure 1. Interior space map of Wenheyou.

3.2. Research Method

Human emotion is complex and is triggered by events (consumption scenes), catalysts (people, places, and institutions), and goals (brands or products). Most emotional experiences occur in the process of consumption. The existing emotion measurement technologies can be divided into two categories, one of which is the physiological response measurement technology based on psychology and the other is the psychological responses measurement technology based on psychology. The former relies on the physiological response based on psychology to measure emotions through expressions or behavioral responses, including facial expression measurement, voice performance measurement, eye tracking technology, and the emotion logging program. The latter depends on psychological responses based on psychology to measure emotions through qualitative and quantitative methods (scales, pictures, and charts). It involves verbal self-report methods (semantic method, semantic comparative method, semantic differential method, and oral report method) and non-verbal self-report method (PANAS scale, PAD (Pleasure Arousal Dominance) scales, PrEmo (Product Emotion Measurement instrument), and Emocards (Emotional cards) [44]). The immersive service scenarios of Wenheyou is quite large (5,000 square meters) and each scene brings different feelings to tourists. By dividing nodes and following the order of the tourists' consumption process, Wenheyou service space is divided into different scenes at different stages. Tourists receive emotional measurements in these nodes, whose results not only represent tourists' memories and evaluation of overall emotional experience but also focus more on their emotional changes in each node, thus reflecting the emotional differences in the immersive scene. Based on the psychological characteristics and the emotional scale of the PANAS scale, this study adopts the emotion wheel model pro-posed by Professor Robert Plutchik in 1980 and conducts on-site testing, recording, and feedback receiving in each node.

3.2.1. Emotion Wheel Theory

In 1980, Robert Plutchik proposed the emotion wheel theory, which is a classical model to describe the relationship between human emotions from a psychological perspective. It contains eight primary emotions: anger, disgust, sadness, surprise, fear, trust, joy, and anticipation. As shown in Figure 2, these eight emotions are divided into four groups of opposite emotions in the emotion wheel. The emotions in the diagonal position are opposite to each other, while those next to each other are similar. Combining any two of the primary emotions generates 24 emotions, and 32 when combining any 3, with 56 emotions in one intensity level and 224 emotions in four intensity levels.

Figure 2. Plutchik's wheel of emotions.

3.2.2. Emotion Wheel Research Methodology

By using the emotion wheel model, this study conducts measurements and analysis in the Wenheyou space nodes

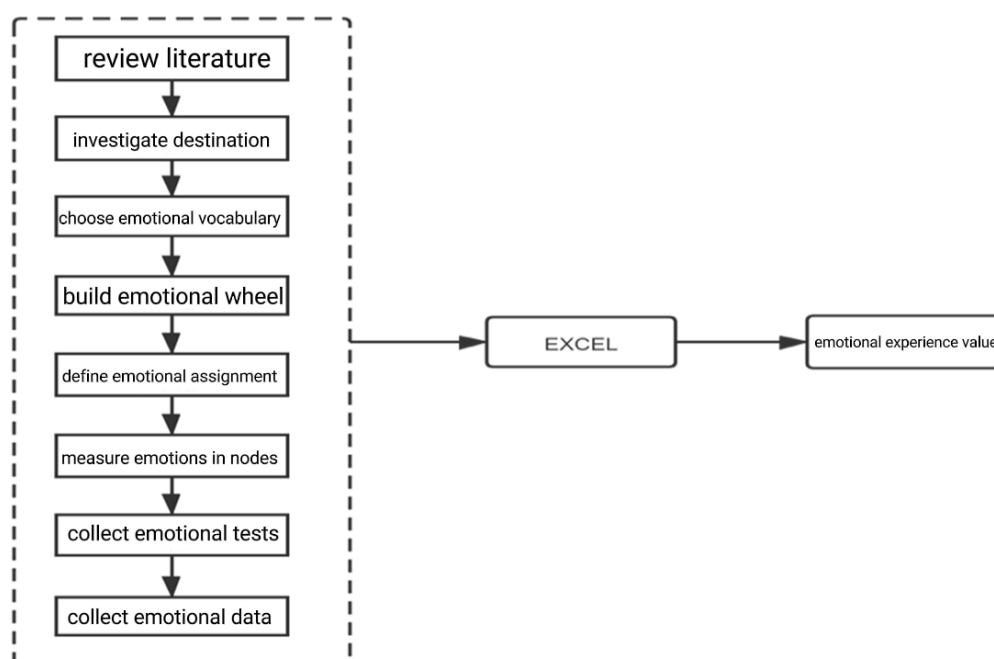according to a technology roadmap, as shown in Figure 3.

Figure 3. Emotion wheel testing technology roadmap.

First, we collect some domestic and foreign literature on emotional experience through CNKI, as well as vocabulary about emotion, mood, and feeling. This study takes tourists' online reviews of Wenheyou Laochangsha Lobster Restaurant (Super Wenheyou Restaurant) as the analytical text and extracts emotional vocabulary from the tourist' comments with the help of ROSTCM. Based on the Chinese emotional vocabulary, the original Chinese expressions of the scale are revised and improved to make it more applicable, and based on the literature review and PANAS scale, an emotion wheel model, with nine positive emotions and eleven negative emotions, is finally formed. This model has five emotional intensity levels, which move from extremely weak, weak, moderate, strong, to extremely strong from the center to the periphery, as shown in Figure 4.

Moreover, through on-site investigations on December 16, 2018, May 11, May 26, and June 8, 2019, we match tourists' consumption process with the scene and use questionnaires to measure the intensity of emotional experience in real time in four nodes (waiting area, visiting area, dining process, and follow-up interview) of three stages, namely entering the scene, integrating into the scene, and leaving the scene. Tourists receive in-depth interview surveys in the two stages of entering and leaving the scene.

Finally, the emotion wheel model is used to measure tourists' emotions in each node, and the assignment method is used to calculate the emotional experience value, based on

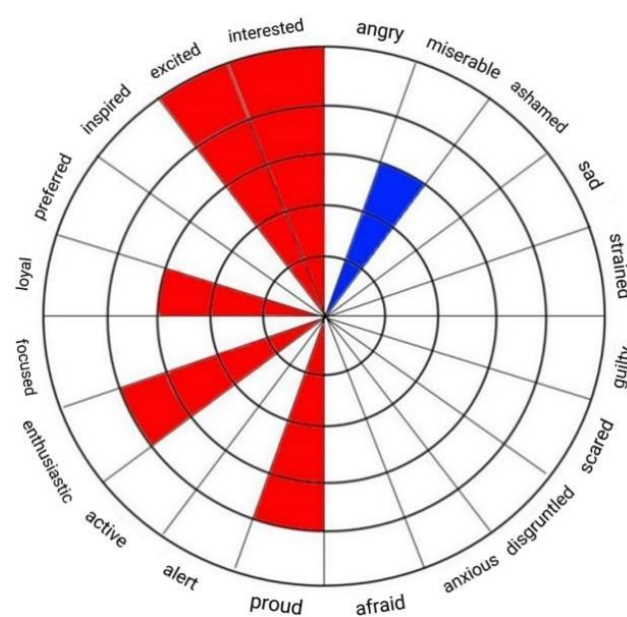which the dynamic change process of tourists' emotional experience is analyzed in a quantitative form.

Figure 4. The emotional wheel test result of respondent in the waiting area.

Note: Red represents positive emotion, while blue represents negative emotion.

3.3. Data Collection

With the help of houyicaiji, a collector software, 75,681 consumer online reviews about Wenheyou that were written before December 30, 2019, are collected from four online platforms of Meituan, Dianping, Koubei, and Baidu. Through selection, we keep 680 excellent reviews with each more than 50 words. After combining these reviews with field research and pre-research from May to July 2019, the questionnaire for the study is finalized, which includes two parts: tourist emotional experience test and tourists' basic information. On July 27-28, 2019, August 24, November 16, December 9, and December 6, 2020, we have been to the research site for a 6-day formal field research. Since the main purpose of this survey is to understand tourists' emotional experience and perception, interviewees are screened by asking tourists their usual residence before the interview. The research team consists of 20 people, which are divided into 5 groups. The research process is divided into three parts. First, in the waiting area of Wenheyou, that is, at the entering scene, questionnaires are distributed to the selected interviewees, and the first round of emotional tests and interviews are conducted. With the consent of the interviewees, we follow them into Wenheyou, take photos and record the whole process at the stage of integrating into the scene. In this part, the second round of emotional tests and a brief interview are conducted without disturbing their meals. Finally, after the interviewees finish their meal, they take the emotional wheel test again and receive an interview about their emotional experience at the stage of leaving the scene. During the research process, if the tourists do not want to be disturbed during the meal, researchers will choose to wait in the waiting area, give out emotional tests to the interviewees, and contact them again after the meal for a follow-up interview. Each interviewee is followed by a research team member in the three stages (entering the scene, integrating into the scene, and leaving the scene) and the four nodes (waiting area, visiting area, dining process, and follow-up interview) to receive an interview and tests given by the team member. Each interviewee needs to finish one questionnaire, three emotional wheel tests, and one interview. In this process, the research team tries to effectively capture the emotional changes of tourists in real time, and obtain the emotional experience data of tourists. During the research process, the research data is obtained in various forms such as online comments, questionnaire surveys, and accompanying interviews. The research team distribute 46 paper questionnaires in total, among which 40 are received with an 87% response rate. At last, 120 emotional wheel test images and 40 interview texts from 40 tourists are obtained.

3.4. Data Analysis

3.4.1. Calculation and Descriptive Statistics of Emotional Experience Values

After measuring the emotional experience of tourists at the nodes and collecting data during the field research, this study adopts the assignment method to calculate tourists' emotional experience value. In order to ensure the accuracy of emotional assignment, the calculation process covers three steps. The first step is determining the basic assignment range as [-5, 5]. Learning from Li Junyi, the second step is inviting 240 people that includes 150 psychology graduate students, 50 tourism graduate students, and 40 tourists to fill in paper questionnaires and assign values to 20 emotional words in the emotional wheel model used in the study, and determining the weight functions of the 20 emotional words by taking the mean through tools of mathematical statistics (see Table 1). The third step is obtaining the emotional experience value of each emotion by multiplying emotional intensity (1-5) and the weight function together. Moreover, the overall positive emotional experience value is obtained by calculating the sum of the emotional experience value of nine positive emotions, and the overall negative emotional experience value is obtained by calculating the sum of the emotional experience value of 11 negative emotions.

According to the results of the collected questionnaire, the assigned weight functions of the 20 emotional words in the emotional wheel model are obtained, and the range of emotional experience value measured at each node is [-148, 125]. Take respondent as emotional wheel test results in the waiting area as an example (Figure 5). The intensity of respondent a's positive emotions, namely interested, excited, loyal, enthusiastic, and proud, is 5, 5, 3, 4, and 4 respectively, and that of the negative emotion, namely distressed, is 3. After accumulating the weight function according to Table 1, the positive emotion experience value is 69.4, and the negative emotional experience value is -10.8.

Table 1. Assigned weight functions of the emotional words in the emotional wheel model.

Type	Emotional vocabulary	Weight function	Emotional vocabulary	Weight function
Positive emotions	interested	3.2	focused	1.4
	excited	3.4	enthusiastic	4.2
	inspired	1.6	active	2.0
	preferred	3.6	proud	2.8

Type	Emotional vocabulary	Weight function	Emotional vocabulary	Weight function
	loyal	2.8		
	angry	-2.4	guilty	-1.6
	miserable	-3.6	scared	-3.2
Negative emotions	ashamed	-1.2	disgruntled	-2.6
	sad	-2.2	anxious	-3.2
	strained	-3.4	afraid	-3.4
	alert	-2.8		
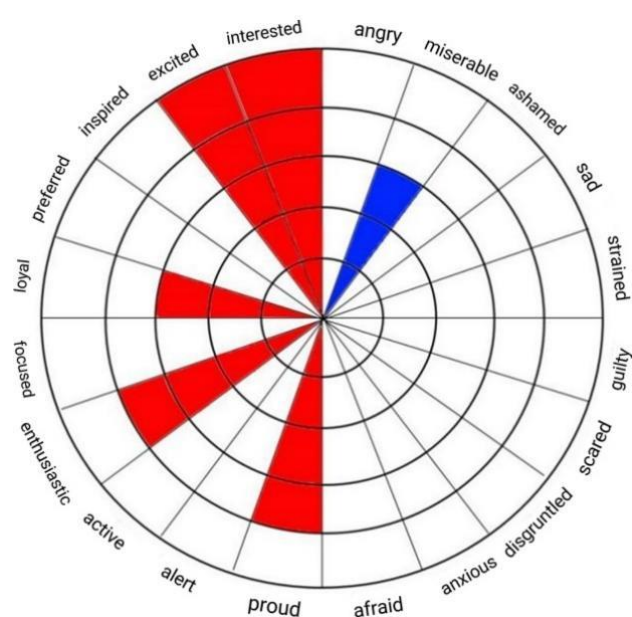
Figure 5. The emotion wheel result of respondent an in the waiting area.

Note: red represents positive emotion, while blue represents negative emotion.

Descriptive statistical analysis was conducted on the distribution of six factors, including gender, age, education level, monthly income, working years and region. In terms of gender, female tourists accounted for 65 percent and male tourists accounted for 35 percent, which is consistent with the reality that there are more female tourists in trendy place. In terms of age, tourists are mainly 20-40 years old, indicating that young tourists are mostly interested in them. In terms of educational background, tourists are mainly educated to junior college and undergraduate degree. In terms of occupation, college students occupy the most, accounting for 52.5%, so it can be inferred that students' time management is relatively free. In terms of average monthly income, 3001-5000 yuan is the majority, followed by 5001-8000 yuan. In terms of region,

South China accounted for the largest proportion, 67.5%. Mainly because of the convenient transportation.

3.4.2. Influencing Factors of Tourists' Emotional Experience in Immersive Service Scenarios

This study obtains text materials from selected online comments and field interviews and then analyzes the factors that influence the emotional experience of tourists in immersive service scenarios. First, we use the ROST CM6 to process the texts obtained from the on-site interviews and online comments, delete some words with low frequency (occurred less than 3 times, such as "spicy" and "dine-in"), and merge synonyms (for example, "not bad", "just so so", and "ordinary" are merged as "not bad"; "unique" and "characteristic" are merged as "characteristic"). Secondly, in terms of text analysis, this paper uses two analysis tools of ROST CM 6.0: word frequency analysis and semantic network analysis. Word frequency analysis is mainly used to count the number of appearances of the words in online materials, and discover the core information hidden in the text. Semantic net-work analysis is used to discover the regularity of words. It is mainly based on word frequency analysis and focuses not on words but on the relationship pattern between words. This tool can deconstruct the semantic path between the syntax and concepts of online text, to identify the association and meaning of words and realize the deep analysis and interpretation of tourists' emotions.

3.4.3. Word Frequency Analysis

ROST CM 6.0 is used to extract and summarize the top 30 high-frequency words in the online reviews (file type: txt) and obtain the high-frequency words of tourists' emotional experience, as shown in Table 2.

Table 2. The high-frequency words of Wenheyou tourists' emotional experience (top 30).

Number	Words	Frequency
1	Laochangsha	860

Number	Words	Frequency	Number	Words	Frequency
2	delicious	818	25	style	164
3	lobster	747	26	edamame	162
4	content	497	27	surprised	160
5	queue	396	28	nostalgic	152
6	Wenheyou	373	29	retro	149
7	friends	357	30	experience	99
8	disappointed	325			
9	service	302			
10	environment	294			
11	lard rice	288			
12	revisit	258			
13	characteristic	225			
14	hour	215			
15	bustling	215			
16	waiter	207			
17	architecture	204			
18	stinky tofu	200			
19	atmosphere	198			
20	banana	197			
21	amount	196			
22	attitude	185			
23	good taste	176			
24	fresh	168			

It can be seen from Table 2 that tourists show their emotions mainly through the evaluation of the consumption, which is specifically reflected in two words: "content" (497 times) and "disappointed" (325 times).

3.4.4. Sematic Network Analysis

The tourists' comments are processed through word segmentation, and then high-frequency words are extracted while some meaningless words are omitted. After feature analysis, a VNA document is further generated, which is imported into Net Draw and finally generates a semantic network of Wenheyou's overall emotional image, as shown in Figure 6. From the perspective of hierarchical structure, the semantic network presents the characteristics of "core-edge", with one or more layers of subgroups formed around important nodes. The closer the word is to the central node (core node), the stronger the connection with the word in the central node. The density of lines represents the frequency of co-occurrence, and the denser the lines, the greater the number of co-occurrences (Mehrabian, 1996).
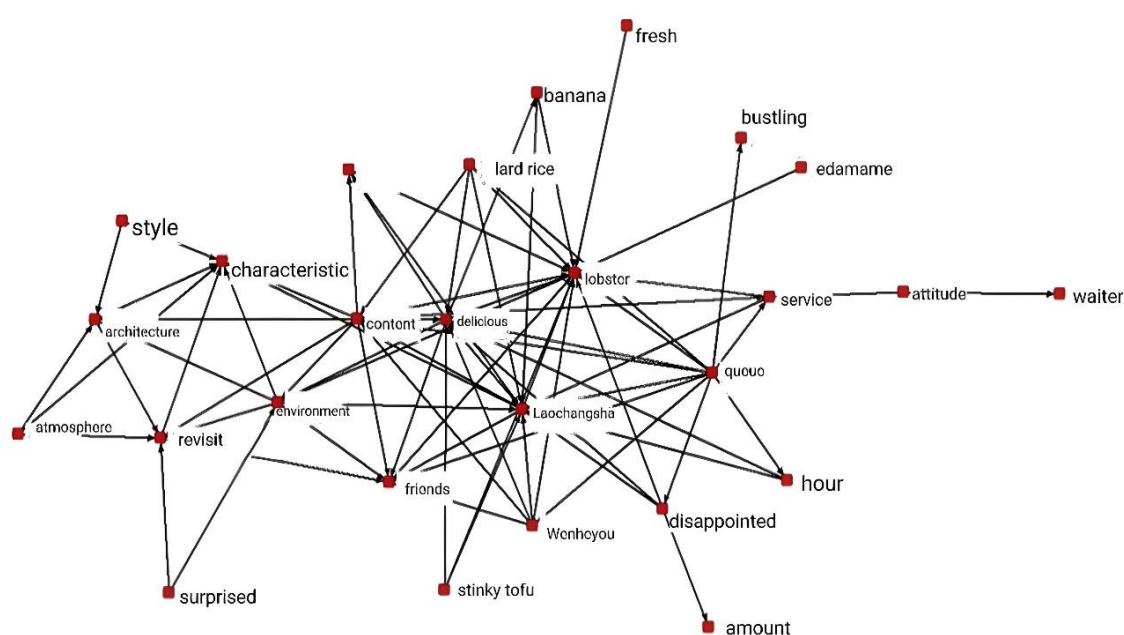

Figure 6. The Semantic network of tourists' emotional experience.

On the whole, "disappointed" is connected with "amount" (196 times), "queue" (396 times), etc. Long queuing time (396 times) and small portions of dishes (196 times) are the key factors for tourists' negative emotions. "Content" is closely connected with "delicious" (818 times), "environment" (294 times), "characteristic" (225 times), "architecture" (204 times), "style" (164 times), and "surprised" (160 times), which, to a certain extent, shows that the elements in the service scenarios together constitute the initial material of tourists' emotional experience. Initial material is of great significance for inducing tourists' positive emotions and forming emotional experiences.

3.4.5. Analysis of Tourists' Emotional Experience Effect in Immersive Service Scenarios and Improving Strategies

According to the matching sequence of tourists' consumption habits and scenes, tourists' experience process is divided into three stages: entering the scene, integrating into the scene, and leaving the scene. "Entering the scene" means that tourists enter Wenheyou from Hisense Plaza to the waiting area where they receive interviews about the stage of entering the scene and conduct the first round of emotional tests at node 1 to detect the emotional changes after entering the scene. "Integrating into the scene" includes the process of tourists vis-

iting and dining in the scene where nodes 2 and 3 are set. One or more emotional measurements are carried out on places where tourists stay for a relatively long time during the visit, and an emotional measurement is carried out during the tourists' dining. "Leaving the scene" refers to the stage from the end of consumption to leaving the consumption scene. Emotional wheel tests are distributed to tourists to fill in before they leave the scene, and follow-up interviews are conducted through email, WeChat, and other forms. After collecting emotional data through field research, we use the assignment method to calculate the emotional experience value of tourists, including positive and negative emotions, and obtain the change in the emotional experience of tourists by calculating the mean, as shown in Table 3 and Figure 7. Figure 3 shows that the emotional experience of tourists changes at different stages of consumption, especially positive emotions. The positive emotional experience value within [53.79, 85.79] is used to calculate the mean, with the range being 30. From "entering the scene" to "leaving the scene", there is an inverted U-shaped change of positive emotional experience value. The negative emotional experience value within [-34, -17.605] is used to calculate the mean, with the range being 30, showing a U-shaped change. However, the change in positive and negative emotions in the consumption process is not obvious.

Table 3. Changes in consumers' emotional experience (Excerpt).

| Number	Enter Node 1		Integrate Node 2		Node 3		Leave Node 4	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
1	64.6	-40.4	76	-28.4	80.8	-26.4	60.4	-29.6
2	71.8	-40	78.6	-26.4	75.4	-20.2	67	-30.8
3	87.6	-27	113.8	-12.4	83.6	-14.4	56.4	-19.6
4	69.4	-16.8	82.4	-25.4	82.8	-15.6	47.6	-29.6
5	59.2	-29.6	72.4	-28.4	80.8	-19.2	44.8	-17.6
6	67.6	-29.6	78.6	-25.8	75.4	-20.6	65.4	-27.8
7	57.4	-21.6	84.6	-9	82.8	-21.4	54	-28.4
8	50.6	-30.4	89.2	-16	79.2	-16.2	52.4	-26
9	59.6	-28.8	88.6	-18.6	70.4	-14	56	-30.2
10	60.2	-36.6	92.4	-20.2	70.6	-20.4	55.6	-29.8
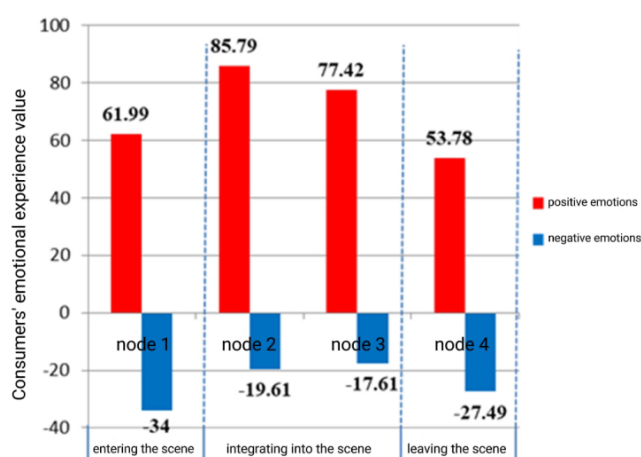
Figure 7. *Changes in the emotional experience of consumers.*

4. Results

4.1. Measurement of Tourists' Emotional Experience in Entering the Scene and Its Enhancement

When entering the scene, tourists' emotions are mainly positive, with a positive emotion experience value of 61.99 and a negative emotion experience value of -34, reflecting rich and strong emotions. The elements in the service scenarios, which are in stark contrast to the noisy and commercial atmosphere outside the nodes, stimulate the psychological changes and positive emotions of tourists and raise tourists' expectations for products.

"It felt really good when I first arrived here. It seems that I have traveled from the modern city to old Changsha, which is very surprising. There are small shops and stoves. I heard that there would be bamboo mats in summer. These should be the memories of my grandfather when he was young. Um..., this kind of environment is special and lively with a human touch. I think the old restaurant that I have found is a treasure, and the taste of its food should be good." (Respondent 3)

At this stage, the emotional experience is at the stage of anticipation, mainly imaginary emotional experiences, such as "expect", "should be okay", "good environment", "popular", and "trendy place". After tourists enter the scene, they may find that they need to wait in line, sometimes even wait for 1-3 hours in lobster season in July and August. Tourists who come for the first time do not know convenient methods to queue up, such as through WeChat. Queuing up for a long time triggers the negative emotions of tourists.

"We saw it on the Internet, and the pictures of it look good. When we came here, we found that the atmosphere was even better, completely different from other places. However, this place has high foot traffic. We have been waiting here for a long time. We just wandered around a bit and the place is nice. But we should have to wait another half an hour till we can eat, which bothers us. It will be just fine if we live nearby, but we come from Wuhan, so we are pressed for time a little bit." (Respondent 2)

The stage of entering the scene belongs to the pre-consumption service space. Although tourists are filled with anticipation about the scene, products are just at the beginning of their life cycles. Therefore, it is necessary to optimize the service scenarios and accurately grasp the needs of tourists so as to arouse their positive emotions. For example, measures like capturing and analyzing the scene, pushing information, and predicting service demands, can be adopted. With street culture as the core, Super Wenheyou restaurant restores the images of the disappeared city through tens of thousands of old objects and analyzes tourists' consumption desire to experience the characteristic atmosphere and immerse in the unique memory by combining food and culture. In addition, Super Wenheyou stimulates tourists' demand and emotions through the visits of online celebrities, invitations of variety show, close dialogues between Super Wenheyou and tourists, and the program "Super Friends" based on stories on its WeChat official account.

4.2. Measurement of Tourist' Emotional Experience in Integrating into the Scene and Its Enhancement

When integrating into the scene, the positive emotional experience of tourists peaks, jumping to 81.605, while the negative emotional experience drops significantly to -18.61. The environment, service, products, and culture in the scene contribute to emotional integration through tourists' senses.

"Wenheyou is unique in its design with many details. The design of each small shop, such as this dating agency, amusement arcade, VCD room, and foot massage parlor, are all classic. The tableware for eating and the background music creates a special atmosphere that combines eating, drinking, and playing. There are immersive stories everywhere, which are interactive and make people have a lot of feelings."(Respondent 4)

At this stage, the emotional experience is at the stage of emotional integration, mainly positive emotional experiences, such as "interested", "excited", "preferred", "enthusiastic", and "inspired". The positive emotional intensity is close to the maximum. However, the negative emotion word "miserable" appears frequently, mainly resulting from the crowded dining environment with too many people dining and visiting.

"The environment is very nice, and the decoration is very retro. We came over once we got off the train. It's good as expected. We enjoyed our meal and had a good time. No wonder so many people come here. It's just the kind of place you will go to have fun. But its popularity also brings something bad. It's a bit crowded." (Respondent 3)

The stage of integrating into the scene belongs to the service space where consumption is happening. Although the actual scene helps increase the positive emotional intensity

and reduce the negative emotional intensity, from the perspective of tourists, the life cycle of the products has gradually entered the saturation stage. Therefore, to optimize the scene, it is necessary to strengthen the support and guidance for tourists' behavior. For example, adopting persuasive design concepts and innovative and interactive methods to display products can improve the adaptation of the service scenarios and enhance the emotional experience of tourists. Combining interaction and humanistic emotions will make tourists immersed in the scene and naturally induce consumption. In the scene, tourists, as part of the scene, are not only the subject of product consumption but also of cultural consumption.

> *"What is surprising is the details here. Many shops are real. You can have your hair cut in the barber shop, have your clothes sewed in the tailor's shop, and play games in the amusement arcade. It's not like a replication but realities with a human touch. It's so natural that you can eat food and take photos." (Respondent 16)*

4.3. Measurement of Tourist' Emotional Experience in Leaving the Scene and Its Enhancement

In the stage of leaving the scene, tourists' emotions are still dominated by positive emotions, while the intensity witness subtle changes and emotional experience value is slightly lower than that in the stages of entering and integrating into the scene. Emotional experience has entered the stage of post-consumption emotional perception, mainly retrospective emotional experience, such as "unforgettable", "memories of Changsha", "recollection", and "recall". Due to the crowded space, tourists usually choose to leave upon finishing their meal. Narrow corridors and crowded spaces will trigger tourists' negative emotional experience, which will weaken retrospective positive emotions and have a negative influence on the overall satisfaction of tourists and their willingness to consume again.

> *"Generally speaking, Wenheyou is good. This trendy place didn't let me down and left a memory of Changsha in my heart. It has regional characteristics and the dishes and environment are very good. My friends also think it is very good. But it's too crowded to get out easily. Considering this, people should pay attention to personal and property safety." (Respondent 2)*

At this stage, tourists' emotion is at the stage of perception. Positive emotions have decreased significantly and negative emotions have a tendency to increase in the first two stages, but negative emotions have not yet replaced the dominant position of positive emotions. At this stage, from the perspective of tourists, the life cycle of products will enter the stage of decline. How to extend the emotional integration through products and their accessories and how to induce another round of emotional expectations through emotional perception are the marketing focuses that need to be considered at this stage.

> *"The experience is good, but there will not be many opportunities to come again. This is the second time I have come here. The first time was when it first opened. Now the place is bigger and more popular than before, but it is unpleasant to wait for a long time. After all, it's a trendy restaurant with a lot of people, and I don't feel any surprises on my second visit. It still needs more updates and changes to attract old customers." (Respondent 7)*

In the stage of leaving the scene, consumption emotions often gradually disappear with the end of the consumption activity. Establishing a link to extend tourists' emotional experience is the key to optimizing the stage of leaving the scene. In the interviews, it is found that one of the embodiments which elements of the scene extend the emotional experience of tourists is the regenerative foot traffic and new cycle mechanism. As original tourists have emotional resonance through emotional interaction, they spontaneously recommend the restaurant (such as on TikTok, Kuaishou, and WeChat moments), which continuously generates foot traffic and forms a consumption cycle mechanism of "scene attraction-customer promotion-regenerative foot traffic". The original tourists are endowed with new consumption identities and new roles, and have another interaction with the scene when reentering the scene. In addition, apart from optimizing the scene, the emotional experience of tourists can also be consolidated by building community connections, collecting tourists' evaluations, capturing scene data, and updating the scene service content.

> *"We saw it on TikTok and Kuaishou, and there are many real scenes of Wenheyou. It looks very good and we just want to come and see this trendy place by ourselves. It's more attractive and more authentic from the regular customer's perspective, while the recommendation of advertisement and online celebrities is often unreliable." (Respondent 18)*
>
> *"This is the third time I've come here. I came here with my bro before, and this time I came with my girlfriend and her best friend. They went to take pictures. If there is only me, it's unlikely for me to come here again. Every time I come here, the feeling is different, mainly because I come with different people. And because each time my role is different, the details I see change, and so do my emotions. So, I have new feelings every time." (Respondent 12)*

4.4. An Interaction Model of Tourists' Emotional Experience in Immersive Service Scenarios

The prevalence of the experience economy means that customers' emotional needs continue to increase. Super Wenheyou integrates the consumption process with the service scenarios in the whole scene, constructs a multidimensional consumption scene through the architecture and objects with a sense of age, and builds a psychological bridge between tourists and emotional experience. Meanwhile, it uses

story spaces with a human touch to achieve the purposes of cultural output and emotional interaction, so that tourists who are in the scene can get a deeply immersive experience with a high degree of participation. In general, in the immersive service scenarios, positive and negative emotions coexist in three stages of before, while, and after consumption, with positive emotions dominating. Integrating into the scene will

deepen the positive emotional resonance while exiting the scene will cause the increase and counterattack of negative emotions. Humanized design and emotional guidance based on the different characteristics of the three stages of emotional anticipation, emotional integration, and emotional perception are advisable methods to keep tourists consuming, as shown in Figure 8.
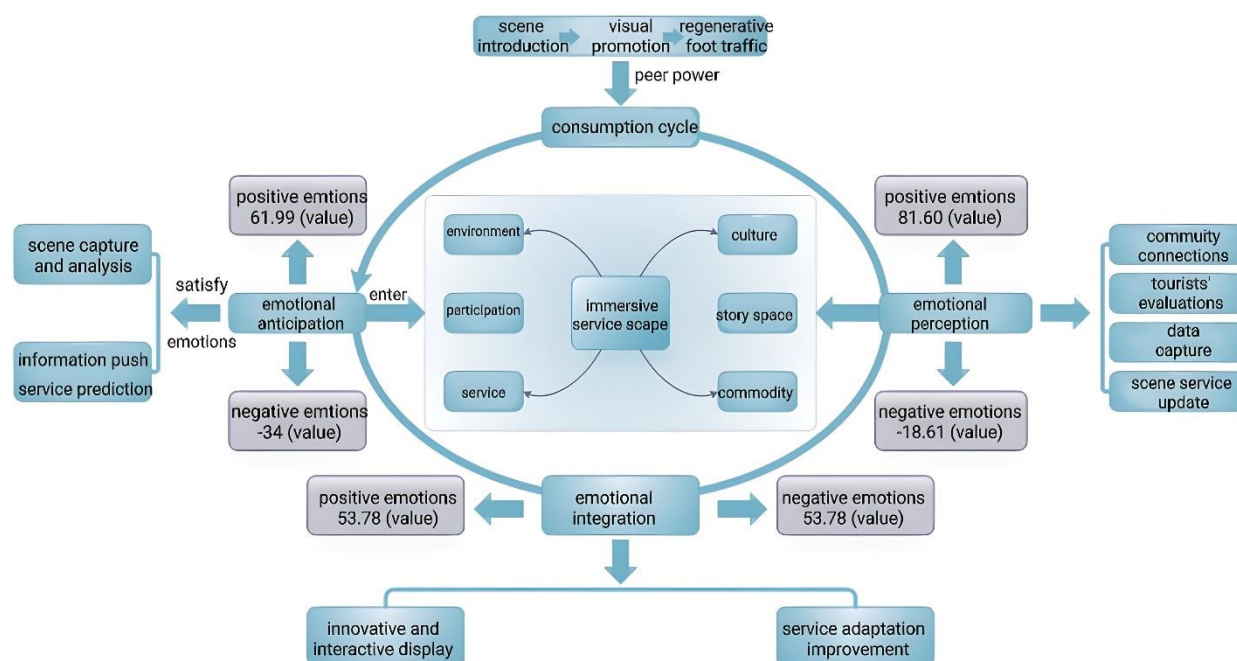

Figure 8. The interaction mechanism between tourists' emotional experience and spatial scenes.

5. Discussion

The rapid evolution of modern technology and social media is reshaping various industries, including tourism and leisure, by shifting the focus from merely providing products and services to enhancing tourists' emotional engagement and creating memorable experiences. The application of immersive service scenarios has emerged as a pivotal strategy for service enterprises to achieve these objectives. By blurring the boundaries between digital and physical realms, immersive technologies enhance the sense of presence and immersion in tourists' experiences, thus enriching their overall satisfaction. However, the impact of immersion on tourist experiences is nuanced, with both positive and negative effects depending on various factors.

Studies exploring tourists' emotional experiences within immersive service scenarios utilize qualitative methods such as participant observation and in-depth interviews, coupled with the emotion wheel model. These approaches enable researchers to capture the intensity and types of emotions experienced by tourists and understand the emotional dynamics within spatial scenes. Furthermore, insights gained

from these studies are invaluable for informing space design decisions and creating immersive environments that resonate with tourists' emotional needs.

Nevertheless, limitations exist in the current research. First, the scope of inquiry often focuses solely on reception services, overlooking other aspects such as internal employee management and upstream cooperation plans. Second, discussions on immersive service scenarios lack depth and breadth, particularly in accurately elucidating the underlying mechanisms of immersion. Additionally, there is room for improvement in user research methodologies, including sample selection and research techniques, to ensure the validity and comprehensiveness of findings.

6. Conclusions

In conclusion, this study examines the emotional resonance between tourists and the immersive service scenarios, using Super Wenheyou as a case study. The findings highlight the types and influencing factors of tourists' emotional experiences within immersive environments. Positive emotional experiences are primarily influenced by the physical environment, cultural stimuli, and service products, while nega-

tive experiences stem from factors such as service quality and corporate reputation. Additionally, tourists' emotional experiences evolve through three stages, characterized by dynamic changes in positive and negative emotions. Furthermore, an interaction model for optimizing immersive service scenarios is proposed, emphasizing proactive measures to anticipate and meet tourists' emotional needs throughout their journey. Ultimately, the interactive cycle mechanism between emotional experiences and spatial scenes perpetuates tourists' engagement and forms lasting memories, underscoring the transformative potential of immersive service scenarios in the tourism industry.

Abbreviations

ROST CM	ROST Content Mining System
PANAS	Positive Affect and Negative Affect Schedule
CBD	Central Business District
PAD	Pleasure Arousal Dominance
PrEmo	Product Emotion Measurement Instrument
Emocards	Emotional Cards
CNKI	Chinese National Knowledge Infrastructure

Author Contributions

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The data supporting the outcome of this research work has been reported in this manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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Biography

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Research Field

Lei Wu: digital immersive scenes, cultural and tourism integration, hotel management, consumer sentiment, Hotel customer emotion.

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