

Research on Landscape Preference of Urban Mountain Park Based on Visitors' Perception

—Taking Xishan Park in Mianyang City as an Example

Mingfeng Xu¹, Zhanglei Chen^{2*},
Mingying Zeng^{1*}, Yu Ke¹

¹School of Civil Engineering and Architecture, Southwest University of Science and Technology, Mianyang, China

²School of Architecture and Urban Planning, Chongqing University, Chongqing, China

Email: *20181501001@cqu.edu.cn, *zmy018@hotmail.com

How to cite this paper: Xu, M. F., Chen, Z. L., Zeng, M. Y., & Ke, Y. (2024). Research on Landscape Preference of Urban Mountain Park Based on Visitors' Perception. *Open Journal of Social Sciences*, 12, 469-485. <https://doi.org/10.4236/jss.2024.121032>

Received: December 7, 2023

Accepted: January 28, 2024

Published: January 31, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Visitors' environmental perception characteristics are an important path to identify the landscape characteristics of urban parks and their value components. This paper adopts the methods of online semantic sentiment analysis and questionnaire research to construct a vocabulary of perceived spatial environmental features and social and cultural services of Xishan Park in Mianyang City, taking Xishan Park in Mianyang City as the object of study, and utilizing the public reviews, microblog comments, and Ctrip comments, etc. The results of the study show that tourists and urban residents are satisfied with the park and have a strong sense of "belonging". The results of the study show that tourists and urban residents have higher satisfaction with Xishan Park in Mianyang City, and have a stronger sense of belonging and happiness; based on the text data of tourists and urban residents, we constructed a thesaurus of environmental perception, and analyzed the environmental perception characteristics of tourists to Xishan Park. Based on the research text data of tourists and urban residents, we constructed a thesaurus of environmental perception, analyzed the environmental perception characteristics of visitors to Xishan Park, analyzed the eight social values existing in Xishan Park in Mianyang, and proposed optimization strategies for Xishan Park in Mianyang.

Keywords

Visitor Perception, Landscape Preference, Mountain Parks

1. Introduction

As a fresh word, there is no clear national definition of the concept of mountain park, and there is no widely recognized naming statement for mountain park in the academic world. Only some degree holders have made the following definition: scholars believe that a mountain park should have the following features: built in the urban or suburban land area with the base terrain as a mountain or with unique mountain features; open to the public; with certain basic service facilities; with ecology and recreation as the main function; with sound ecology, landscaping, disaster prevention and mitigation, and other integrated role of greening land. The following is a discussion of the research conducted by various scholars on urban mountain parks (Table 1).

Urban mountain park refers to the process of urban construction, relying on the original landscape of the mountain to create it into a mountain park, providing citizens with a diversified environment of living space. As a place for urban residents as well as tourists to contact nature and socialize, urban mountain park provides social values such as leisure and recreation, aesthetics, ornamental,

Table 1. Research definitions of urban mountain parks by various scholars.

scholars	Definition Description	specificities
(Shang, 2009)	Located on the outskirts of the city or in the middle of the city, it follows the topography of the mountain to create a landscape and allows for related activities.	(1) Located in or near the city (2) Conform to the terrain
(Liang, 2012)	It is a category of parks and green spaces with ornamental and recreational values, which are located within the urban land area and characterized by mountainous terrain.	(1) Original appearance (2) Plant landscape with ornamental value
(Wang, 2013)	The park has good play facilities and is open for sitting, recreation and viewing.	(1) The park is well equipped with play facilities (2) There are places for recreation and leisure
(Zhou, 2016)	Within the city limits, it is equipped with a full range of basic service facilities and is developed for the whole community with a focus on ecological and recreational functions.	(1) In the middle of the city (2) Complete service facilities (3) With ecological and recreational functions
(Pan, 2020)	The biggest feature that distinguishes it from other parks is the difference in spatial form, using the mountain as a resource, serving urban residents, having a rich botanical landscape, and being able to carry out outdoor activities.	(1) For urban residents (2) Rich in botanical landscape resources (3) Capable of outdoor activities
(Sun, 2023)	In line with the characteristics of the mountainous terrain, with relative height difference, the landscape design conforms to the terrain, and at the same time has the function of ecological recreation.	(1) Relative elevation differences (2) Landscape conforms to the terrain (3) Ecological and recreational functions

scientific research and education, historical and cultural propaganda, and retains the characteristics of higher regional natural features (Huai & Van de Voorde, 2022). As a unique form of urban green space, urban mountain parks promote the creation of green and healthy cities, and can be used as the supply point and output station of urban ecosystem service value, providing a variety of social values and ecological benefits to enhance the resilience of the city for the city's residents (Sun, 2023). Since tourists and urban residents are the main targets of urban park services, and are closely related to their quality of life. Therefore, we need to better understand how tourists as well as urban residents experience and perceive the social value of parks as well as landscape preference features (Arnberger & Eder, 2015). Based on this research gap, this paper will use web semantic analysis and online review data to quantify the perceived features of urban parks by tourists and urban residents, and to explore which environmental features of Xishan Park in Mianyang may lead to positive or negative emotions among tourists.

This study will answer the following research questions: 1) How can tourists' perceptions of urban parks be analyzed from online comments? 2) Which environmental features may lead to positive or negative emotions among tourists and the public? 3) How do demographic characteristics of different social backgrounds differ in the perception of urban park landscapes? 4) What are the specific social values present in the parks based on the environmental characteristics analyzed as perceived by the public?

2. Overview of the Study Area

Mianyang Xishan Park is located in Mianyang City, Sichuan Province, four elephants West Drum West Hill, 1986 by the Municipal Bureau of Culture to invest in the construction of cultural monuments, natural scenery in one of the cultural relics and monuments of the park, the planning covers an area of 595.5 acres, has now been built in the open area of 358.5 acres, the number of tourists as high as 130,000 people per year.

The main scenery of the park is "Ziyun Pavilion", which is famous for "Zhuge's Lodge in Nanyang, Ziyun Pavilion in Xishu" in the Tang Dynasty poet Liu Yuxi's "Inscription on a Private Room". The existing Ziyun Pavilion is an imitation of the Qing Dynasty, with four floors and a height of 23 meters, with classical and elegant modeling, and very distinctive. The park also has Shu Han minister Jiang Wan's tomb, Gong Hou Ancestral Hall; Western Han Dynasty sage Yang Xiong reading platform, wash ink pool; Taoist shrine Xishan Guan; Jade Spring Sui and Tang Dynasty Taoist statues and other cultural relics protection sites. Mianyang cultural relics are displayed "five best", evaluated as China's largest, the largest Han Dynasty bronze horse, the largest money tree, the earliest bronze Buddha statue, the most vivid shape of the figurines of rappers, the most complete lacquer carving of the human body meridians. The green area of the garden accounts for 90% of the total land area, and the main plants include



Figure 1. Location map of Xishan Park, Mianyang (Source: Self-mapping).

osmanthus, yew, peach tree, plum blossom, etc. The lake, buildings and pavilions are intermingled with the green trees and red flowers, and the scenery is pleasant in spring, summer, autumn and winter.

3. Research Methods

3.1. Network Semantic Analysis

In this study, the blog posts and comments of Xishan Park in Mianyang City are obtained from the websites of Dianping, Weibo, Ctrip and other websites to collect data, and the obtained data are subjected to data cleaning, removing useless words, repetitive comments and deactivated words, etc., and imported into the micro word cloud for spatial feature word extraction, classification and agglomeration, constructing the environmental feature vocabulary library, and carrying out the process of sentiment analysis. The results can be derived from the distribution of positive and negative perceived emotional values of tourists for the environment of Xishan Park in Mianyang City; then positive and negative words are classified, and high-frequency words are extracted based on the positive environmental perception vocabulary and the negative perception vocabulary for the cluster analysis, and finally the environmental feature clusters can be

derived, and the perceived social value of tourists for Xishan Park can be analyzed.

3.2. Social Survey Data

The social survey data is obtained by questionnaire, which includes visitor satisfaction, play feeling survey and socio-demographic characteristics survey, play feeling mainly includes: the frequency of tourists going to the park, time period, play time, the reason for going to the park, and for the park management, facilities, satisfaction survey; socio-demographic characteristics include gender, age, occupation, education, identity (park), workers, experts, ordinary tourists, etc. workers, experts, general visitors) and other information statistics. The authors conducted a pre-survey online and offline from March 8-12, 2023, collecting 50 questionnaires, then adjusted and developed the questionnaire according to the issues raised by the respondents, and finally conducted the formal research and data collection from March 18-April 5, 2023, covering weekdays, weekends and holidays to ensure the comprehensiveness and accuracy of the data. A total of 215 questionnaires were distributed, with 207 valid questionnaires and an effective recovery rate of 96.2%.

3.3. Data Analysis

3.3.1. Web Semantic Data Analysis

1) Data collection

This study collects comments under the entry of Mianyang Mianyang Xishan Park from the websites such as Dianping.com, Weibo.com and Ctrip.com, with a total of 3408 comments as of November 11, 2022, removing a total of 2885 invalid and repetitive comments, with a total of 275,347 words, a total of 62,458 total words, 8599 featured words and 581 spatial featured words.

2) Data analysis process

The data analysis process follows: data collection—raw text data summarization (raw data)—text pre-processing (i.e., data cleaning, removal of duplicate comment entries and deactivated words)—importing into the micro-word cloud (word segmentation, word frequency, lexical statistics and annotation)—sentiment analysis (extraction of spatial characteristic words)—analysis of spatial characteristic words (extraction of spatial characteristic words) Sentiment analysis (extraction of spatial feature words)—Construction of environmental feature lexicon—Result analysis (applying the first two levels of analysis of the Zagan theory model) and other processes. Taking Xishan Park as the research object for textual research, the collected textual data were subjected to web semantic analysis by using the Micro Word Cloud online analysis tool to get the distribution of the positive and negative perception sentiment values and quantities of tourists' positive and negative perception of Mianyang City Mountain Park (e.g., **Figure 1**), and the positive and negative comments were categorized through the textual sentiment analysis based on the high-frequency vocabulary words extracted from the positive and negative comments.

3) Text semantic analysis

a) Sentiment analysis. The pre-processed text data is imported into the micro-word cloud for network semantic sentiment analysis to get the overall positive and negative perceptions of tourists' emotions about Mianyang City Mountain Park as a percentage of the overall emotions, as shown in **Figure 2** below. According to the sentiment value and quantity distribution graph, i.e., the left half-axis is the distribution of negative scoring and bar data, the middle axis is the distribution of neutral scoring and bar data, and the right half-axis is the distribution of positive scoring and bar data.

b) Extraction of high-frequency words. High-frequency words are mainly extracted from positive and negative comments, which are used to construct the vocabulary of environmental features perceived by tourists, and the positive and negative words are subjected to text preprocessing, lexical annotation and word frequency statistics. First of all, the raw text data are cleaned, de-weighted, and deleted from the deactivated words, and the processed data are imported into the micro-word cloud analysis software, which can produce the statistics of tourists' positive and negative comments on the environmental features, and the lexical annotation of descriptive words, such as nouns, adjectives, and even verbs, in order to identify the features of the urban parks that the tourists perceive, and the high-frequency words are extracted from the positive and negative comments of the urban parks in Mianyang City. Extracted from the positive and negative comments of urban mountain parks in Mianyang City, the extracted high-frequency words were subjected to word frequency statistics and then the words with a number of occurrences greater than 3 were selected as the final high-frequency words for further analysis.

As can be seen from the picture display (**Figure 3**), Mianyang Xishan Park is mentioned by tourists the most high-frequency words are scenery, environment,

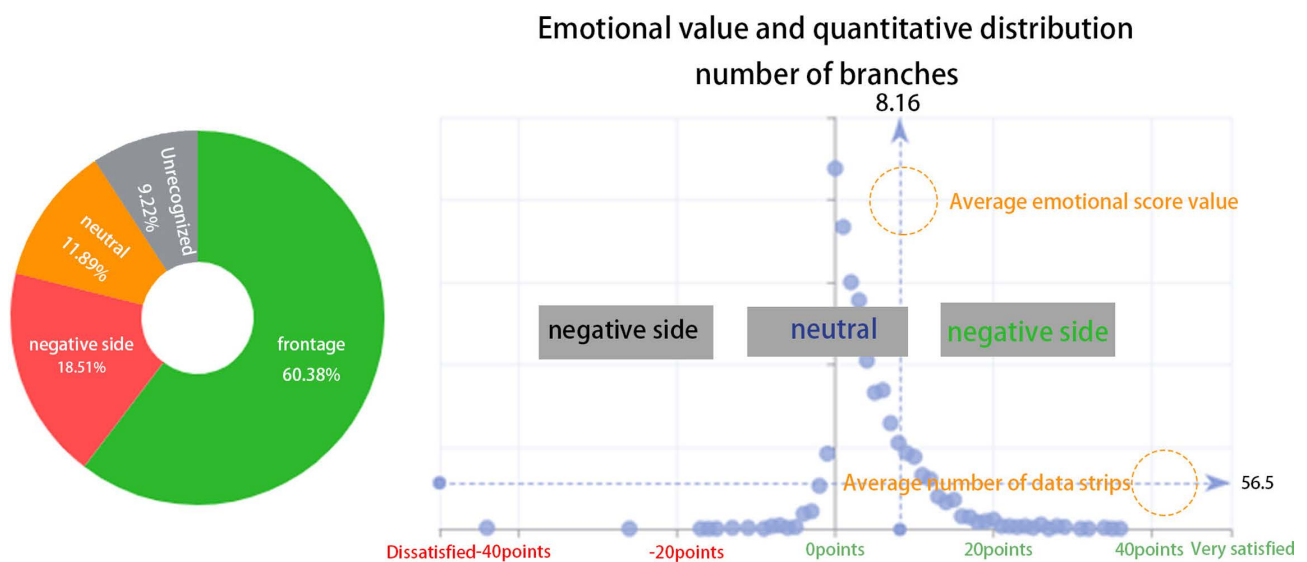


Figure 2. Text semantic sentiment analysis result map (Source: Self-mapping).



Figure 3. Illustration of high-frequency word extraction from Xishan Park in Mianyang (Source: Self-mapping)

nature, ecology, quiet, culture, the Three Kingdoms, history and other words, due to the Mianyang Xishan Park is a collection of historical and cultural monuments, natural scenery as one of the monuments of the park, coupled with the park's artificial landscapes created by the lush green trees to create a quiet environment atmosphere, coupled with the history and culture of the rich and attracted the tourists to stop at this place.

c) Construction of a vocabulary of environmental features.

In order to clarify the potential factors in the environmental features perceived by visitors to the park, and to visualize the correlation between the environmental features for text clustering analysis, the construction of the environmental features vocabulary base is based on the extracted high-frequency words after performing the steps of word division, word frequency statistics, deletion of deactivated words, and calculation of text similarity to obtain the environmental features cluster map of the urban mountain park shown in **Figure 4**.

3.3.2. Analysis of Social Survey Data

1) Statistics on the characteristics of the sample of investigators

Statistical analysis of the 207 valid questionnaires to get the sample characteristics statistical table (**Table 2**). Socio-demographic survey analysis of surveyed

Table 2. Survey on demographic characteristics of respondents.

Item	Category	Frequency	Percentage	Category	Item	Frequency	Percentage	
Sex	Male	74	35.75%	Status	General Tourist	190	91.79%	
	Female	133	64.25%		Park Staff	4	1.93%	
Age group	below 20	1	0.48%		Landscape expert	11	5.31%	
	21 - 30	129	62.32%		Government Staff	2	5.97%	
	31 - 40	36	17.39%		Junior high school and below	9	4.35%	
	41 - 50	11	5.31%		Upper secondary education	16	7.73%	
	51 - 60	3	1.45%		Specialized Vocational Education	15	7.25%	
	above 60	27	13.04%		Undergraduate education	85	41.06%	
Current Occupation	Farmer	0	0		Educational attainment	Postgraduate and above	82	39.61%
	Education, medical and other science	24	11.59%			Less than 3000	31	14.98%
	Civil servants	12	5.8%			3000 - 5000	50	14.98%
	Enterprises and public organizations	32	15.46%			5000 - 7000	50	24.15%
	Student	97	46.86%	7000 - 10,000		60	28.99%	
	Retirees	23	11.11%	Above 10,000		16	7.73%	
	Origin	Other	19	9.18%		Mianyang Local	104	50.24%
						Other areas in Sichuan province	46	22.22%
						Other areas outside of Sichuan	57	27.54%

used as a base for the study. The main reason is that Xishan Park is adjacent to the Xishan Campus, where students often go for walks and rambles;

d) The monthly income of these workers mainly focuses on 5000 - 7000 (24.15%) and 7000 - 10,000 (28.99%), which is in line with the normal category based on the overall income and expenditure of Mianyang City. And most of the surveyed tourists are local residents of Mianyang, totaling 104 people accounting for 50.24% of the total number of respondents.

2) Visitors play satisfaction survey analysis

In the satisfaction survey of the tourists mainly includes the frequency of trips, recreation season, travel time and whether the park landscape facilities can meet the needs of tourists playing survey, as shown in **Figure 5** below.

In the survey on the frequency of visitors to Xishan Park, due to the survey scope for the last 12 months to March this year, 2022 epidemic reasons have not been unsealed, so 1 - 2 times accounted for the highest number of times accounted

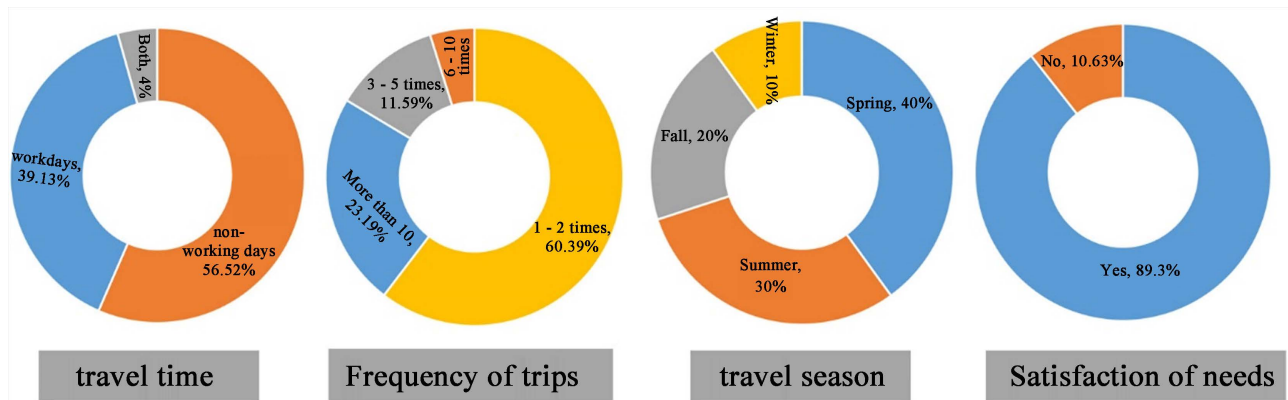


Figure 5. Tourist play satisfaction survey analysis (Source: Self-mapping).

for 60.93%; more than 10 times of tourists accounted for 23.19%, the vast majority of retirees to the park every day to exercise; tourists travel time on non-working days accounted for 56.52%, weekday travel Visitors travel time non-working days accounted for 56.52%, working days travel less accounted for 4.35%, mainly park staff and researchers; both accounted for 39.13%, mainly for retirees and mothers; recreation season contains four seasons, indicating that the park has four seasons of different landscapes, and each season has a different attraction to tourists' landscapes, the number of tourists travel in spring and summer is more frequent, the spring can enjoy the park's flora and fauna, the scenery is better, and in summer, you can enjoy the lotus to enjoy a cooler; In the fall and winter, everything is withered, so the number of trips is less.

3.3.3. Analysis of the Types of Social Values of Parks

1) Analysis of the rooted theory model

a) Open coding: that is, the process of conceptualizing events or matters, further analyzing the relationship between concepts to the formation of categories, and obtaining the concepts and categories of the study relationship. That is, the original data is analyzed level by level to refine the concepts at a higher level. In this study, the online review data of urban mountain parks are analyzed by text processing, text sentiment analysis, lexical annotation and word frequency statistics, and then categorized and coded on this basis, and the categories are refined from the above environmental clustering feature map: flora and fauna resources, cultural heritage, historical sites, recreation and leisure, exercise, spiritual healing, cultivation and fun, and spiritual healing. healing, cultivating interest, natural scenery, water scenery, leisure and recreation, releasing pressure, protecting ecology, publicizing knowledge, science education, cultural relics display, book culture, searching for the ancient, architectural recreation, aesthetic interest, etc.

b) Main axis coding: i.e., deeper development of the characteristics of concepts and categories, and further excavation of the relationship between categories through typical models, laying the foundation for the extraction of core categories, so as to merge preliminary categories with related relationships to form

a higher level concept - the main category - and realize the generalization of the preliminary categories. The 18 open codes derived from the open coding were analyzed and compared and categorized, and with reference to the 12 social value types derived from the analysis of the social value assessment of ecosystem services in the Santa Ysabel National Forest, Colorado, USA, by reference to [Sherrouse et al. \(2011\)](#), the aesthetic value, biodiversity value, historical value, learning value, sustainable value of life, Healing Value, Leisure and Recreation Value, and Recreation Value, and the coding process is shown in [Figure 6](#).

Scope	Mianyang City Urban Hills Park Source Material
Aesthetic Interests	Taking pictures of the lotus pond in summer; attracted by the beautiful and fragrant plum blossoms in the park, they have picked up their cameras to take pictures and record their records; weaving in and out of the flower forests, either taking pictures, strolling, or chasing and playing
Flora and fauna	The park is lush with vegetation, a great place to hike plants; the landscape is cleverly designed for snapshots; the pond has koi jumping in it
Cultural Heritage	A very cultural place, very royal; a very cultural park. The terrain is high and the view is wide. High green coverage.
Historical Sites	Historical and cultural heritage is deep, and so are the monuments; cultural landscapes with historical sites; sites with many historical and cultural celebrities
Recreation	Recreation, entertainment, close to nature, the mountain park has become a good place for people in Mianyang to relax and enjoy themselves; the mountains are quiet and elegant, the trees are lush, the air is fresh and it is a good place to relax and enjoy yourself.
Exercise	Environment is quiet can exercise; natural oxygen bar, the morning easy to practice running a lot of people to jogging, the air is moist, walk up and down the road feel very comfortable; running in the morning, fitness is very good here, the air is fresh;
Spiritual	Healing Suitable for exercise, oxygen relaxation and leisure; Xishan Park is a rare spiritual habitat in the hearts of the citizens.
Enlightenment	Enlightenment A garden within a garden is a place to relax and enjoy yourself at the same time;
Natural Scenery	Enjoy the lotus in summer and feel the beauty of nature; this is a park with a very quiet natural environment and rich vegetation.
Water Scenery	Streams and gurgles, surrounded by Hibiscus Stream, it is a good place for Mianyang people to relax and visit; the fragrance of lotus fills the pond, and the scorching lotus flowers are out of the water in the pavilion.
Leisure and Entertainment	Inside the park, the atmosphere is very harmonious, there are elderly people sunbathing and drinking tea, there are also people playing cards and entertainment; beautiful environment, mountains and water, it is a good place for leisure and relaxation after work; leisure, fitness and fresh air!
Release pressure	Find a suitable location in the park to sit and drink tea, but also a lot of fun, soothing - under the tension of work pressure; the most stressful time to go to the park to take a break!
Protecting ecology	Ecology is people's livelihood and public opinion; it's quite original; it reflects the ecological art and culture that characterizes the park
Publicizing Knowledge	You can popularize the knowledge of AIDS prevention and first aid in the park; publicize and explain the policies and guidelines of the Party.
Science Education	Popularize plant science knowledge in the park; learn the history of the Three Kingdoms.
Cultural relics display	Xishan Martyrs' Cemetery and the Red Army Cultural Relics Exhibition Hall; very suitable for taking photos, there are also many cultural relics attractions can be visited

Continued

Book Culture	With the ruins of many historical and cultural celebrities, the park has become a sacred place for searching and visiting the ancient world and feeling the culture of books.
Unique Architecture	Build different styles of architectural shapes through bamboo art, flowers, etc., and feel the unique art of construction; lotus leaves are connected to each other, and the ancient buildings in the mountains set each other off.

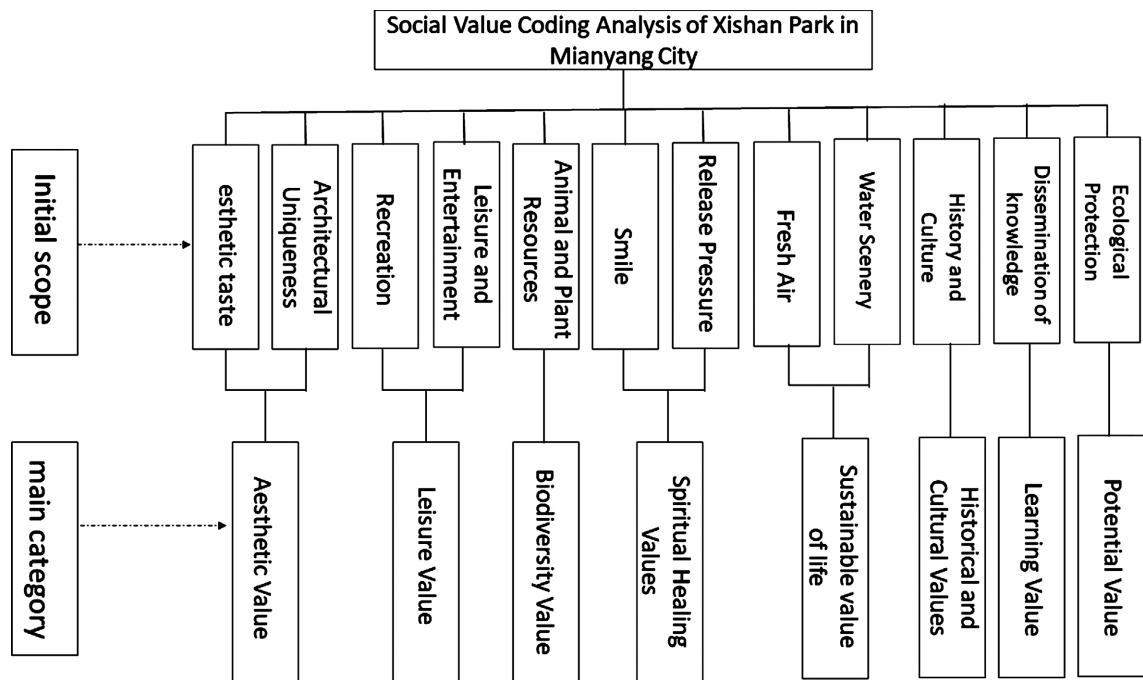


Figure 6. Types and description of social values of ecosystem services in Xishan Park, Mianyang City, China.

2) Main axis coding: Summarize deeper developmental concepts and category characteristics, and further explore the relationships between categories, so as to merge the preliminary categories of related relationships to form a higher level concept - the main category, and realize the generalization of the preliminary categories.

That is, the 12 categories of open coded categories were comparatively analyzed and categorized, and with reference to the 12 social value types derived from Sherrouse’s analysis of the social value assessment of ecosystem services in the Santa Ysabel National Forest in Colorado, U.S.A. (Sherrouse et al., 2014), we finally mined out the 8 types of social values that tourists have for the social values that existed within the Xishan Park: aesthetics value, historical and cultural value, recreational and leisure value, biodiversity value, spiritual healing value, sustainable value of life, potential value, and learning value.

4. Analysis of Results

4.1. Tourists’ Perception of Urban Mountain Parks

From the online review data of Mianyang Xishan Park, it can be seen that by di-

viding the public review data into positive and negative reviews, 60.38% of the 2885 reviews from tourists on Mianyang Urban Hills Park are positive; negative reviews only account for 18%; 11% are neutral; and 9% have not yet identified their emotional value. Among the positive comments, visitors are mainly attracted by the landscape design of Xishan Park; negative perceptions are mainly due to the late management of the park, such as sanitary environment, dirty garbage, dilapidated buildings and other external factors. According to the visitors' positive and negative perceptions, the colorful environment in the park can stimulate the positive emotions of the visitors, and the color of the environment is an important factor influencing the visitors' perceptions; the positively perceived environmental features mainly include beautiful scenery, historical and cultural heritage, water landscape, recreational facilities, and places for playing chess, tea and cards, and so on.

4.2. Similarities and Differences in the Perception of Parks by Different Demographic Characteristics

Statistical analysis of the 207 valid questionnaires shows that the respondents are mainly divided into: tourists of different ages, workers in the park, urban residents and experts related to landscape architecture, etc. Ordinary tourists mainly aspire to the historical and cultural monuments of the Mianyang Xishan Park and the design of the landscape, the park has a Xishu Ziyun Pavilion, the Dasi Ma, etc.; urban residents are mainly elderly people taking a walk in the morning and evening to play games, play chess, exercise, walking children, etc.; but the tourists, but the tourists are not the same, the park is a beautiful landscape. and walk their children, etc.; however, visitors have common hobbies and characteristics in their perception of the environment, such as viewing plants and flowers, borrowing the park's beauty to relieve stress and spiritual healing, etc., followed by the park's colors and water bodies have a greater attraction to visitors, and the visual aesthetics drive visitors to stop here, which is crucial in landscape evaluation.

4.3. Social Values Present in the Park

Using the rooted theory model (Huang & Zhang, 2022) to analyze the data based on online online comments on the Internet, the following eight social values are finally unearthed in Xishan Park in Mianyang City, as shown in **Table 3** below.

As Mianyang Xishan Park is a mountain park, the tall trees create a quiet environment, the natural ecology gives people a release of pressure, that is, the trees can kill bacteria and viruses in the process of growth, and at the same time can purify the air; the park's humanities and natural landscapes can produce a pleasant mood and positive feelings for the human psyche, which makes the spirit to be satisfied, and therefore the park can bring great benefits and social value to the city residents and tourists.

Table 3. Types and descriptions of social values of ecosystem services in Mianyang Xishan Park.

Social Value	Value Description
Aesthetic value	The landscape of the park itself is an object that pleases the visitors who experience or appreciate it.
Historical and cultural value	The park has local historical imprints and integrates cultural monuments and natural scenery.
Recreational value	The park provides a place for outdoor recreation.
Biodiversity value	The park is rich in flora and fauna
Spiritual healing value	The natural ecology of the park releases stress and creates a pleasant and positive feeling in the human mind.
Life sustainability value	Maintaining plant and animal life, helping production, renewing the air to promote mobility, and regulating the climate of a small area.
Potential value	There are values that have yet to be explored
Learning value	Provides specimens for experiments and serves as a place to promote cultural and scientific knowledge.

5. Discussion

5.1. Application of Online Comment Data in Landscape Preference in the Network

At present from the network to obtain the public's view of a thing mainly from online comment data, pictures, videos and other ways to obtain, online comment data we can get the positive perception of tourists for the park and negative perception of emotions, through the summary of combing out the tourists of the environmental perception of the characteristics of which can be used in the park in the landscape design.

5.2. Common Tendency of Preference for Landscape Environment Features

The semantic analysis of the network of Mianyang Xishan Park shows that tourists' views and perceptions of urban parks are positive, indicating that the ecological landscape design in the park is compatible with the aesthetics of the public tourists, and there is no aesthetic conflict (Fei et al., 2023).

5.3. Environmental Landscape Perception Needs to Be Synergized between Experts and the Public

In order to coordinate the degree of fit between landscape design and public visitors in the park, different research scholars have bred a variety of genres and paradigms to objectively extract the public's landscape perception. The difference between the landscape perception of experts and the public mainly comes from the value of access and position differences, experts mainly hold objective philosophical ideas, they man-made landscape design must be transformed into some common parameters, such as lines, forms, uniformity, etc., they hope to establish a set of objective and feasible index system for the management of public land; the public school of thought is more subjective, and only consider the

creation of the park's landscape on their own use or not. Therefore, it is important to combine the views of experts and the public in the landscape planning and design of parks.

5.4. Whether the Local Community Will Influence the Design of Mountain Parks

The construction of urban mountain park is mainly due to the process of urbanization, due to the existing technology or development costs are huge and will be built as an urban mountain park, its service object for the city residents and the masses of tourists. The construction of the community is mainly located in the relatively flat area, the construction of mountain parks can provide a diversified living space for the community residents, can be used for leisure and recreation, release the pressure, give their sense of belonging and happiness, but also to increase the impression of the city, leaving the imprint of history, and improve the visibility.

5.5. Implications for Park Planning and Design

The public's emotional perception of the environment, analyzed through the on-line comment data, is to some extent a mapping of the intrinsic features of the park. For the environmental features that stimulate negative emotions of visitors, managers can focus on them, and rectify and optimize them in later stages; for the landscape preferences of visitors from different social backgrounds, specific analyses can be conducted according to the local management policies; for the positively perceived environmental features of the public, such as visually appealing environmental features can be optimized more often; and the park's post-management is well-maintained, avoiding isolated and less conspicuous areas, which may lead to safety issues in the park.

6. Conclusion

6.1. The Importance of Urban Mountain Parks

With the expansion of urban land, urban green space resources are very scarce, for the mountains included in the urban construction land to create an urban mountain park. As the service object of urban parks is urban residents, and according to research, green space helps to reduce the pressure of urban society and improve health. Therefore, the design of urban parks should seek the public's landscape preference characteristics, pay attention to the role of green space resources for stress relief and spiritual healing, so that the public indirectly involved in the planning of urban parks, strengthening the link between the city and the residents, but also to strengthen the awareness of the urban residents to protect the environment, so the construction of urban mountain parks is very necessary.

6.2. Construction Cost of Urban Mountain Park

When stepping into the urban mountain park, the more attractive landscape in

the park mainly includes: terrain elements, plant landscape, water, structures and so on. First of all, the terrain is the most important feature of urban mountain parks differentiated from other parks, in the construction process of urban mountain parks, the full use of terrain elements of the characteristics of the targeted design, both to make full use of the resources and can save their costs; plant landscape design, the main use of local plants, the combination and design, but also to meet the demand for landscape design; maintenance of the water body and the design of the buildings need to be The maintenance of water bodies and the design of structures need to be combined with local historical characteristics to build, and the construction cost is slightly different in different areas. However, the construction cost of urban mountain parks is lower than that of ordinary parks, because it retains a lot of the original topography and terrain.

6.3. Problems in the Current Landscape Planning and Design of Parks

The general problems existing in parks at present mainly include:

- 1) The ability to meet the needs to be improved. Demand varies from person to person, different groups of people have different needs, in order to meet the different needs to be improved, the need for parks around the characteristics of the activities of the crowd, targeted construction of the lack of facilities.
- 2) Insufficient display of humanistic features in parks. City park is to show a city's history and culture window, should strengthen its humanities construction.
- 3) Insufficient participation of multiple subjects. The atmosphere of common construction, governance and sharing is not strong. It is necessary to incorporate the indirect participation of multiple beneficiaries in the design of the parks to avoid the phenomenon of lack of vitality in the parks.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Arnberger, A., & Eder, R. (2015). Are Urban Visitors' General Preferences for Green-Spaces Similar to Their Preferences When Seeking Stress Relief? *Urban Forestry & Urban Greening*, *14*, 872-882. <https://doi.org/10.1016/j.ufug.2015.07.005>
- Fei, F., Yue, B., Nie, J., & Wang, J. (2023). Characterization and Countermeasures of Ecological-Aesthetic Disjuncture in Urban River Wetland Parks. *Journal of Chinese Urban Forestry*, *21*, 91-97.
- Huai, S., & Van de Voorde, T. (2022). Which Environmental Features Contribute to Positive and Negative Perceptions of Urban Parks? A Cross-Cultural Comparison Using Online Reviews and Natural Language Processing Methods. *Landscape and Urban Planning*, *218*, Article ID: 104307. <https://doi.org/10.1016/j.landurbplan.2021.104307>
- Huang, L., & Zhang H. (2022). Assessment of Social Value of Ecosystem Services in US National Parks Based on Visitor's Perspective. *Ecological Science*, *41*, 19-27.

- Liang, S. (2012). *Plantscaping and Transforming in the City Mountain Park—Take the Ban Shan Park in Shang Yu for Example*. Master's Thesis, Zhejiang University.
https://kns.cnki.net/kcms2/article/abstract?v=ITjHPEokuYQDiACelsI4i8-xzfcrbPLePQWsp_eCBxapVgojpcMba9z5-R8aYR5zzc9GtRB3zSBrHFHGidshsgxR2dU1BCHYlyInvOTcH6MmX0XpcPzX5oqFUKw0gH7X1leNV8-dNMDhtKVVbyTeTg==&uniplatform=NZKPT&language=CHS
- Pan, J. (2020). *Research on the Optimization of Mountain Park Accessibility from the Perspective of Life Circle—Take Lixia District of Jinan as an Example*. Master's Thesis, Shandong Jianzhu University.
<https://link.cnki.net/doi/10.27273/d.cnki.gsajc.2020.000629>
- Shang, S. (2009). *Study on the Environmental Design of Mountain Park—A Case Study of Yan'an Mountain Park*. Master's Thesis, Xi'an University of Architecture and Technology.
https://kns.cnki.net/kcms2/article/abstract?v=ITjHPEokuYQT7aFrFOTgEKrk-iPz3WluYgUnHospSyOYajDmWEVDc3iYbX_wIcIRiAc14cZEOM4MKICOru3P4twY9jeYpO_WR_X_OLOKMvzqw4yWLku1Jia47yC7FLlhb0-xmYLjMOHWoidwA1hhw==&uniplatform=NZKPT&language=CHS
- Sherrouse, B. C., Clement, J. M., & Semmens, D. J. (2011). A GIS Application for Assessing, Mapping, and Quantifying the Social Values of Ecosystem Services. *Applied geography*, 31, 748-760. <https://doi.org/10.1016/j.apgeog.2010.08.002>
- Sherrouse, B. C., Semmens, D. J., & Clement, J. M. (2014). An Application of Social Values for Ecosystem Services (SolVES) to Three National Forests in Colorado and Wyoming. *Ecological Indicators*, 36, 68-79.
<https://doi.org/10.1016/j.ecolind.2013.07.008>
- Sun, B. L. (2023). *Planning and Design of Urban Mountain Park—A Case Study of Changing Mountain in Jinan City*. Master's Thesis, Shandong Jianzhu University.
https://kns.cnki.net/kcms2/article/abstract?v=p7sfyaWOx3P8FX2Y0r67OXUKIKzX1nrQN1nbLe-qLVMVIt0hIyx_uYV8JdtF8Bazc07vi0CSK4i7A0KfyAmtA5KvAG8tQj7cwTw3A4rCublAL6s53nteI6mO5UZof3yXVa48cn0JyhS-oH2OKWJVA==&uniplatform=NZKPT&language=CHS
- Wang, H. (2013). *Study on the Design of Recreation Space in City Mountain Park*. Master's Thesis, Fujian Agriculture and Forestry University.
https://kns.cnki.net/kcms2/article/abstract?v=ITjHPEokuYTizQ0oMaboyMy9GMDIfQKHFG9d8dfGhRnfnuw00orC_cxPve4VWcsRxIAQMUP37BhS_z6TSEwD-QfIBH26RGF-xrguX5xiimVb9tF42OBje3YMcVOT4lQ6uIeSTgV7hpkKSWsJ2T-RGA==&uniplatform=NZKPT&language=CHS
- Zhou, Y. (2016). *Research on the Standard System of Planning and Design of Mountain Parks*. Master's Thesis, Guizhou University.
https://kns.cnki.net/kcms2/article/abstract?v=ITjHPEokuYR04hZCpXsdmZVFvImWBiyL4cG1m6ZYguvzyYgYOWNJ0YIdesNsaHJOHG1VXCLxzYBMWZhWss7VR5atN4U2e9GEZSF5KXArH4Kjen7ITmboXx_skIueOFZqFWjVSieLMnNMVubgCG3Jw==&uniplatform=NZKPT&language=CHS