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An Evaluation Study on Tourists' Environmental Satisfaction after Re-Use of Industrial Heritage Buildings

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Abstract: As a witness to history, industrial heritage embodies the cultural, technological, and economic values of a particular era. Transforming it into a cultural and creative park can imbue new functions and vitality, supporting and promoting sustainable urban development. This paper focuses on the Mili Cultural and Creative Park in Quanzhou as its research subject. Through interviews and questionnaire analyses from the perspective of tourists, five evaluation factors are extracted: spatial environmental elements, social cultural elements, landscape and greening elements, supporting facilities elements, and transportation and location elements. An analysis of tourist satisfaction using the semantic differential method reveals a higher satisfaction with spatial environmental elements, social cultural elements, and landscape and greening elements, while satisfaction with supporting facilities elements and transportation location elements is low. Additionally, the modified IPA method is employed for the analysis, revealing poor overall performance in supporting facilities elements and transportation and location elements. In subsequent efforts, priority should be given to improving the quantity and reasonable distribution of garbage cans, organization of events in the park, traffic conditions outside the park, parking around the park, and park accessibility. The aim is to further optimize the environment after the reuse of industrial heritage, enhance tourist satisfaction, and promote urban sustainability.

Keywords: tourist satisfaction; industrial heritage; cultural and creative park; post-use evaluation; heritage tourism; urban development

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1. Introduction

The historic urban structures and heritage, together with the development of pertinent policies, represent pivotal elements in shaping the future and rejuvenation of specific urban areas [1]. Industrial heritage serves as a significant carrier of urban culture [2]. Notably, the Athens and Venice Charters, spanning the period between 1930 and 1970, elucidated the importance of industrial heritage for human cultural society and underscored the necessity of its preservation [3,4]. However, with the development of the urban economy, social progress, and industrial restructuring, some urban industries are unable to meet the economic demands of the late 21st century, resulting in a large number of industrial buildings being left behind [5]. Consequently, the challenge of how to protect and repurpose industrial heritage buildings has become a pervasive issue faced by many cities [6]. From the perspective of industrial heritage protection and reuse policies, the establishment of the International Committee for the Conservation of Industrial Heritage (TICCIH) from 1970 to 1990 ushered in an organized exploration period for industrial heritage protection. In May 1999, the Beijing Charter, as an important guiding document, advocated for sustainable development and recognized the human habitation environment as the direction for future architectural development [7]. From the beginning of the twenty-first century to the present day, the research system concerning industrial heritage protection and reuse has entered a mature stage. The Nizhny Tagil Charter elaborates on the definition, value, legal protection,

maintenance, and preservation of industrial heritage, aligning it with urban renewal and economic development [8]. In 2011, the Dublin Principles proposed specific measures for the protection of industrial heritage, promoting global attention to and scientific protection of industrial heritage [9]. The protection and reuse of industrial heritage have also begun to be approached from the perspective of urban internal renewal [10,11]. The 2006 Wuxi Recommendation, as China's first landmark document on industrial heritage, further expanded the concept of industrial heritage, emphasizing aesthetic value and supplementing the content of craft processes, data records, corporate archives, and intangible heritage concepts [12]. This marks a milestone in China's industrial heritage preservation efforts, indicating a significant advancement in its protection (See Table 1).

Table 1. Documents relating to the preservation and modernization of the international industrial heritage.

Time	Document	Organization	Related Content
1933	Athens Charter	International Association of Architects	To make proposals for the preservation of ancient buildings and areas of historical value that represent a certain period of time.
1964	Venice Charter	International Council on Monuments and Sites (ICOMOS)	The importance of the preservation of the historic environment was explicitly mentioned, as was the need for the lots on which the buildings are situated to be singled out for special attention in order to preserve their integrity.
1999	Beijing Charter	The International Congress of Architects (ICA)	The concept of human settlements is put forward from the perspective of sustainability, advocating that the planning and design of new districts, the rehabilitation of old cities, and renewal and reconstruction should be integrated into a dynamic and everlasting cycle.
2003	Nizhny Tagil Charter	International Society for the Preservation of Industrial Heritage (TICCIH)	It clearly defines the concept of industrial heritage, the value system, and emphasizes the design of different solutions for heritage conservation according to the value of the object to be conserved, providing a basis for the renovation and reuse of industrial buildings in general.
2006	Wuxi Recommendation	PRC State Administration of Cultural Heritage (SACH)	The concept of industrial heritage, the contents of industrial heritage protection, the current threats to industrial heritage, and the ways to protect industrial heritage are clearly defined. The promulgation of the Wuxi Recommendation marks a substantial step forward in the protection of China's industrial heritage, which will protect valuable industrial remains at different stages of development and leave a legacy for future generations of China's industrial development, especially modern industrialization.
2010	Beijing Initiative	Academic Committee on Industrial Architectural Heritage, Architectural Society of China	From the six perspectives of "awareness", "responsibility", "position", "method", "action", and "goal", the initiative on the protection and utilization of industrial heritage aims to actively promote the development of the political and economic development of the country. The initiative on the protection and utilization of industrial heritage from six perspectives, including "awareness", "responsibility", "position", "methodology", "action", and "goal", aims to actively promote the governmental administration to designate legal regulations for the protection of industrial architectural heritage and realize the protection of industrial architectural heritage. The aim is to actively promote the designation of laws and regulations for the protection of industrial architectural heritage by governmental administration to realize the sustainable development of industrial architectural heritage.
2011	The Dublin Principles	International Council on Monuments and Sites (ICOMOS)	Specific measures for the preservation of industrial heritage have been proposed, increasing the importance and scientific protection of industrial heritage in countries around the world.

The protection and reuse of industrial heritage are closely related to urban development planning and socio-economic development [13,14]. Effective reuse can unlock the full residual value of industrial heritage [15], providing an effective way to rescue such factories. This not only preserves their physical structures but also retains their associated intangible values [16–19]. Various exemplary projects for the reuse of industrial heritage have emerged, with cultural and creative parks being one of the main methods for such reuse [20]. They can achieve sustainable development by attracting more tourists [21]. Industrial heritage tourism has become an integral part of preservation and reuse efforts, not only attracting tourists and boosting tourism revenue but also bringing broader economic, social, and environmental benefits [22,23]. In recent years, industrial heritage tourism has become increasingly popular, providing visitors with educational and experiential opportunities [24]. Therefore, in order to grow, industrial heritage tourism must adapt to the increasingly varied and individualized needs of its clients.

As the urbanization process enters its "second half", with urban development shifting from incremental to stock-based [25,26], the core focus of urban design has shifted from serving as symbols of urban construction to paying more attention to the daily lives of the people [27]. The central value of urban design has shifted from being "object-centric" to "people-centric" [28]. Initially, experts and scholars served as the main evaluators in the research on the reuse of industrial heritage. The most notable shift in evaluation practices in recent years has been the shift from experts serving as the authorities to a variety of stakeholders, particularly locals and visitors who participate in the process [29]. While numerous studies have delved deeper into the value connotations and typologies of industrial heritage from the perspective of experts, relatively few have explored the evaluation of industrial heritage transformation from the standpoint of the majority of tourists [30]. From the viewpoint of tourists, the connection between industrial heritage and tourism has not yet been thoroughly investigated [31]. Simultaneously, in the evaluation content of the reuse of industrial heritage, most scholars have shifted their focus from assessing the condition of industrial heritage after reuse and the externalities brought about by reuse [32] to the subjective experiences of individuals after the reuse of industrial heritage. Research has also shifted from evaluating the projects themselves to focusing on people's perspectives, reflecting the changing ideals of industrial heritage preservation and reuse [33]. Researchers have begun to recognize that the reuse of industrial heritage is a dynamic process, and the feelings and experiences of tourists are important in evaluating the effects of reuse projects. Currently, it is essential to examine industrial heritage from the viewpoint of tourists after reuse; however, the current body of research is insufficiently thorough and in-depth.

This study aims to supplement the evaluation of industrial heritage buildings post-reuse by incorporating the perspectives of tourists. Nonetheless, tourists represent a variable group, and their evaluations are inherently subjective, potentially affecting the authority and credibility of the evaluation results. To mitigate this, the revised importance–performance analysis (IPA) method is adopted, replacing the original self-reported importance data with derived importance data to enhance the objectivity and credibility of the evaluation. This study seeks to establish a model for assessing the environmental satisfaction of industrial heritage post-reuse based on tourists' evaluations of the reutilized industrial heritage environment. A model like this can assist in identifying current flaws in industrial heritage reuse and offer direction for further updates and long-term operational management of industrial heritage converted into cultural and creative parks. This paper employs a factor analysis, semantic differential method, and the revised IPA method. First, the theoretical foundation and research direction are determined through a literature review. Factors relevant to the evaluation of architectural heritage reuse are identified through tourist interviews and literature retrieval. Then, a questionnaire survey is conducted using the Mili Cultural and Creative Park in Quanzhou as a case study to validate the reliability and validity of the questionnaire data. A factor analysis is used to categorize and name 27 factors, followed by an analysis of the tourists' satisfaction levels. Finally, the revised IPA

method is employed to evaluate the environment after the reuse of industrial heritage, and subsequent prioritized updates and targeted improvement recommendations are proposed.

2. Literature Review

The literature review includes three aspects. The first part is the research on the reuse of industrial heritage buildings, the second part is the research related to the evaluation of the effectiveness of industrial heritage buildings after reuse, and the third part is the research related to the tourists' experience and satisfaction.

2.1. Research on the Reuse of Industrial Heritage Buildings

By formulating corresponding principles, industrial heritage can be protected and repurposed, facilitating the organic integration of old and new functional systems. This includes specific principles such as the authenticity principle [34], the integrity principle [4], the dynamic conservation principle [35], and the sustainability principle [36]. The reuse of industrial heritage requires consideration of a myriad of complex standards and diverse perspectives, and finding suitable uses is also a key factor for the successful reuse of industrial heritage [37]. Fuying Liu et al. evaluated the value of industrial heritage by combining analytic hierarchy process, DS theory, and fuzzy theory, which requires comprehensive consideration of factors such as industry type, year, development history, surrounding environment, and remnants [38]. Juan Claver et al. assessed heritage value and the most compatible uses through the analytic hierarchy process (AHP), from the characteristics of assets and their surrounding environments to distinguishing valuable aspects of assets that must be protected [39]. Marta Bottero et al. used a multicriteria decision-aiding approach to rank the preferences of different stakeholders for reuse strategies of industrial heritage, determining the optimal reconstruction and reuse strategies [40]. Fanlei Meng et al. used the improved entropy TOPSIS method to determine the relative values of reuse potential for various hierarchical evaluation indicators, providing targeted recommendations for industrial heritage reuse [41]. These research findings provide valuable theoretical guidance for industrial heritage reuse strategies and practices.

There are various models for the reuse of industrial heritage, including residential [42], creative parks [43], park transformations [44], heritage tourism [45], and museums [46], among other utilization patterns. Currently, creative parks, park renovation, and heritage tourism represent mainstream development and utilization approaches. The cultural and creative fusion development mode reflects a shift in perceptions of industrial heritage protection and utilization, offering increased authenticity [47], contributing to a certain increase in the local economy [48], and offering places for visitors to experience past cultural elements [49]. These approaches represent active exploration into the inheritance and continuation of the spirit and cultural connotations of industrial sites, as well as seeking pathways for the renewable utilization of existing resources and the sustainable development of urban environments.

In the decision-making process of industrial heritage reuse, experts employ various methods to analyze the value, optimal use, and best utilization strategies of industrial heritage from different perspectives, aiming to maximize its value and better integrate it into urban renewal efforts. In terms of utilization patterns, creative parks, by blending cultural experiences with creative elements, provide innovative experiences for visitors [50], contributing to sustainable tourism development, and experiencing rapid growth in many cities. Post-reuse maintenance plays a vital role [51], significantly impacting the sustainable reuse of industrial heritage. It is essential to find appropriate methods to evaluate the effects of reuse and further propose corresponding improvement measures to achieve dynamic renewal.

2.2. Evaluation of the Effectiveness of Industrial Heritage Buildings after Reuse

The pre-evaluation of industrial heritage reuse involves forecasting the project's future [46]. Industrial heritage reuse can be optimized and guided by post-evaluation, which

also serves as a reference for future industrial heritage reuse initiatives. Post-evaluation holds a significant level of significance, and from a research methodology perspective, evaluation methods for industrial heritage reuse after the fact can be categorized into qualitative and quantitative research methods [52].

In qualitative research, de Broekert, Corné explored the relationship between the adaptive reuse of industrial heritage in the Netherlands and the additional values in economic, social, and environmental sustainability [53]. Sarri, Sotiria indicated that cultural sustainability is a way to maintain cultural diversity, help build an inclusive society, and strengthen the economy [54]. Xiaolu Wu et al. highlighted the need for public participation in the preservation and reuse of industrial heritage, as public demands can guide and determine the ways in which industrial heritage is preserved and reused [55]. Hung-Ming Tu discussed destination attractiveness from a leisure perspective, summarizing it as the recreation value associated with the reuse environment, natural environment, and regional environment, including self-growth, health benefits, and social benefits [56].

In terms of quantitative research methods, Yan Zhang et al. utilized the analytic hierarchy process (AHP) and fuzzy comprehensive evaluation method to obtain reuse scores for each heritage site [5]. Federico Dell'Anna used the hedonic price method (HPM) to determine a significant increase in market prices within the site area, leading to capital gains for surrounding residential buildings. The reuse of industrial heritage had positive impacts on residents' lives and the real estate market [57]. Shaojie Wang et al. conducted post-occupancy evaluations from the user's perspective using the importance–performance analysis (IPA) method, multivariate regression analysis, etc., proposing optimization strategies for future sustainable management, maintenance, and design of the project [58]. Lei Meng et al. explored, using the analytic hierarchy process, how preferences for cultural landscapes during the transformation of industrial heritage reuse differed between the public and experts. Public participation is of significant importance for the design of industrial heritage reuse [59]. Yasemin Mesda et al. employed a multisensory analysis to understand how individuals form emotional attitudes in a multifunctional space, serving as a core assessment for adaptive reuse purposes [60].

Currently, research covers various aspects of industrial heritage preservation, reuse, and sustainable development, exploring the relationship between the reuse of industrial heritage and urban planning, economic development, and cultural preservation. However, whether qualitative or quantitative, the objective of industrial heritage reuse has shifted from heritage preservation to meeting societal needs, with the public now being the primary focus of evaluating industrial heritage reuse. Researchers are beginning to prioritize the subjective experiences of the public, emphasizing the importance of deeper engagement of stakeholders, including tourists, residents, and others, whose perspectives have become key components of these assessments.

2.3. Tourist Experience and Satisfaction

Under the influence of the experience economy, scholars have delved into the study of tourist experience from various perspectives such as psychology, anthropology, and sociology [61]. Currently, research on tourist experiences is mainly manifested in four dimensions: firstly, analyzing experiences from a psychological perspective, considering them as psychological outcomes [62]; secondly, analyzing them in terms of tourism expectations and motivations, recognizing that tourist experiences are influenced by factors such as expectations [63]; thirdly, viewing them as a behavioral activity [64]; and fourthly, exploring them as core commodities [65].The quality of experience has emerged as a crucial idea in the study of visitor behavior as living standards rise [66,67]. Even among travelers who are visiting the same place, there are significant individual differences that contribute to the variation in tourist experiences. While unfavorable elements can lower the experience's quality, favorable aspects of travel can increase overall satisfaction.

Tourist satisfaction stands as one of the most extensively researched topics in tourism studies [68]. It alludes to the assessments travelers make following their travels [69]. People

tend to be more satisfied when they have had a better overall experience. According to some academics, satisfaction is an assessment that incorporates both emotional and cognitive components [66,70]. Because it affects travelers' decisions, how much they buy and consume, and how likely they are to return, visitor satisfaction is vital for destination marketing [68]. One of the most critical factors for tourists to revisit a destination is their satisfaction with their previous visit to that destination [71]. Satisfaction represents a psychological state [72], and research has examined preferences for sites from the user's perspective. The results indicate that tourists' preferences differ from those of working professionals, with tourists not favoring traditional and monotonous sites. This suggests that site characteristics can influence visitor preferences [73]. Consequently, the experience and contentment of the guests play a major role in the venue's success, so it is essential to comprehend their viewpoints [65].

Angela Ya-Ping Chang et al. explored the dimensions of visitor experience in cultural and creative industry parks, identifying seven dimensions: learning, entertainment, exhibition, service, dining, facilities, and souvenirs [74]. Hung-Che Wu et al. found that the quality of the physical environment is considered to be the primary dimension of visitor-perceived experience quality in theme parks [75]. Kuang-Peng Hung et al. demonstrated that aesthetics, excellence of service personnel, and entertainment affect visitor satisfaction, subsequently influencing their sense of belonging, with on-site activities moderating the impact of satisfaction on belonging [76]. İlke Başarangil's research revealed a significant relationship between "satisfaction" in creative parks and "perceived service quality" and "behavioral intent" [77]. Research can clarify visitors' needs and opinions about the sustainability of a site in terms of visitor perceptions, which can then inform future planning and management [78]. Tourism destinations can improve their appeal, visitor experiences, and positive feedback loops by soliciting and utilizing visitor feedback.

3. Materials and Methods

3.1. Study Area

Quanzhou is a World Heritage City, recognized by the United Nations as the starting point of the Maritime Silk Road. It is also among the first group of Chinese historical and cultural cities to be recognized nationally. Quanzhou has a rich historical and cultural heritage with abundant historical relics and cultural treasures. Industrial heritage is a significant part of the heritage as well, and its reuse and modification are now essential components of urban renewal and development. Quanzhou has seen many examples of converting industrial heritage into cultural and creative parks with the help of the national government. The research case is the Mili Cultural and Creative Park located in the central area of the Quanzhou Ancient City Protection Zone, specifically in the Li Cheng District. Covering an area of about 4000 square meters, the park is located in the historic Zhongshan Road area. The Mili Cultural and Creative Park is located near the provincial-level cultural heritage site, Huang Zonghan's former residence. Across from the creative park at No. 38 is the municipal-level cultural relic protected building, the Ye Yigen Western-style Building. The creative park is surrounded by historical and cultural landmarks like Zhongshan Road, West Street, and East Street, as well as temples like the Kaiyuan Temple, Chengtian Temple, and Guandi Temple, all within one kilometer. Due to its ideal geographic location, the Mili Cultural and Creative Park offers ideal site conditions for both its reuse and future development. It was originally established in 1956 as the Quanzhou Paper Factory. By the 1990s, the paper factory had relocated from Zhenfu Lane, leaving behind an industrial heritage site. In 2019, it underwent transformation into a cultural and creative park with traditional Quanzhou characteristics.

The name of the creative park is also derived from the ancient city. In the past, Quanzhou was referred to as "Li Cheng", and "Mi Li" means "seeking the taste of the old city". The Mili Cultural and Creative Park is themed around "youth leisure", aiming to create a utopia for young people's leisure activities, featuring an overall layout that is romantically intriguing and aligns well with young people's preferences. In terms of

architecture, the original layout space has been preserved, retaining the traditional Minnan red-brick houses, as well as elements such as the original factory's brine well and chimney from the boiler era. In terms of renovation, traditional Minnan drip beasts have been incorporated, along with a sailboat-shaped staircase representing the "Maritime Silk Road" origin, allowing tourists to explore their roots through features like the Yanshi heritage wall. This has attracted a large number of tourists, making it a popular attraction. In terms of construction, it can be broadly divided into several parts: tenant businesses, the Little Carp Market, daily activity planning, and public cultural development.

With the Quanzhou government actively promoting tourism development, the city received a total of 86,529,700 tourists in 2023, ranking first in Fujian Province. During holidays, the daily average flow of tourists on West Street and Zhongshan Road reaches around 100,000 people, making it a hub for cultural tourism consumption. Due to the fact that the Mili Cultural and Creative Park does not require admission tickets and is located in the central area of Quanzhou tourism, it attracts a large number of tourists. During holidays, there is a higher influx of out-of-town tourists, with the number of local and out-of-town tourists remaining relatively balanced. Tourists tend to concentrate their visits in the afternoon and evening. During peak seasons, the average daily flow ranges from approximately 15,000 to 25,000 people, while during off-peak seasons, it ranges from about 7000 to 10,000 people per day.

In terms of transportation, Quanzhou boasts a well-developed public transit system. To mitigate traffic congestion and promote environmental sustainability, the Quanzhou government encourages tourists to utilize public transportation when exploring the ancient city. Out-of-town tourists mainly rely on public buses and electric bikes for transportation, while local tourists primarily use electric bikes and private cars. Common types of outings include family trips, couple outings, and outings with friends, with visiting purposes mainly focused on sightseeing, photography, dining, leisure, and strolling. The Mili Cultural and Creative Park, a small yet refined leisure and creative park for young people, serves as a reference for other industrial heritage sites that cannot be transformed into large-scale creative bases. By integrating commercial formats into its theme and creating a multifunctional tourist district, it drives business development, generates commercial benefits, and establishes itself as a regional cultural landmark, showcasing the cultural characteristics of Quanzhou and serving as a platform for cultural exhibitions (See Figure 1).

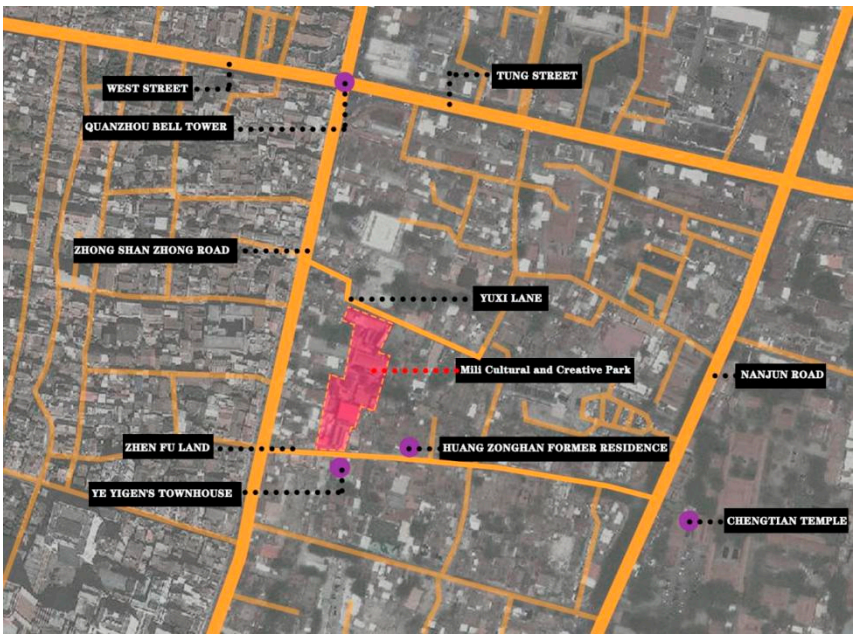

Figure 1. Geographic location of Quanzhou Mili Cultural and Creative Park.

3.2. Research Methods

3.2.1. Factor Analysis

A factor analysis is a multivariate statistical analysis method that was proposed by British psychologist C.E. Spearman. Its connotation is to start from the internal dependence of the research variables [79] and use the low-dimensional ideas [80] to reduce the variables with intricate relationships into several integrated factors, i.e., common factors, and to reflect most of the information of the original data with a few factors [81].

1. Calculate the eigenvalues and eigenvectors of the correlation matrix R.

According to the following characteristic equation,

$$|R - \lambda I| = 0,$$

Obtain p eigenvalues $\lambda_m (m = 1, 2, \ldots\ldots, p)$ $(m < p)$. In this context, $\lambda_1 \geq \lambda_2 \geq \cdots\cdots \geq \lambda_p \geq 0$ for the system of the following equation:

$$(R - \lambda_m I) F_m = 0,$$

Determine the eigenvectors λ_m corresponding to the eigenvalues F_m $(m = 1, 2, \ldots\ldots, p)$.

2. Determine the factor contribution rate and cumulative contribution rate.

Since the eigenvalues λ_i of R represent the variance in the composite factors, the proportion of the total information retained by the i-th composite factor is:

$$d_i = \lambda_i / \sum \lambda_i (i = 1, 2, \cdots\cdots, n)$$

That is, d_i represents the contribution rate of the i-th composite factor to the original data F_i. The cumulative variance contribution rate of the first m common factors is given by:

$$\partial(k) = \sum_{i=1}^{m} \lambda_i / \sum_{i=1}^{p} \lambda_i$$

Typically, the value of m is determined based on either criterion $\partial(k) \geq 85\%$ or criterion $\partial(k) \geq 1$.

3. Establish factor loadings and interpret the factors.

The initial factor loading matrix obtained from the eigenvector matrix may exhibit factors with less correlated magnitudes, making it difficult to interpret the factors. To give clear meaning to the primary factors, an orthogonal rotation is applied to the initial loading matrix (a commonly used rotation method is the Varimax method, which maximizes variance), ensuring that each original variable's loading on the primary factors differentiates between 0 and 1. Subsequently, the actual meaning of each primary factor is determined based on the comprehensive significance of several indicators with larger weights in the linear combination.

3.2.2. Modified IPA Analysis Method

The importance–performance analysis (IPA) was proposed by Martilla and James in 1977 as a tool to evaluate customer service satisfaction and prioritize service elements [82]. However, the traditional IPA analysis method has certain drawbacks. It solely relies on customers' self-reported satisfaction and importance ratings to measure and compare the significance of various evaluation indicators in enhancing customer satisfaction. This approach does not allow for independence between satisfaction and importance [83]. Therefore, this study adopts the modified IPA method [84], which discards self-reported importance data from the respondents. Instead, the partial correlation coefficient between each self-reported satisfaction indicator and the overall satisfaction of all survey questionnaire indicators is used as derived importance data. This derived importance data replace

the original self-reported importance data. Compared to self-reported importance ratings, derived importance ratings are considered to be more objective, establishing a revised IPA analysis model.

In the modified IPA, the satisfaction evaluation of individual elements (denoted as s) and the overall satisfaction evaluation (denoted as OS) are considered. The transformation process involves two steps: first, taking the natural logarithm of each element's satisfaction evaluation (s) to linearize the distribution, denoted as ln(S); second, using ln(S) as the independent variable and OS as the dependent variable for multivariate regression analysis to calculate the partial correlation coefficient P between OS and ln(s). This P serves as the derived importance. The partial correlation coefficient can be calculated using iterative methods or matrix inversion methods in software like SPSS 27.0.

3.3. Determination of Evaluation Indicators

The evaluation of satisfaction needs to be clearly focused on the tourists, and the generation of evaluation indicators should be approached from the perspective of the tourists. Therefore, before determining the evaluation indicators, interviews were conducted with 20 tourists on-site. The interviews included descriptions of the users' experiences in the Mili Cultural and Creative Park, covering aspects such as environmental attitudes, behavioral habits, demands for the historical district, emotions, etc. Additionally, the evaluation indicators were aligned with the relevant regulations of "Cultural Tourism Space Service Quality Requirements (Part 2: Cultural and Creative Industry Parks)" DB31/T 949 [85]. After corrections through expert surveys, 27 evaluation indicators were finally determined (See Table 2).

Table 2. Modified SD factor adjective pair description table.

Serial Number	Evaluation of Project	SD Evaluation Scale Description
1	Traffic conditions outside the park	Exterior traffic is smooth—Exterior traffic is chaotic
2	Traffic conditions inside the park	Smooth internal access—Chaotic internal access
3	Parking around the park	Good parking around the park—Poor parking around the park
4	Park accessibility	Good park accessibility—Poor park accessibility
5	Attractiveness of the park	Attractive—Weakly attractive
6	Status of the signage system in the park	Good signage system—poor signage system
7	Cleanliness of space in the park	Clean space in the park—Dirty space in the park
8	Interior lighting effect after remodeling	Remodeled interiors with good lighting—Remodeled interiors with poor lighting
9	Soundproofing of the retrofitted interior	Good soundproofing of remodeled rooms—Poor soundproofing of remodeled rooms
10	Interior comfort after remodeling	Remodeled interior comfortable—Remodeled interior uncomfortable
11	Scale of interior space	The scale of the interior space is appropriate—The scale of the interior space is not appropriate
12	Decorative finishes fit with industrial architectural styles	High fit—Low fit
13	Public open space facilities	Public open space satisfaction—Lack of public open space
14	Level of illumination at night	Nighttime illumination level satisfied—Nighttime illumination level lacking
15	Number of restrooms	Bathroom quantity satisfaction—Bathroom quantity missing
16	Number and reasonable distribution of garbage cans	Reasonable—Unreasonable
17	Diversity of green landscapes	Remodeled green area meets expectations—Remodeled green area not satisfactory
18	Uniqueness of the green landscape	Landscape vignettes in abundance—Few landscape vignettes

Table 2. *Cont.*

Serial Number	Evaluation of Project	SD Evaluation Scale Description
19	Landscape industrial atmosphere	High utilization of industrial elements in the landscape—Low utilization of industrial elements in the landscape
20	Abundance of services such as cultural, entertainment and catering facilities	Abundance of cultural, recreational, and catering services and facilities—Single cultural, recreational, and catering services and facility
21	Organization of events in the park	The park is rich in activities—The park is poor in activities
22	Overall image of the building	Good overall image of the building—Poor overall image of the building
23	Degree of harmony between the building and its surroundings	Architecture in harmony with its surroundings—Architecture not in harmony with its surroundings
24	Preservation of surviving buildings	Good conservation of surviving buildings—Poor conservation of surviving buildings
25	Promotion of industrial culture	Industrial culture promotion—Less industrial culture promotion
26	Presentation of local culture	Rich presentation of local culture—Single presentation of local culture
27	The transmission of historical and cultural heritage in the park	Good transmission of historical heritage in the park—Poor transmission of historical heritage in the park

3.4. Questionnaire Design and Data Sources

The Quanzhou Mili survey questionnaire was developed based on the evaluation indicator system for tourists' environmental satisfaction after the reuse of industrial heritage buildings. It consists of three parts, including: (1) respondent characteristics, covering gender, educational background, mode of arrival, length of stay, and purpose of visit; (2) respondents' satisfaction with the Mili Cultural and Creative Park based on the 27 evaluation indicators listed in Table 2. The respondents used a five-point Likert scale, ranging from 1 ("Very Dissatisfied") to 5 ("Very Satisfied") (See Appendices A and B).

The survey was conducted from March to May 2023, mainly through on-site inspections, tourist interviews, and questionnaire surveys. A total of 520 questionnaires were distributed, with 472 valid responses, resulting in an effective response rate of 90.77%. The survey questionnaires were distributed to the target group, introducing the purpose of the survey and the filling method. When necessary, explanations of relevant concepts were provided to the participants. During the questionnaire completion process, brief explanations of relevant terms were given to the participants to ensure more accurate data collection.

4. Results

4.1. Description of Sample Characteristics

Across the 472 valid questionnaires, the majority of the tourists to the park were in the age group of 19–30 years, totaling 320 individuals (67.8%). The next-largest age group was 31–45 years, with 90 individuals (19.1%). The park primarily attracted a young and middle-aged demographic. Regarding the mode of transportation to the park, the largest group opted for public bus travel, comprising 178 individuals (37.7%). Walking was the chosen mode for 84 individuals (17.8%), non-motorized vehicle travel for 76 individuals (16.1%), and the groups choosing taxis, private cars, and bike-sharing were relatively smaller. Concerning the purpose of their visit, the people had a high demand for tourism sightseeing, consumption (dining, coffee, shopping, etc.), leisure and entertainment, passing through or walking, and photography, accounting for 97.0% of the overall preferences.

4.2. Reliability and Validity Testing of the Questionnaire

Cronbach's Alpha coefficient is commonly used to measure internal consistency. Reliability refers to the degree of reliability and stability of a test or scale, expressed by the reliability coefficient. Generally, the larger the coefficient, the higher the consistency and the more reliable the scores obtained. Its formula is as follows:

$$a = \frac{K}{K-1}\left(1 - \frac{\sum S_i^2}{S_x^2}\right) \quad (1)$$

The Cronbach's Alpha coefficient for this study was 0.922 > 0.7 (See Table 3), indicating that the survey questionnaire had a high reliability.

Table 3. Reliability statistical analysis.

Cronbach's Alpha	Number of Terms
0.922	27

An investigation the data must undergo Bartlett's sphericity test and the Kaiser–Meyer–Olkin (KMO) test. The KMO test is used to compare the simple and partial correlations between variables, with values closer to 1 indicating stronger correlations among the underlying factors. If the KMO value is greater than 0.5, it is suitable for factor analysis models.

The calculation formula for the KMO test is as follows:

$$KMO = \frac{\sum\sum_{i\neq j} {r_{ij}}^2}{\sum\sum_{i\neq j} {r_{ij}}^2 + \sum\sum_{i\neq j} {p_{ij}}^2} \quad (2)$$

Based on the KMO test, the KMO value was obtained as 0.875 > 0.7 (See Table 4), indicating that there was sufficient sample adequacy for a principal component analysis. After conducting Bartlett's sphericity test, the significance (Sig.) was found to be 0.000, which is less than 0.05. This suggests that there is a strong correlation between the statistically analyzed original variables and the sought dependent variables in this study, making it suitable for a factor analysis.

Table 4. KMO and Bartlett tests.

KMO Measurement Sampling Adequacy		**0.875**
Bartlett's spherical test	Chi-square last read	7051.120
	Degrees of freedom	351
	Significance	0.000

4.3. Factor Extraction and Naming

The factor analysis method was employed to extract five common factors with eigenvalues greater than 1 (See Table 5). These factors explained a cumulative variance of 60.539%, indicating that the overall explanatory power of the scale was sufficient to represent the information obtained from the 27 items in the questionnaire.

Additionally, the factor loading matrix is a part of the factor analysis results. The factor loading matrix grouped the initial evaluation factors that had the closest relationship with the five common factors. In other words, each common factor represented several aspects, and based on these aspects, suitable names for the common factors could be selected. When naming, it is essential to consider the various factors represented by the common factors, aiming for a comprehensive and concise representation (See Table 6).

Table 5. Explanation of total variance.

Elements	Initial Eigenvalue			Extracted Sum of Squared Loads			Rotating Load Sum of Squares		
	Total	Variance Contribution Rate (%)	Grand Total (%)	Total	Variance Contribution Rate (%)	Grand Total (%)	Total	Variance Contribution Rate (%)	Grand Total (%)
1	9.219	34.143	34.143	9.219	34.143	34.143	4.432	16.081	16.081
2	2.188	8.102	42.246	2.188	8.102	42.246	3.824	14.165	30.246
3	1.780	6.591	48.837	1.780	6.591	48.837	2.906	10.763	41.009
4	1.607	5.953	54.790	1.607	5.953	54.790	2.671	9.892	50.901
5	1.552	5.749	60.539	1.552	5.749	60.539	2.602	9.638	60.539
6	0.987	3.654	64.193						
7	0.906	3.356	67.549						
8	0.860	3.186	70.734						
9	0.841	3.114	73.848						
10	0.763	2.828	76.676						
11	0.686	2.541	79.217						
12	0.611	2.263	81.480						
13	0.582	2.155	83.634						
14	0.542	2.007	85.642						
15	0.501	1.856	87.498						
16	0.453	1.676	89.174						
17	0.423	1.566	90.740						
18	0.378	1.401	92.142						
19	0.341	1.262	93.404						
20	0.313	1.160	94.564						
21	0.295	1.092	95.656						
22	0.260	0.964	96.620						
23	0.243	0.901	97.521						
24	0.234	0.867	98.388						
25	0.200	0.740	99.128						
26	0.165	0.613	99.740						
27	0.070	0.260	100.000						

Note: The extraction method used was a principal component analysis.

Factor I is closely related to seven initial evaluation factors, including post-renovation indoor comfort, indoor space scale, post-renovation indoor lighting, post-renovation indoor sound insulation, compatibility of decoration with industrial architectural style, cleanliness of park space, and the status of the park signage systems. These factors mainly describe the spatial environment of the park; hence, they are referred to as "spatial environmental elements".

Factor II is closely related to seven initial evaluation factors, including the inheritance of post-renovation historical context in the park, the presentation of local culture, the promotion of industrial culture, the preservation of heritage buildings, the overall image of the buildings, the degree of coordination between the buildings and their surrounding environment, and the attractiveness of the park to tourists. These factors mainly describe the social and cultural aspects of the park; hence, they are referred to as "social cultural elements".

Factor III is closely related to three initial evaluation factors: industrial atmosphere of the landscape, uniqueness of the green landscape, and diversity of the green landscape. These factors primarily describe the landscape and greening aspects of the park; hence, they are referred to as "landscape and greening elements".

Factor IV is closely related to six initial evaluation factors: the quantity of toilets, public recreation facilities, nighttime lighting levels, the number and rational distribution of trash bins, the richness of the cultural and entertainment services, and the organization of park activities. These factors mainly describe the supporting facilities of the park; hence, they are referred to as "supporting facilities elements".

Factor V is closely related to four initial evaluation factors: internal traffic conditions in the park, external traffic conditions around the park, parking in the vicinity of the park,

and park accessibility. These factors mainly describe the traffic and location situation of the park; hence, they are referred to as "transportation and location elements".

Table 6. Component matrix a after rotation.

Evaluation Item	Factor				
	1	2	3	4	5
Interior comfort after remodeling	0.775	-	-	-	-
Scale of interior space	0.745	-	-	-	-
Interior lighting effect after remodeling	0.689	-	-	-	-
Soundproofing of the retrofitted interior	0.682	-	-	-	-
Decorative finishes fit with industrial architectural styles	0.681	-	-	-	-
Cleanliness of space in the park	0.549	-	-	-	-
Status of the signage system in the park	0.541	-	-	-	-
The transmission of historical and cultural heritage in the park	-	0.762	-	-	-
Presentation of local culture	-	0.762	-	-	-
Promotion of industrial culture	-	0.709	-	-	-
Preservation of surviving buildings	-	0.664	-	-	-
Overall image of the building	-	0.645	-	-	-
Degree of harmony between the building and its surroundings	-	0.530	-	-	-
Attractiveness of the park	-	0.508	-	-	-
Landscape industrial atmosphere	-	-	0.882	-	-
Uniqueness of the green landscape	-	-	0.879	-	-
Diversity of green landscapes	-	-	0.754		-
Number of restrooms	-	-	-	0.749	-
Public open space facilities	-	-	-	0.702	-
Level of illumination at night	-	-	-	0.606	-
Number and reasonable distribution of garbage cans	-	-	-	0.573	-
Abundance of cultural, recreational, catering, and other service facilities	-	-	-	0.486	-
Organization of events in the park	-	-	-	0.486	-
Traffic conditions inside the park	-	-	-	-	0.714
Traffic conditions outside the park	-	-	-	-	0.690
Parking around the park	-	-	-	-	0.652
Park accessibility	-	-	-	-	0.604

Notes: extraction method: principal component analysis method. Rotation method: Kaiser standardized maximum variance method; a rotation was converged after 7 iterations.

4.4. Evaluation of Tourists' Satisfaction with Industrial Heritage after Reuse

The average scores for each evaluation element were calculated, and a comprehensive evaluation curve was plotted based on these scores (See Figure 2). The line graph provides a clear overview of the performance of the Mili Cultural and Creative Park across the various evaluation elements. Factor I, "spatial environment elements", had an average score of 3.96; Factor II, "social cultural elements", had an average score of 3.929; Factor III, "landscape and greening elements", had an average score of 3.793; Factor IV, "supporting facilities elements", had an average score of 3.525; and Factor V, "transportation and location elements", had an average score of 3.498. The satisfaction levels for "supporting facilities elements" and "transportation and location elements" were relatively lower, suggesting the need for specific updates and prioritization based on the revised IPA method.

4.5. Revised IPA Analysis

The satisfaction scores of the various indicators in the evaluation questionnaire were transformed into natural logarithms, treated as independent variables, and the overall satisfaction score was considered as the dependent variable. A multiple regression analysis was conducted to obtain the partial correlation coefficient between them, namely the derived importance. Following the aforementioned steps, the adjusted importance of each indicator and the deduction results of satisfaction were listed (See Table 7).

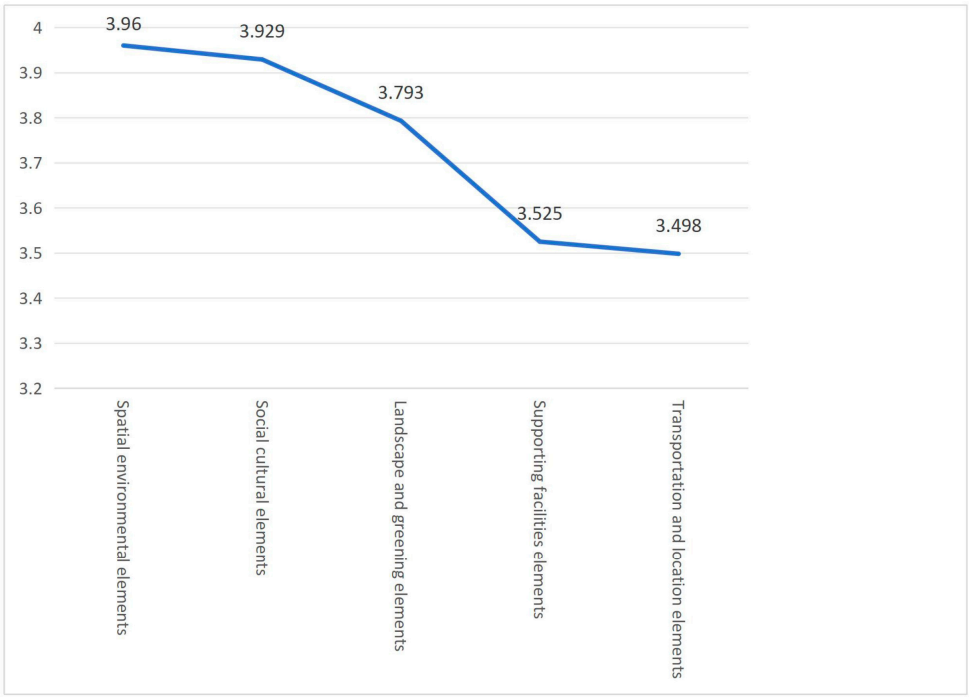

Figure 2. Line graph of average satisfaction of principal components.

Table 7. Satisfaction and derived importance test results.

Primary Evaluation Indicators	Secondary Evaluation Indicators	NO.	Satisfaction	Derived Importance
Spatial environmental elements (A)	Interior comfort after remodeling	A1	3.98	0.28
	Scale of interior space	A2	3.87	0.29
	Interior lighting effect after remodeling	A3	3.96	0.6
	Soundproofing of the retrofitted interior	A4	3.67	0.309
	Decorative finishes fit with industrial architectural styles	A5	4.27	0.446
	Cleanliness of the space in the park	A6	4.02	0.517
	Status of the signage system in the park	A7	3.95	0.509
Social cultural elements (B)	The transmission of historical and cultural heritage in the park	B1	3.93	0.546
	Presentation of local culture	B2	3.96	0.23
	Promotion of industrial culture	B3	3.59	0.345
	Preservation of surviving buildings	B4	4.05	0.515
	Overall image of the building	B5	4.11	0.559
	Degree of harmony between the building and its surroundings	B6	3.95	0.366
	Attractiveness of the park	B7	3.91	0.489
Landscape and greening elements (C)	Landscape industrial atmosphere	C1	3.81	0.323
	Uniqueness of the green landscape	C2	3.8	0.425
	Diversity of green landscapes	C3	3.77	0.509
Supporting facilities elements (D)	Number of restrooms	D1	3.03	0.402
	Public open space facilities	D2	3.46	0.402
	Level of illumination at night	D3	3.89	0.523
	Number and reasonable distribution of garbage cans	D4	3.6	0.555
	Abundance of cultural, recreational, catering, and other service facilities	D5	3.74	0.253
	Organization of events in the park	D6	3.43	0.559

Table 7. *Cont.*

Primary Evaluation Indicators	Secondary Evaluation Indicators	NO.	Satisfaction	Derived Importance
Transportation and location elements (E)	Traffic conditions inside the park	E1	3.96	0.486
	Traffic conditions outside the park	E2	3.62	0.573
	Parking around the park	E3	2.72	0.484
	Park accessibility	E4	3.69	0.594

The corrected IPA plots the average satisfaction scores of the indicators on the horizontal axis and the derived importance on the vertical axis. The overall mean of satisfaction and derived importance (3.768, 0.448) serves as the coordinate origin. Using SPSS 27.0 software, a satisfaction-derived importance quadrant chart was generated with 27 indicators distributed in different quadrants of the Cartesian coordinate system (See Figure 3).

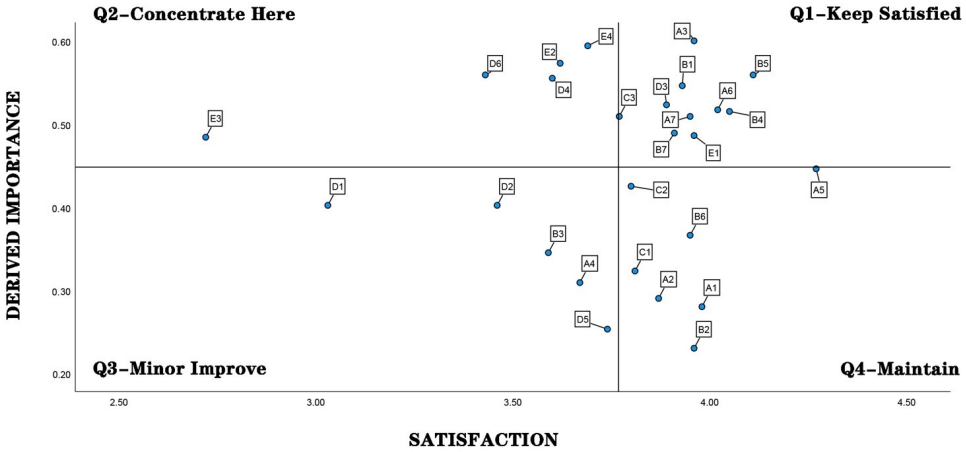

Figure 3. Satisfaction—derived importance quadrant chart.

The first quadrant is the "Keep Satisfied" region, indicating indicators with a high derived importance and performance. There are 10 indicators distributed in the first quadrant, including A3, the interior lighting effect after remodeling, A6, the cleanliness of the park space, A7, the status of the signage system in the park, B1, the transmission of historical and cultural heritage in the park, B4, the preservation of surviving buildings, B5, the overall image of the buildings, B7, the attractiveness of the park, C3, the diversity of the green landscape, D3, the level of illumination at night, and E1, the traffic conditions inside the park.

The second quadrant is the "Concentrate Here" region, indicating indicators with a high derived importance and relatively low performance. These are the indicators that are considered most important during the experience, but in reality, their performance has not met expectations. There are five indicators distributed in the second quadrant, including D4, the number and reasonable distribution of garbage cans; D6, the organization of events in the park; E2, the traffic conditions outside the park; E3, the parking around the park; and E4, the park accessibility.

The third quadrant is the "Minor Improve" region, indicating indicators with a lower derived importance and relatively low performance. These indicators are not the most important during various experiences in the park, and during actual experiences, they also do not perform well, receiving lower audience evaluations. There are five indicators distributed in the third quadrant, including A4, the soundproofing of the retrofitted interior, B3, the promotion of industrial culture, D1, the number of restrooms, D2, public open space facilities, and D5, the abundance of cultural, recreational, catering and other service facilities. Although these have a lower priority, if resources permit, optimizing these lagging indicators is advisable.

The fourth quadrant is the "Maintain" region, indicating indicators with a high performance but low derived importance. These indicators need to be well-maintained, because any deterioration could lead to dissatisfaction among tourists. However, when these factors perform well, they do not necessarily contribute to a significantly positive attitude. There are seven indicators distributed in the fourth quadrant, including A1, the interior comfort after remodeling, A2, the scale of indoor space, A5, the decorative finishes fit with industrial architectural styles, B2, the presentation of local culture, B6, the degree of harmony between the building and its surroundings, C1, the landscape industrial atmosphere, and C2, the uniqueness of the green landscape.

5. Discussion

Based on the distribution of the indicators in the "Spatial Environment Elements" category, it is evident that most of them are located in the first and fourth quadrants, indicating that the industrial heritage has been well-redeveloped in terms of spatial environment. This achievement should be maintained, especially for indicators falling into the first quadrant. However, the indicator "soundproofing of the retrofitted interior" is situated in the third quadrant. After analyzing the site, it was found that part of the reason for the issue was the close connection between public spaces and relaxation areas, where the generated noise can directly disturb resting visitors. Additionally, indoor spaces converted from industrial buildings inherently have poor soundproofing and need to be addressed by businesses during renovation. Another contributing factor is the interconnected layout of some shops, leading to a lack of proper partitions between indoor and outdoor areas, resulting in overlap and disturbance between visitor circulation and relaxation areas. The management of the cultural and creative park should reconsider this aspect and proceed with gradual updates.

Based on the distribution of the indicators in the "Social and Cultural Elements" category, it is evident that most of them are located in the first and fourth quadrants, indicating a high level of satisfaction that needs to be maintained. However, the indicator "promotion of industrial culture" is situated in the third quadrant. To enhance the promotion of industrial culture, it is essential not only to augment textual and visual explanations but also to leverage technological methods for introducing industrial buildings and backgrounds. This approach will heighten tourists' interest, aid in comprehending historical information, and foster awareness regarding the significance of safeguarding industrial heritage. Moreover, novel promotional techniques could be implemented, including exhibitions, interactive displays, and on-site events. Encouraging tourist engagement through live demonstrations would effectively advance both industrial culture and local traditional culture.

Based on the distribution of the indicators in the "Landscape and Greening Elements" category, it is evident that the "diversity of green landscapes" is situated in the first quadrant, while the "landscape industrial atmosphere" and "uniqueness of green landscapes" are located in the fourth quadrant. Subsequently, the industrial characteristics can be re-presented through artistic processing to extend the spirit of the place. Environmental restoration of the original industrial scenes could be undertaken to create an artistic landscape imbued with historical memories. By employing techniques such as graffiti, installation art, and minimalism, artistic and stylish landscape elements can be crafted to deliver a visual impact and infuse the park with a creative ambiance, all while maintaining harmony with the old industrial style.

Based on the distribution of the indicators in the "Supporting Facilities Elements" category, it is evident that the indicators are mainly distributed in the second and third quadrants, indicating an overall poor performance. Only the "level of illumination at night " indicator was in the first quadrant. Two indicators, "number and reasonable distribution of garbage cans" and "organization of events in the park", require significant improvements. For trash bins, it is recommended to increase their quantity and consider rational placement. The park's regular market activities are too monotonous; introducing special large-scale events on holidays can attract tourists and boost the park's popularity. Furthermore,

enhancements can be made in terms of the "number of restrooms", "public open space facilities", and "abundance of cultural, recreational, catering and other service facilities" if conditions allow. This will reinforce basic service facilities for tourist convenience, enrich the cultural and creative park industry, promote comprehensive investment, create image design (IP), and add entertainment projects to enhance the site.

Based on the distribution of the indicators in the "Transportation and location elements" category, it is observed that the indicators are mostly in the second quadrant, indicating an overall poor performance. Only the "traffic conditions inside the park" fell into the first quadrant. The parking situation around the Mili Cultural and Creative Park is unfavorable, primarily due to traffic restrictions in the ancient city area of Quanzhou, mixed traffic modes, and a shortage of nearby parking lots, resulting in a scarcity of parking spaces. This poses challenges for tourists arriving by car. This issue needs to be addressed not only by the Mili Cultural and Creative Park but also by the broader Quanzhou ancient city area. The challenge is to improve parking facilities in an area filled with historic buildings. In Quanzhou, electric bikes are a popular mode of transportation, but there is a lack of proper planning and regulation for parking electric bikes around the Mili Cultural and Creative Park. This leads to disorderly parking, causing congestion in the connected Zhenfu Lane and creating issues with pedestrian and non-motorized vehicle traffic. Urgent optimization and improvement in this aspect are necessary to enhance the park's overall traffic conditions.

The overall performance of the "spatial environmental elements", "social cultural elements", and "landscape and greening elements" was good. Improvements can be made in the "soundproofing of the retrofitted interior" and the "promotion of industrial culture" after the renovation. Conversely, the overall performance of the "supporting facilities elements" and "transportation and location elements" was poor. Urgent improvements are needed in the "number and reasonable distribution of garbage cans", the "organization of events in the park", "traffic conditions outside the park", "parking around the park", and "park accessibility". Slow improvements are required in the "number of restrooms", "public open space facilities", and the "abundance of cultural, recreational, catering, and other service facilities" (See Table 8).

Table 8. Statistics on the distribution of tourists to the transformed quadrant of each evaluation item in the Forage Carp Cultural and Creative Park.

Primary Evaluation Indicators	Secondary Evaluation Indicators	NO.	Q1	Q2	Q3	Q4
Spatial environmental elements (A)	Interior comfort after remodeling	A1				√
	Scale of interior space	A2				√
	Interior lighting effect after remodeling	A3	√			
	Soundproofing of the retrofitted interior	A4			√	
	Decorative finishes fit with industrial architectural styles	A5				√
	Cleanliness of space in the park	A6	√			
	Status of the signage system in the park	A7	√			
Social cultural elements (B)	The transmission of historical and cultural heritage in the park	B1	√			
	Presentation of local culture	B2				√
	Promotion of industrial culture	B3			√	
	Preservation of surviving buildings	B4	√			
	Overall image of the building	B5	√			
	Degree of harmony between the building and its surroundings	B6				√
	Attractiveness of the park	B7	√			
Landscape and greening elements (C)	Landscape industrial atmosphere	C1				√
	Uniqueness of the green landscape	C2				√
	Diversity of green landscapes	C3	√			

Table 8. *Cont.*

Primary Evaluation Indicators	Secondary Evaluation Indicators	NO.	Q1	Q2	Q3	Q4
Supporting facilities elements (D)	Number of restrooms	D1			√	
	Public open space facilities	D2			√	
	Level of illumination at night	D3	√			
	Number and reasonable distribution of garbage cans	D4		√		
	Abundance of cultural, recreational, catering, and other service facilities	D5			√	
	Organization of events in the park	D6		√		
Transportation and location elements (E)	Traffic conditions inside the park	E1	√			
	Traffic conditions outside the park	E2		√		
	Parking around the park	E3		√		
	Park accessibility	E4		√		

6. Conclusions

The current research covers various aspects of industrial heritage preservation, reuse, and sustainability [13,14]. Through diverse methods and perspectives, it seeks to determine the optimal utilization of industrial heritage [38–41]. Concurrently, it explores the effects of industrial heritage building reuse on urban planning, economic development, and cultural preservation [53,54,57]. The objective of industrial heritage reuse has also shifted from preservation to meeting societal needs, with the public becoming the main focus of evaluation [55,59,60]. These research findings provide direction and inspiration for the sustainable development of industrial heritage after its transformation into creative parks. This study, based on the perspective of tourists, establishes an environmental satisfaction evaluation model for industrial heritage reuse after receiving tourist evaluations using factor analysis, semantic difference analysis, and the revised importance–performance analysis (IPA) method. It identifies the weak links in its development and proposes follow-up update strategies and improvement recommendations. This research provides an evaluation method and perspective for the subsequent update of industrial heritage reuse, helping us to understand the factors influencing the sustainable development of industrial heritage transformed into cultural and creative parks and providing scientific references for the reuse and evaluation of other industrial heritage sites.

The conclusions of this study contribute to the subsequent updates of the site, enabling sustainable development. The use of the revised importance–performance analysis (IPA) method allows for the elimination of the impact of satisfaction on importance, meeting the premise assumptions of an IPA analysis. The results of the revised IPA analysis are more practically significant. Additionally, since the derivation of importance only requires the respondents to answer satisfaction questions without needing to answer importance questions, it can reduce the questionnaire burden and facilitate the optimization of the overall questionnaire structure.

Additionally, this study has certain limitations. Firstly, the determination of the factors is subjective and does not fully consider the mutual influence between satisfaction evaluations of various elements. Moreover, the revised IPA method still cannot accurately reflect the asymmetry of satisfaction and importance changes in the Kano model. These aspects can be addressed in future research to continually refine the IPA analysis method. Furthermore, this study can be expanded to other stakeholder groups to ascertain how consensus can be reached among the different factors affecting the satisfaction of various stakeholder groups.

7. Recommendations

Considering the psychological experiences of tourists to the creative industry park transformed from industrial heritage, and based on the analysis of the questionnaire data

and key information derived from the interview questionnaires, the following aspects should be emphasized for the transformation of industrial heritage into a cultural and creative park:

1. When planning and designing, it is essential not only to focus on internal traffic planning within the park but also to engage in macro-regulation from the perspective of government-managed regional planning.
2. The relationship between human psychological well-being and the openness of space is closely linked, so when renovating parks, consideration should be given to the establishment of open spaces.
3. The contextual characteristics of industrial heritage are an important factor in attracting tourists. When creatively transforming industrial heritage into cultural industries, efforts should not only be made to preserve the architectural style of old buildings as much as possible but also to explore the historical, cultural, and natural elements of the factory area, integrate new and old elements, and blend modern trends with urban characteristics.
4. Enhance the quality of supporting facilities in the renovated creative industrial park to better meet the physiological and psychological needs of modern people, which constantly change with the development of the times.
5. Improve the quality of landscape design and park greening by selecting landscape elements and features with industrial elements and industrial culture, reflecting the industrial characteristics of the park and enhancing its quality and visual appeal.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Questionnaire for post-renovation evaluation of Quanzhou Mili Cultural and Creative Park.

Evaluation Factor	Very Satisfied (5 Points)	Satisfied (4 Points)	Neutral (3 Points)	Dissatisfied (2 Points)	Very Dissatisfied (1 Point)
Traffic conditions outside the park					
Traffic conditions inside the park					
Parking around the park					
Park accessibility					
Attractiveness of the park					
Status of the signage system in the park					
Cleanliness of space in the park					
Interior lighting effect after remodeling					
Soundproofing of the retrofitted interior					
Interior comfort after remodeling					
Scale of interior space					
Decorative finishes fit with industrial architectural styles					
Public open space facilities					

Table A1. *Cont.*

Evaluation Factor	Very Satisfied (5 Points)	Satisfied (4 Points)	Neutral (3 Points)	Dissatisfied (2 Points)	Very Dissatisfied (1 Point)
Level of illumination at night					
Number of restrooms					
Number and reasonable distribution of garbage cans					
Diversity of green landscapes					
Uniqueness of the green landscape					
Landscape industrial atmosphere					
Abundance of services such as cultural, entertainment, and catering facilities					
Organization of events in the park					
Overall image of the building					
Degree of harmony between the building and its surroundings					
Preservation of surviving buildings					
Promotion of industrial culture					
Presentation of local culture					
The transmission of historical and cultural heritage in the park					

Appendix B

Table A2. Status of Quanzhou Mili Cultural and Creative Park.

Name	Attractions
Traffic conditions outside the park	
Traffic conditions inside the park	

Table A2. *Cont.*

Name	Attractions
Parking around the park	
Park accessibility	
Attractiveness of the park	
Status of the signage system in the park	
Cleanliness of space in the park	

Table A2. *Cont.*

Name	Attractions
Interior lighting effect after remodeling	
Soundproofing of the retrofitted interior	
Interior comfort after remodeling	
Scale of interior space	
Decorative finishes fit with industrial architectural styles	

Table A2. *Cont.*

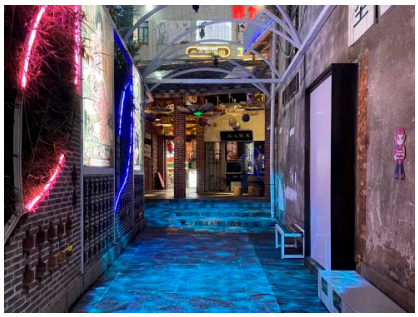
Name	Attractions
Public open-space facilities	
Level of illumination at night	
Number of restrooms	
Number and reasonable distribution of garbage cans	
Diversity of green landscapes	

Table A2. *Cont.*

Name	Attractions
Uniqueness of the green landscape	
Landscape industrial atmosphere	
Abundance of services such as cultural, entertainment and catering facilities	
Organization of events in the park	
Overall image of the building	

Table A2. *Cont.*

Name	Attractions
Degree of harmony between the building and its surroundings	
Preservation of surviving buildings	
Promotion of industrial culture	
Presentation of local culture	
The transmission of historical and cultural heritage in the park	

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