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Article

A study on the green transformation path of industrial heritage from the perspective of user experience: A case study of Jiangsu Garden Expo Park

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Abstract: With the advancement of economic structural transformation and urban renewal, the green transformation of industrial heritage sites is increasingly recognized as one of the key strategies for promoting sustainable urban development. Taking Jiangsu Garden Expo Park as an example, this study thoroughly explores the impact of the green transformation of industrial heritage sites on user experience and the relationship between user value perception, satisfaction, and behavioral intention. Based on the experience economy theory, the study classifies user experiences into four types: education, aesthetics, entertainment, and escapism, and examines how these experiences affect users' functional perceived value, emotional perceived value, satisfaction, and behavioral intention. The results of the study show that educational, aesthetic, and escapist experiences have a significant positive effect on users' emotional perceived value, while functional perceived value has a stronger effect on satisfaction than emotional perceived value. User satisfaction has a significant positive effect on behavioral intention, which suggests that enhancing user experience play a greater role in promoting positive user behaviour towards green transformation of industrial heritage sites. This study also provides recommendations for developing public participation, improving infrastructure development, cultivating spiritual connotations, and promoting cultural innovation to help the green transformation and tourism development of industrial heritage sites. The findings of this study provide certain theoretical basis and practical guidance for the green transformation of industrial heritage sites, explain the importance of optimising the development of industrial heritage sites from the perspective of user experience, and hopefully provide constructive suggestions for enhancing the attractiveness and sustainability of industrial heritage sites.

Keywords: industrial heritage; green transition; user experience; perceived value; satisfaction

1. Introduction

The green transformation of industrial sites is a crucial issue for the reuse of industrial heritage and a key aspect of brownfield re-greening. It is interconnected with several factors, including economic transformation, community development, and environmental protection. The term "green transformation" refers to the shift in land, space, and other resources in old industrial areas from traditional, high-pollution, high-energy-consuming production methods to environmentally friendly, energy-saving industries, particularly in the cultural and creative sectors. This process involves converting abandoned industrial areas into green spaces that offer ecological, cultural, social, and economic value through ecological restoration and innovative design, with the development of urban parks being particularly significant.

This topic has garnered considerable attention worldwide. Some experts argue that as we move into a post-industrial era, such transformations will play an essential role in the future of urban parks [1,2]. Others believe that industrial heritage parks represent a harmonious integration of nature and society [2]. Although this concept is relatively new, it has been explored extensively in research, including studies on its aesthetic mechanisms and its relationship with large-scale urban green spaces [3,4].

As a late-developing country, China has witnessed the emergence of numerous industrial heritage parks over the past decade, many of which have attracted significant attention. The degree to which these parks are welcomed by visitors is directly related to the success of their renovation [5]. Additionally, whether the varied experiences of users can provide constructive feedback for the future development of these parks is a question worthy of exploration.

The Jiangsu Garden Expo Park was once occupied by the Kunyuan and Yinjia Cement Factories. The area is also home to the ruins of the Kongshan Mine of the China Cement Factory and the Tsishan Mine of the Jiangnan Cement Factory, one of China's earliest cement production bases, founded in September 1921 by Shanghai industrialist Yao Xizhu and others, who raised 500,000 taels of silver. After nearly a century of mining, excavation, and production, the site has become a representative relic of China's cement industry, with one of the country's largest abandoned lime quarry collection areas—the largest of its kind in eastern China.

Starting in 2000, the Jiangsu Provincial Government began organizing the Jiangsu Horticultural Expo, a major event in China. In 2018, the Nanjing Municipal Government closed the nearby cement factories, vacating and preparing the site for the 11th Horticultural Expo. Over two years, the 40,000-square-meter area underwent comprehensive environmental treatment and landscape development. Within the 1100-meter-long and 22-meter-deep pit, a green ecosystem was constructed alongside reinforced, renovated, and upgraded industrial relics, creating a multifunctional, green horticultural pavilion. For instance, more than 40 cement silos and several cement factory groups were transformed into bookstores, museums, art galleries, and other public spaces, while historic gardens from seven cities—Nanjing, Wuxi, Changzhou, Suzhou, Huai'an, Yangzhou, and Taizhou—were restored.

As of 2024, Jiangsu Garden Expo Park spans 2.54 million square meters of green space and serves as a model for mine rehabilitation in China. It is considered a benchmark in urban renewal and environmental management under Xi Jinping's administration, making it a site of significant research interest.

Each independent heritage site can embody the characteristics of the whole due to its unique core value [6]. Therefore, this paper focuses on the green transformation of industrial sites, using Jiangsu Garden Expo Park as a case study. We employ a questionnaire research method to explore the pathways and mechanisms influencing user experience following the green transformation of these sites, as well as the factors affecting user satisfaction. Through an in-depth discussion of these issues, this paper aims to provide scientific decision-making support for the green transformation of the Garden Expo Park and offer valuable insights for the protection and redevelopment of similar industrial sites.

2. Research and hypothesis development

2.1. Industrial heritage in the experience economy

The experience economy is consumer-centered, focusing on daily life and specific situations to create sensory experiences and emotional identities that attract consumer attention and foster memorable experiences [7]. This approach aims to satisfy consumer demand for personalized experiences. Experience economy theory is rooted in two dimensions: the degree of consumer participation and the relationship between the user and the experience event. It categorizes experiences into four types: entertainment, educational, aesthetic, and escapist [8].

Tourist participation is crucial for enhancing both functional and emotional perceptions, often realized through direct experiences [9]. When tourists explore ecologically transformed industrial sites, their assessments of the heritage are significantly affected by factors such as architectural design and extent of restoration [10]. Perceived value encompasses functional, emotional, and overall assessments of the destination, considering both the original characteristics of the industrial site and the emotional responses evoked by the environmental concepts presented.

In this study, we view the physical characteristics of the green transformation of industrial sites as representative of tourists' functional perceptions, while the concept of ecological protection reflects their emotional perceptions. Our aim is to explore whether tourists can experience unique historical values, environmental culture, emotions, and architectural aesthetics when visiting these sites.

This research refers to experience type scales established by Ennew [11], comprising a total of 15 items. The measurement of perceived value primarily draws on scales developed by Rintamäki [12] and Chinese Academy of Social Sciences [13], totaling 10 items. Based on this foundation, we propose the following hypotheses:

H1a: The educational experience positively influences tourists' functional perceptions.

H1b: The educational experience positively influences tourists' emotional perceptions.

H2a: The aesthetic experience positively influences tourists' functional perceptions.

H2b: The aesthetic experience positively influences tourists' emotional perceptions.

H3a: The entertainment experience positively influences tourists' functional perceptions.

H3b: The entertainment experience positively influences tourists' emotional perceptions.

H4a: The escapism experience positively influences tourists' functional perceptions.

H4b: The escapism experience positively influences tourists' emotional perceptions.

2.2. Green transformation of industrial heritage

Many experts view green transformation as a crucial shift in development models, moving from high pollution and high resource consumption to more environmentally friendly and resource-efficient approaches [14]. The term "green transformation of industrial sites" refers to leveraging the land and spatial advantages of existing industrial zones to transition from traditional heavy industrial production patterns to new industries characterized by low pollution and low energy consumption. The essence of green transformation lies in enhancing the competitiveness of traditional industries by adjusting the industrial upgrading path during the transition from traditional manufacturing to modern service industries, ultimately achieving harmonious coexistence with the environment [15]. In particular, cultural and creative industries—such as design, multimedia, large-scale cultural event organization, and supporting commercial and catering services—play vital roles in this transformation.

Tourists' perceived value significantly influences their satisfaction and behavioral intentions [16], reflecting their subjective evaluations and perceptions of the tourism experience [17]. Their perceptions of tourism destinations largely indicate their recognition of local resources and willingness to engage. Research has demonstrated a strong correlation between tourists' emotional experiences and their satisfaction levels, with emotional value perceptions positively impacting overall satisfaction [18,19]. Notably, studies focusing on tourists at specific historical sites have found a significant positive relationship between perceived value and satisfaction [20].

Furthermore, tourists' satisfaction not only shapes their overall evaluations of a destination but can also motivate positive follow-up behaviors, such as revisiting, recommending the site to others, or sharing favorable reviews on digital platforms, which can enhance the destination's popularity [21–24].

In this study, we employ validated and well-established scales to measure satisfaction and behavioral intentions, incorporating multiple items to assess these constructs [25]. Based on these scales and related research, we propose the following hypotheses:

H5: Tourists' functional perceptions positively affect satisfaction.

H6: Tourists' emotional perceptions positively affect satisfaction.

H7: Tourists' satisfaction positively influences their behavioral intentions.

3. Model construction and questionnaire design and collection

3.1. Model construction

Building upon the aforementioned research outcomes and the intercorrelations among variables, **Figure 1** illustrates a model delineating the relationship between the four types of tourist experiences and the functional and emotional perceptions, as well as the satisfaction and behavioral intentions associated with the green transformation of industrial heritage sites.

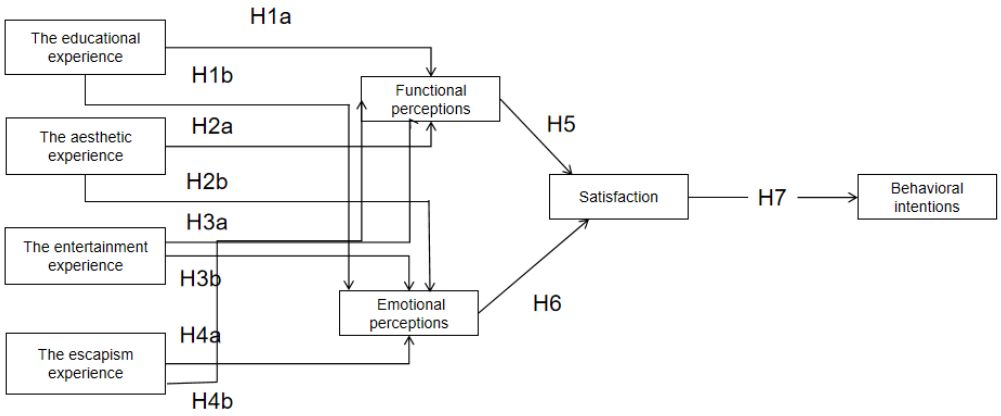

Figure 1. Model of the green transformation pathway of industrial heritage sites from the perspective of user experience.

3.2. Questionnaire design and collection

3.2.1. Scale development and measurement items

This study proposes a theoretical model centered on the case of Jiangsu Garden Expo, an exemplar of a green transformation industrial heritage site, analyzing key variables such as tourist experience, functional perception, emotional perception, customer satisfaction, and customer behavioral intentions. In light of the challenges associated with directly measuring these structural variables, this paper operationalizes them through the design of corresponding observed variables. By synthesizing relevant research and integrating the definitions of core concepts, **Table 1** delineates the observed variables and measurement indicators selected for this study.

Table 1. Measurement items of the scale and their sources.

Measurement Dimensions	Influencing Variables	References
The educational experience	Academic acquisition of knowledge through experience or study tours at Jiangsu Garden Expo Park	Zhou and Zhang [24]
The aesthetic experience	Aesthetic appreciation of the architecture, culture, and overall environment of the Jiangsu Garden Expo Park.	Zhou and Zhang [24], Li [25], Megeirhi [26]
The entertainment experience	Perception of the entertainment value of experiential projects at the Jiangsu Garden Expo Park.	Li [25], Wu [27]
The escapism experience	Experiencing a sense of immersion during the visit to the Jiangsu Garden Expo Park.	Wu [27]
Functional perceptions	An evaluation of the infrastructure and services provided at the Jiangsu Garden Expo Park.	Ennew and Binks [11], Wu [27]
Emotional perceptions	Subjective experiences during the travel process.	Zhang [28], Rintamaki and Kirves [12]
Satisfaction	Post-visit feelings and evaluations.	Tang and Zhu [29]
Behavioral intentions	Anticipated future behavioral intentions following the visit.	Lan et al. [9], Li and Zhou [30]

3.2.2. Formal survey

The formal survey for this study was conducted offline at the Jiangsu Garden Expo from 30 April to 5 May 2024. Questionnaires were disseminated via a QR code on the Wenjuanxing platform, inviting visitors to scan and complete the survey. The survey encompassed aspects such as user experience, functional perception, emotional perception, satisfaction, and behavioral intentions, resulting in a total of 427

distributed questionnaires. To enhance the quality of the data, the questionnaires were meticulously screened for completeness and response time, excluding incomplete questionnaires and those with response times shorter than 90 seconds. Ultimately, 394 valid questionnaires were obtained, yielding a valid response rate of 92.3%.

4. Analysis of tourist perceived value based on user experience

4.1. Descriptive statistical analysis

The demographic data collected from this survey includes four aspects: gender, age, educational attainment, and occupation. In terms of behavioral characteristics, the frequency of visits made by tourists to the Jiangsu Garden Expo was recorded. In order to better assess the representation of the survey sample, this study conducted a questionnaire research based on the Seventh Population Census Bulletin of Nanjing. In terms of gender, 51.05 per cent of the population in the region is male and 48.95 per cent is female. In this survey, 53.6 per cent of the population is male and 46.4 per cent is female, which is similar to the overall ratio. In terms of age distribution, the proportion of people under 18 years old in the region is about 12.75%, and the proportion of people between 18 and 60 years old is about 70%. In this survey, the proportion of people under 18 years old is 5.2%, which is relatively low, and the proportion of people between 18 and 60 years old is 89%, which is relatively high, and the age structure is relatively reasonable, taking into account the travelling of infants, young children, and the senior citizens. Considering the travelling situation of infants, young children and senior citizens, the age structure of this study is reasonable. In terms of education level, the proportion of people with local university and above is about 35%, and the proportion of people with high school is about 17%, and the proportion of people with high education in this survey is 82.3%, which may be related to the motivation of the office. To a certain extent, the respondent group of this survey reflects the social cross-section of the city where the study area is located, and it has a good representation. **Table 2** presents specific descriptive analysis data.

Table 2. Descriptive statistics of surveyed tourists.

Descriptive Characteristics of the Sample		
Demographic Variables	**Categories**	**Proportion**
Gender	Man	53.6
	Woman	46.4
Age	Under 18	5.2
	18–29	28.9
	30–39	11.1
	40–49	34.1
	50–59	13.6
	59–60	1.7
	Over 60	5.2

Table 2. (*Continued*).

Descriptive Characteristics of the Sample		
Demographic Variables	**Categories**	**Proportion**
Educational Attainment	Junior High School and Below	1.7
	Senior High School	16.0
	College/Undergraduate	60.3
	Postgraduate and above	22.0
Number of Visits to the Destination	Once	2.1
	Twice	58.5
	Third time	5.2
	Four time	26.5
	Over four	7.7

4.2. Reliability and validity testing

4.2.1. Reliability testing

This study utilized SPSSAU software to compute the Cronbach's α coefficient for each variable's corresponding items, thereby validating the reliability of the questionnaire. A higher Cronbach's α coefficient indicates superior reliability of the scale, correlating with diminished measurement error. As demonstrated in **Table 3**, the scale exhibits high reliability, affirming its suitability for empirical research.

Table 3. Reliability analysis of the questionnaire.

Variables	Cronbach's α	Item Count
The educational experience	0.882	4
The aesthetic experience	0.742	3
The entertainment experience	0.795	4
The escapism experience	0.763	4
Functional perceptions	0.868	5
Emotional perceptions	0.829	5
Satisfaction	0.836	4
Behavioral intentions	0.757	4

4.2.2. Validity testing

The accuracy of the questionnaire design was assessed through exploratory factor analysis. Initially, Kaiser-Meyer-Olkin (KMO) values and Bartlett's test of sphericity were evaluated for each factor scale, with results detailed in **Table 4**. The data indicate that the KMO values for all variables exceed 0.7, and the significance level is below 0.001, confirming a high degree of validity suitable for further factor analysis.

Table 4. KMO and Bartlett's test of sphericity.

User Experience	KMO		0.737
	Bartlett's Test of Sphericity.	X^2	2576.471
		Degree of freedom	241
		Significance	0.000
Functional perceptions	KMO		0.801
	Bartlett's Test of Sphericity.	X^2	356.291
		Degree of freedom	57
		Significance	0.000
Emotional perceptions	KMO		0.826
	Bartlett's Test of Sphericity.	X^2	426.644
		Degree of freedom	55
		Significance	0.000
Satisfaction	KMO		0.794
	Bartlett's Test of Sphericity.	X^2	328.515
		Degree of freedom	167
		Significance	0.000
Behavioral intentions	KMO		0.777
	Bartlett's Test of Sphericity.	X^2	1675.04
		Degree of freedom	6
		Significance	0.000

4.3. Confirmatory factor analysis

This study employs confirmatory factor analysis to validate the discriminant validity of variables through model fit indices. As shown in **Table 5**, the X^2/df ratio is 2.592, which falls within the excellent range of 1 to 3; the Root Mean Square Error of Approximation (RMSEA) is 0.067, below the threshold of 0.1; both the Comparative Fit Index (CFI) and Goodness-of-Git Index (GFI) values surpass 0.9, indicating exceptional performance, while the Absolute Goodness-of-Fit Indices (AGFI) approaches 0.9, meeting the good standard. Consequently, these analysis results confirm that the research variables demonstrate good discriminant validity.

Table 5. Discriminant validity test of variables.

Indicators	Reference Standards	Result
X^2/df	A rating of 1–3 is considered excellent, and 3–5 is considered good.	2.592
CFI	A value greater than 0.9 is considered excellent, and greater than 0.8 is considered good.	0.926
GFI	A value greater than 0.9 is considered excellent, and greater than 0.8 is considered good.	0.901
AGFI	A value greater than 0.9 is considered excellent, and greater than 0.8 is considered good.	0.878
RMSEA	A value less than 0.05 is considered excellent, and less than 0.1 is considered good.	0.067

Building on the assurance of discriminant validity among variables, this study further investigates the convergent validity (AVE) and composite reliability (CR) of each dimension of the scale. By calculating the standardized factor loadings of each measurement item relative to its corresponding dimension, and employing the

formulas for AVE and CR, we derive the convergent validity and reliability values of each dimension. According to established criteria, the AVE value should exceed 0.5, and the CR value should surpass 0.7 to demonstrate satisfactory convergent validity and reliability. The results, as shown in **Table 6**, indicate that all dimensions of the tourist heritage value perception scale in this study possess AVE values exceeding 0.5 and CR values surpassing 0.7, collectively affirming good convergent validity and composite reliability.

Table 6. Convergent and composite reliability test of each dimension.

Dimension	Item	Standardized Factor Loading	S.E.	C.R	AVE
The educational experience	J1	0.804		0.801	0.637
	J2	0.728	0.033		
	J3	0.736	0.045		
	J4	0.727	0.034		
The aesthetic experience	S1	0.794		0.797	0.551
	S2	0.716	0.041		
	S3	0.726	0.038		
The entertainment experience	Y1	0.749		0.839	0.755
	Y2	0.746	0.045		
	Y3	0.782	0.035		
	Y4	0.727	0.032		
The escapism experience	T1	0.813		0.866	0.678
	T2	0.769	0.034		
	T3	0.760	0.041		
	T4	0.781	0.042		
Functional perceptions	G1	0.739		0.793	0.521
	G2	0.701	0.037		
	G3	0.713	0.038		
	G4	0.758	0.042		
	G5	0.730	0.043		
Emotional perceptions	Q1	0.785		0.848	0.811
	Q2	0.774	0.039		
	Q3	0.792	0.031		
	Q4	0.737	0.028		
	Q5	0.741	0.032		
Satisfaction	M1	0.740		0.863	0.639
	M2	0.729	0.029		
	M3	0.785	0.037		
	M4	0.783	0.032		
Behavioral intentions	X1	0.727		0.739	0.681
	X2	0.803	0.035		
	X3	0.734	0.033		

X^2 = 686.88; df = 265; p = 0.000***; X^2/df = 2. 592; CFI = 0.926; IFI = 0.915; GFI = 0.901; AGFI = 0.878; RMSEA = 0.067.

4.4. Discriminant validity analysis

The analysis data presented in **Table 7** affirm that none of the standardized correlation coefficients between dimensions exceed the square root of their respective AVE values, thereby confirming a significant correlation among the variables. Consequently, it can be asserted that clear discriminant validity exists between the dimensions.

Table 7. Mean, standard deviation, and correlation coefficients of variables (N = 394).

Variables	The educational experience	The aesthetic experience	The entertainment experience	The escapism experience	Functional perceptions	Emotional perceptions	Satisfaction	Behavioral intentions
The educational experience	0.837							
The aesthetic experience	0.773	0.864						
The entertainment experience	0.677	0.677	0.813					
The escapism experience	0.649	0.639	0.680	0.842				
Functional perceptions	0.753	0.767	0.678	0.728	0.879			
Emotional perceptions	0.707	0.729	0.691	0.645	0.817	0.810		
Satisfaction	0.718	0.809	0.670	0.799	0.728	0.751	0.847	
Behavioral intentions	0.723	0.787	0.666	0.802	0.812	0.657	0.705	0.867

4.5. Hypothesis testing

This study employs path analysis to substantiate the proposed hypotheses and to investigate the causal relationships among variables. The results of the path analysis are detailed in **Table 8**. Among the four dimensions of tourist experience, the educational experience significantly positively affects both functional and emotional perceived value ($P < 0.01$), thereby confirming hypotheses H1a and H1b. The aesthetic experience also exerts a significant positive influence on both functional and emotional perceived value ($P < 0.05$), supporting hypotheses H2a and H2b. The entertainment experience positively impacts functional perceived value ($P < 0.05$), albeit with a weaker effect, thus only supporting hypothesis H3a; it fails to exert a significant impact on emotional perceived value, leading to the rejection of hypothesis H3b. The escapism experience significantly enhances both functional and emotional perceived value with the highest level of significance ($P < 0.001$), corroborating hypotheses H4a and H4b. A significant positive correlation exists between functional and emotional perceived value and satisfaction ($P < 0.01$), thereby confirming hypotheses H5 and H6. Lastly, a significant positive correlation is observed between satisfaction and behavioral intentions ($P < 0.001$), validating hypothesis H7.

Table 8. The results of hypothesis testing.

	Pathways	Path Coefficients	S. E	Standardized Path Coefficients	C.R	Test Results
H1a	The educational experience→Functional perceptions	0.443	0.075	0.538	6.165**	Established
H1b	The educational experience→Emotional perceptions	0.323	0.052	0.362	4.583***	Established
H2a	The aesthetic experience→Functional perceptions	0.562	0.064	0.645	8.527*	Established
H2b	The aesthetic experience→Emotional perceptions	0.645	0.063	0.879	10.626**	Established
H3a	The entertainment experience→Functional perceptions	0.231	0.082	0.332	5.473*	Established
H3b	The entertainment experience→Emotional perceptions	0.143	0.061	0.247	0.584	Rejected
H4a	The escapism experience→Functional perceptions	0.078	0.042	0.109	1.965***	Established
H4b	The escapism experience→Emotional perceptions	0.086	0.037	0.156	2.608***	Established
H5	Functional perceptions→Satisfaction	0.768	0.072	0.788	10.684***	Established
H6	Emotional perceptions→Satisfaction	0.210	0.083	0.182	3.798**	Established
H7	Satisfaction→Behavioral intentions	0.926	0.049	0.893	18.733***	Established

Note: * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

5. Research conclusions and prospects

5.1. Research conclusions

The study found that all four types of experiences—educational experience, aesthetic experience, entertainment experience and escapism experience—enhanced the functional perceived value of tourists in green transition destinations. Educational, aesthetic and escapist experience also significantly enhanced the emotional perceived value. Educational and aesthetic experience had a more significant impact on the affective dimension, and escapism experience added significant value on both the affective and functional dimensions. Entertainment experience primarily influenced functional perceived value and had less impact on the affective dimension.

Functional perception has a greater impact on satisfaction than affective perception, suggesting that infrastructure and facilities are key to attracting tourists in the context of green transformation. Tourist satisfaction further influences their behavioral intention, such as revisiting or recommending the attraction.

Through theoretical analysis and empirical research, this study confirms that user experience has a significant positive impact on the perception of functional and emotional values, which in turn directly affects satisfaction. This highlights the importance of improving the quality of supporting facilities, enriching the type of experience, increasing visitor satisfaction and promoting active participation in the green transformation of industrial sites, which can help promote the conservation and tourism development of industrial sites.

An in-depth discussion of the specific relationship between the research results and the research object, reveals that Jiangsu Garden Expo Park, as a typical case of industrial site transformation, has a unique historical background and resource characteristics that provide rich materials for the study. The Garden Expo Park is transformed from a former cement factory and mine site, and in the process of transformation, a large number of industrial relics are preserved and utilized, such as the transformation of cement silos into bookstores, museums, and other public spaces,

and this innovative transformation directly affects the aesthetic experience of tourists, so that tourists can appreciate the aesthetics of the industrial architecture and at the same time, they can feel the fusion of history, culture, and modern functionality, which in turn enhances the value of the emotional perception. Landscape design and ecological restoration projects in the park, such as the construction of green ecosystems in the mine pits, have improved the infrastructure conditions and enhanced the functional perceived value of the visitors, such as the visitors' positive comments on the accessibility of the park and the completeness of the rest facilities.

The relationship between different types of experiences and the perceived value of visitors is crystallized in the case of Jiangsu Garden Expo Park. For example, the various cultural activities and science exhibitions held in the park provide visitors with opportunities for educational experiences, and visitors acquire knowledge through participation in these activities, which in turn enhances their functional and emotional perceptions of the park. In terms of entertainment experience, the amusement facilities and interactive programs in the park attract a large number of visitors, especially family visitors and young groups. However, the homogenization phenomenon of the entertainment projects limits their value to visitors' emotional perception to a certain extent, which also reflects the need for further innovation and differentiation in the park's entertainment experience design. The escapism experience is reflected in the natural landscape and tranquil atmosphere of Jiangsu Garden Expo Park, where tourists come in the midst of busy city life and immerse themselves in the environment where nature and industrial relics are intermingled to obtain physical and mental relaxation and pleasure, which is of great significance to the enhancement of emotional perceived value.

From the perspectives of visitor satisfaction and behavioral intention, the transformation results of Jiangsu Garden Expo Park have been recognized by visitors to a certain extent, and visitor satisfaction is high, which is reflected in their willingness to visit the park again and recommend it to others. However, the results of the study also reveal some problems, such as public participation needs to be improved. Currently, visitors are mainly function-driven, and there are relatively few individual emotion-driven visitors, which is closely related to the park's publicity and promotion methods, activity planning and other factors. Although the park has achieved some results in infrastructure construction, there is still room for improvement, such as the lack of clear signage system in some areas and the lack of diversity in food and beverage services, which affect the overall experience of visitors.

The experience and insights gained from the Jiangsu Garden Expo hold broader significance for China; however, some aspects may not be universally applicable. Two points are essential to consider. First, Jiangsu is one of China's most economically prosperous provinces. According to official 2023 data, it is one of the few provinces able to achieve fiscal self-sufficiency without relying on central government transfers (which typically reallocate funds from wealthier to less affluent provinces). This suggests that policies effective in Jiangsu may not translate as well to regions like Tibet or Ningxia. Second, Nanjing, the capital of Jiangsu, is recognized as one of China's most highly educated city, with a generally well-educated population. Thus, this path may be less feasible in other cities with lower educational levels, particularly in county-level cities.

But in recent years, China has seen active and effective restoration and reuse of various mining parks, such as Shanghai's Chenshan Botanical Garden, Wuhan's Longling Mountain Mining Park, and Shandong's Zaozhuang Zhongxing Mining Park. From a micro perspective, each park's approach differs from Jiangsu's Garden Park experience; each has followed its own unique path, shaped by factors like project ownership, local economy, and the level of regional cultural development. Yet, a common factor unites these projects: they have all managed the relationship with neighboring indigenous communities exceptionally well. This success is due to the government's prioritization of resident resettlement and acceptance, reflecting the public welfare orientation fundamental to park development.

In summary, the results of this study are closely related to the Jiangsu Garden Expo, and through the in-depth analysis of the visitor experience of the Garden Expo, it not only reveals the successful experience in the process of green transformation of industrial heritage sites, but also identifies the existing problems, which provides specific directions and bases for further optimization of the protection and tourism development of industrial heritage sites, and has an important reference value for the transformation of industrial heritage sites of the same type.

5.2. Outlook and recommendations

This study thoroughly analyzes the interrelationships among different types of experiences and users' value perceptions, satisfaction, and behavioral intentions within the context of the green transformation of industrial sites, emphasizing the perspective of user experience. It not only confirms the applicability of experience economy theory in this field but also elucidates the connection between experiential tourism and users' perceived value, evaluating the impacts of various types of experiences on users' and destinations' perceptions.

The findings reveal the potential of entertainment experiences to enhance the perception of emotional value, while highlighting the importance of functional perceived value in increasing user satisfaction and driving behavioral intentions. In the context of tourism development for the green transformation of industrial heritage sites, optimizing experiences to enhance users' value perceptions is crucial for boosting satisfaction and positively influencing behavioral intentions.

China's industrial heritage parks have primarily emerged as a result of government-led initiatives, making the vigorous development of public participation particularly necessary. As the government is usually the main body of industrial heritage renovation in China, the development of public participation can share the pressure of the government and enable the renovation to take into account the interests of multiple parties.Our study indicates that current visitors tend to be function-driven—primarily engaging in activities such as corporate research and community team building—while individual, emotion-driven visitors are lacking. This suggests that public participation needs significant improvement.

Furthermore, regarding infrastructure development, there remains considerable room for enhancement. Although current educational and aesthetic experiences are significant, the infrastructure itself tends to be relatively uniform, highlighting a

distinctive shortcoming in the process of parkification of industrial heritage sites, both in China and globally.

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