

Spatial Perception of Urban Island under the Influence of Gentrification: A Case Study of Jiangxinzhou, Nanjing

Jiayun Zou

Gold Mantis School of Architecture, Soochow University, Suzhou, Jiangsu, China

ABSTRACT

With the acceleration of urbanization, urban islands are undergoing a spatial transformation from ecological conservation areas to new growth poles for urban development. In this process, gentrification plays a crucial role, profoundly reshaping both the physical and social spaces of these islands. Taking Jiangxinzhou in Nanjing as a case study, this paper employs a combination of field surveys and online textual analysis to explore the characteristics of spatial perception of urban islands under the influence of gentrification. The results indicate that Jiangxinzhou has experienced significant changes in ecological environment, road transportation, architectural style, public amenities, and cultural and recreational spaces. Overall, public sentiment toward these five categories of space is positive, with the highest satisfaction observed in public spaces, while cultural spaces exhibit the highest proportion of negative perceptions. During the development process, urban islands face several challenges, including conflicts between ecological preservation and aesthetic pursuits, lack of diversity in public transportation, monotonous building functions, insufficient public spaces, and the erosion of local culture. Based on these findings, this study proposes corresponding optimization strategies, aiming to provide references for the planning and development of urban islands in the context of gentrification.

KEYWORDS

Gentrification; Urban Island; Spatial Perception; Online Text Analysis; Jiangxinzhou, Nanjing.

1. INTRODUCTION

Since the 1970s, a prominent socio-spatial phenomenon has emerged in Western developed countries: the gradual replacement of low-income groups by more affluent classes, leading to the restructuring of social strata in declining urban neighborhoods. This process has been termed “gentrification” in academic discourse. With the advancement of globalization, gentrification has progressively extended to developing countries. Since the implementation of the Reform and Opening-up policy, China has experienced rapid economic growth, and gentrification characteristics have likewise become evident in the process of urban regeneration [1]. As a key central city in the Yangtze River Delta, Nanjing has been significantly influenced by gentrification in both its old city renewal and new district development. Jiangxinzhou, a representative urban island along the Yangtze River, has undergone a transformation from a traditional agricultural village to an eco-technological island under the impetus of gentrification, accompanied by profound changes in both its physical and social spaces.

Gentrification has now evolved into a widely discussed international issue. It has manifested to varying degrees in major cities across North America, Europe, and even some developing countries [2]. The development of gentrification can generally be divided into three stages: initial emergence, widespread expansion, and comprehensive development. From an evolutionary perspective, gentrification is not only a direct reflection of the intertwined development of political, economic,

and other factors within specific regions, but also a profound manifestation of multidimensional transformations in social structure, economic patterns, and cultural landscapes.

With the rapid advancement of urbanization and sustained economic growth, Chinese cities have undergone dramatic transformations over the past three decades. However, due to the uniqueness of China's urban development mechanisms, institutional environment, and cultural context, the process of gentrification in China exhibits distinct developmental trajectories and differs in several respects from that observed in Western countries. Research on gentrification in China can be traced back to the late 1990s. In 1999, Xue Desheng published the first academic paper on gentrification in China, systematically reviewing Western concepts and studies, thereby filling a gap in the domestic literature and marking the initial stage of gentrification research in China [3]. Subsequent studies by Meng Yanchun, Qiu Jianhua, and others have provided detailed analyses of the concepts, evolutionary processes, underlying mechanisms, and development trends of Western gentrification, and have applied these theoretical insights to the practice of urban renewal, further advancing the understanding of gentrification phenomena in Chinese cities [4]. Taking Nanjing as a case study, Zhu Xigang conducted an in-depth comparison of the manifestations and driving mechanisms of gentrification between Nanjing and Western cities [5]. Wu Qiyan carried out a comprehensive comparative study of urban gentrification in China and the West, offering detailed insights into both the core concepts and distinctive characteristics of Western gentrification, as well as the historical and social contexts underpinning gentrification in China [6]. Building upon both Chinese and international research, Huang Xing systematically summarized the positive and negative effects of gentrification [7]. In summary, gentrification has become a focal topic among Chinese urban and rural planning scholars, with significant progress achieved in both depth and breadth.

Urban islands, due to their unique geographical locations, possess both ecological sensitivity and substantial development potential [8–10]. While gentrification can enhance environmental quality and promote economic development on these islands, it may also lead to socio-spatial differentiation and cultural discontinuities. Therefore, investigating spatial perception of urban islands under the influence of gentrification is of great significance for understanding public evaluation of development outcomes, identifying deficiencies in spatial construction, and optimizing planning strategies. This study takes Jiangxinzhou in Nanjing as an empirical case and employs field surveys and online textual analysis to systematically examine spatial transformations and public perceptions during the gentrification process. It aims to reveal existing issues and propose optimization strategies, thereby providing both theoretical support and practical references for the sustainable development of urban islands.

2. STUDY AREA AND RESEARCH METHODS

2.1. Overview of the Study Area

Jiangxinzhou is located in the southwestern part of Nanjing's urban area, situated within the Yangtze River and administratively belonging to Jianye District, at the periphery of the main urban zone. To the east, it is adjacent to the Hexi New Town across the Jiajiang River, while to the west it faces the Pukou New District across the main channel of the Yangtze River. As a distinctive river island along the Yangtze River, Jiangxinzhou benefits from a strategic geographical location and a pleasant natural environment, and it lies entirely within the main urban area. The island covers a land area of 15.3 square kilometers, with a surrounding embankment length of approximately 24.38 kilometers.

Under the influence of gentrification, Jiangxinzhou in Jianye District has experienced rapid development. In terms of spatial layout, a number of innovation-oriented industrial parks have been planned and established, attracting a large influx of highly educated professionals. Examples include the Jiangdao Zhili Cube and Jinji Huizhi Park, which serve as representative science and innovation clusters. At the same time, "gentrified communities" are being actively developed within

Jiangxinzhou. These high-end residential communities are characterized by continuously improving supporting facilities, more efficient management mechanisms, and essential attributes such as a comfortable living environment, rich cultural atmosphere, and intelligent management systems. In terms of population composition, the residents of Jiangxinzhou can be broadly divided into three categories. The first group consists of talents and workers who have relocated due to the development of industrial parks; this group is primarily composed of young and middle-aged individuals, most of whom reside temporarily for work purposes. The second group comprises original residents of Jiangxinzhou, mainly elderly people, who have been relocated to new housing because of urban renewal and redevelopment. The third group consists of visitors who come to Jiangxinzhou for leisure and tourism. This group is relatively diverse in age distribution and typically stays for a short duration, ranging from half a day to one day. Economically, under the influence of gentrification, Jiangxinzhou has experienced rising housing prices and overall living costs. However, the number of available commercial facilities remains limited, and there is a lack of sufficient entry by businesses and brands, resulting in inadequate commercial services to meet the needs of residents and visitors.

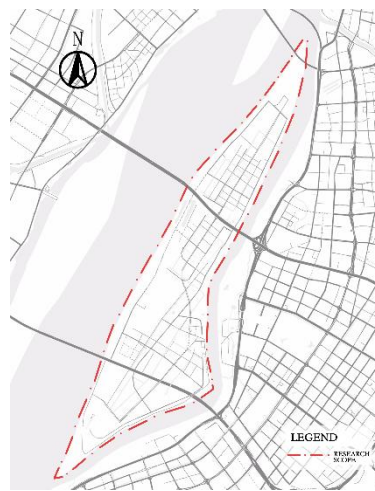


Fig 1 Research scope

2.2. Research Methods

This study adopts a combination of literature review, field survey, and online text analysis. First, theories related to gentrification, urban islands, and spatial perception are systematically reviewed to establish the theoretical foundation. Second, field investigations are conducted to document the multidimensional characteristics of both physical and social spaces in Jiangxinzhou. Third, online text analysis is employed using ROST Content Mining 6 software. A total of 1,173 valid comments were collected from platforms such as Dianping, Xiaohongshu, and Ctrip. Word frequency analysis, sentiment analysis, and semantic network analysis were conducted to reveal public perceptions and evaluations of spatial changes in Jiangxinzhou.

3. ANALYSIS OF SPATIAL PERCEPTION UNDER THE INFLUENCE OF GENTRIFICATION

After carefully evaluating the authority and reliability of online platforms, this study selected Dianping, Xiaohongshu, Ctrip, Qunar, and Mafengwo as data sources for user-generated reviews. Using web scraping tools, comments posted between January 2014 and April 2024 were collected, yielding a total of 1,282 initial records. Prior to analysis, the textual data were preprocessed. Each comment was rapidly reviewed and preliminarily screened to remove irrelevant content, such as real estate advertisements, promotional materials for music festivals, and duplicate entries. This step ensured the quality and relevance of the dataset, thereby improving the reliability of subsequent

analysis [11]. After preprocessing, 109 entries were removed, resulting in 1,173 valid comments for content analysis (Table 1).

Tab 1 Statistics on the sources of online text data

Platform	Sample Size	URL
Dianping	123	https://www.dianping.com/shop/k53T7v6NSGLjoGE4
Xiaohongshu	989	https://www.xiaohongshu.com/explore
Ctrip	36	https://you.ctrip.com/sight/nanjing9/2031879.html
Qunar	36	https://travel.qunar.com/p-oi704181-jiangxinzhou
Mafengwo	22	https://www.mafengwo.cn/poi/5435874.html

3.1. Overall Image Perception

Using ROST Content Mining 6 software, high-frequency characteristic words describing the image of Jiangxinzhou were extracted (Table 2). The top 60 words were selected for analysis based on frequency in descending order.

Tab 2 High-frequency characteristic words for the evaluation of Jiangxinzhou in Nanjing

Rank	Keyword	Frequency	Part of Speech	Rank	Keyword	Frequency	Part of Speech
1	Cycling	763	Verb	31	Church	58	Noun
2	Photography	403	Verb	32	Healing	57	Adjective
3	Check-in / “Check-in” posting	211	Verb	33	Convenient	57	Adjective
4	Sunset	188	Noun	34	Scenic view	57	Adjective
5	Youth Olympic Park	164	Noun	35	Metasequoia Secret Realm	57	Noun
6	Lighthouse	155	Noun	36	Enjoy	55	Verb
7	Camping	155	Verb	37	Pets	54	Noun
8	Tourism / Travel	151	Verb	38	Commerce	54	Noun
9	Ring Road	124	Noun	39	Nature	52	Adjective
10	Unique	120	Adjective	40	Walking	52	Verb
11	February orchid	119	Noun	41	Leisure	51	Adjective
12	Yangtze River	116	Noun	42	Past	48	Noun
13	Nanjing Eye	111	Noun	43	Music Festival	47	Noun
14	Sunset glow	106	Noun	44	Sunshine	46	Noun
15	Travel	98	Verb	45	Comfortable	44	Adjective
16	Romantic	91	Adjective	46	Hiking	44	Verb
17	Flower Sea	90	Noun	47	Metro Station	42	Noun
18	Shooting / Filming	90	Verb	48	Ecology	42	Adjective
19	Dogs	89	Noun	49	Flower Viewing	41	Verb
20	Metro	76	Noun	50	Aerial Photography	41	Verb

Rank	Keyword	Frequency	Part of Speech	Rank	Keyword	Frequency	Part of Speech
21	Internet-famous	74	Adjective	51	Evening Glow	41	Noun
22	Pink Muhly Grass	73	Noun	52	Renheng Real Estate Plaza	40	Noun
23	Walking Dogs	72	Verb	53	Lawn	40	Noun
24	Island of the Wealthy	66	Noun	54	Happiness	39	Adjective
25	Grassland	66	Noun	55	Luxury Housing	39	Noun
26	Friends	65	Noun	56	Exercise / Sports	38	Verb
27	Wedding Photos	60	Noun	57	Beautiful	38	Adjective
28	House Purchase	59	Verb	58	Running	36	Verb
29	River Embankment	58	Noun	59	Rapeseed Flowers	36	Noun
30	Photo Shoot Appointment	58	Verb	60	Folk Village	36	Noun

First, from the perspective of the part-of-speech composition of high-frequency keywords, the top 60 high-frequency terms are mainly composed of nouns, verbs, and adjectives. Nouns dominate this set, with a total of 31 instances, accounting for 51.7%. These nouns primarily focus on key elements such as environmental characteristics, well-known attractions, distinctive buildings, and transportation conditions of the destination, reflecting how visitors tend to “experience” and appreciate the unique landscape of Jiangxinzhou in Nanjing.

Verbs account for 17 terms, representing 28.3% of the total. These mainly describe visitors’ activities and behavioral patterns on the island, such as cycling for leisure, as well as the demand for photography and “check-in” activities. Adjectives are the least represented, with 12 terms, accounting for 20% of the total. They mainly reflect tourists’ perceptions and attitudes toward the destination. The adjectives extracted by the software are largely positive, including terms such as “romantic,” “internet-famous,” “healing,” and “convenient,” indicating that public evaluations of Jiangxinzhou in Nanjing are generally favorable.

Table 3 Comparison of High-Frequency Keywords of Jiangxinzhou across Different Time Periods

Time Period	Rank	Keyword	Time Period	Rank	Keyword	Time Period	Rank	Keyword
2014–2017	1	Grapes	2018–2021	1	Yangtze River	2022–2024	1	Cycling
2014–2017	2	Yangtze River	2018–2021	2	Metro	2022–2024	2	Photography
2014–2017	3	Folk Village	2018–2021	3	Nanjing Eye	2022–2024	3	Check-in
2014–2017	4	Metro	2018–2021	4	Photography	2022–2024	4	Park
2014–2017	5	Rural House/ Farmhouse Tourism	2018–2021	5	Pink Muhly Grass	2022–2024	5	Camping
2014–2017	6	Pink Muhly Grass	2018–2021	6	Walking	2022–2024	6	Tourism
2014–2017	7	Nanjing Eye	2018–2021	7	Check-in	2022–2024	7	Lighthouse
2014–2017	8	Environment	2018–2021	8	Lighthouse	2022–2024	8	Ring Road/ Island Circuit
2014–2017	9	Metro Station	2018–2021	9	Internet-famous	2022–2024	9	Dogs
2014–2017	10	Photography / Shooting	2018–2021	10	Ecology	2022–2024	10	Nature

The online textual data were categorized according to time periods. The number of valid reviews was 39 in 2014–2017, 112 in 2018–2021, and 1,022 in 2022–2024. High-frequency keywords were extracted separately for each period for analysis.

During the period of 2014–2017, the frequent occurrence of keywords such as “grapes,” “folk village,” and “farmhouse” indicates that Jiangxinzhou primarily attracted visitors through angertainment-based tourism at that time. The primary industry dominated the island’s economy, with agriculture serving as the main economic foundation. The opening of the metro in 2014 also led to frequent mentions of terms such as “metro” and “metro station,” highlighting the importance of improved accessibility.

In the period of 2018–2021, as Jiangxinzhou underwent a transformation in its development positioning, scenic attractions such as the “Nanjing Eye,” “pink muhly grass,” and “lighthouse” emerged as high-frequency terms. This reflects the island’s transition from an agriculture-centered landscape toward a leisure-oriented tourist destination. The term “metro” was mentioned more frequently, indicating that the metro system significantly enhanced accessibility to and from Jiangxinzhou.

In the period of 2022–2024, verbs such as “cycling,” “photography,” “check-in,” “camping,” and “tourism” became dominant high-frequency terms, suggesting that visitors’ activities on the island are increasingly oriented toward leisure and relaxation. The emergence of the term “nature” reflects the emphasis placed on preserving the island’s original ecological environment during development, which has itself become a key factor attracting visitors.

In summary, the development of Jiangxinzhou as a leisure-oriented urban island has achieved initial success. Public spatial perception of Jiangxinzhou has evolved into that of a conveniently accessible daily leisure destination with attractive landscapes and a popular “internet-famous” check-in site.

Tab 8 Emotional analysis of cultural space in Jiangxinzhou

Sentiment Type	Number	Percentage	Intensity	Number	Percentage
Positive	62	82.67%	Low	15	20.00%
			Moderate	17	22.67%
			High	30	40.00%
Neutral	1	1.33%			
Negative	12	16.00%	Low	6	8.00%
			Moderate	4	5.33%
			High	2	2.67%

Segmented analysis shows that positive sentiment is mainly highly positive, particularly in comments before 2021, which recognize the Jiangxinzhou Folk Village as a venue for experiencing local history, agritourism, and family-oriented activities. Around 2023, some comments highly praised culturally themed spaces such as the church for their distinctive design and tranquil environment. However, negative sentiment is noticeably higher than in other spatial categories, mainly due to the demolition of the folk village. Some respondents express concern that large-scale redevelopment may erase collective memory and local cultural symbols, leading to the gradual loss of regional identity.

Semantic network analysis identifies four perceptual relationship chains: (1) sports culture associated with the “half marathon,” supported by a pedestrian–vehicle separation greenway system; (2) music culture associated with the “Yangtze finless porpoise music festival,” enabled by high-quality green spaces and landscape environments; (3) experiential culture linked to “lighthouse–church,” where visitors perceive culture through landmark exploration; and (4) traditional culture associated with the “folk village,” which, however, has not been effectively preserved or continued following its demolition in 2021.

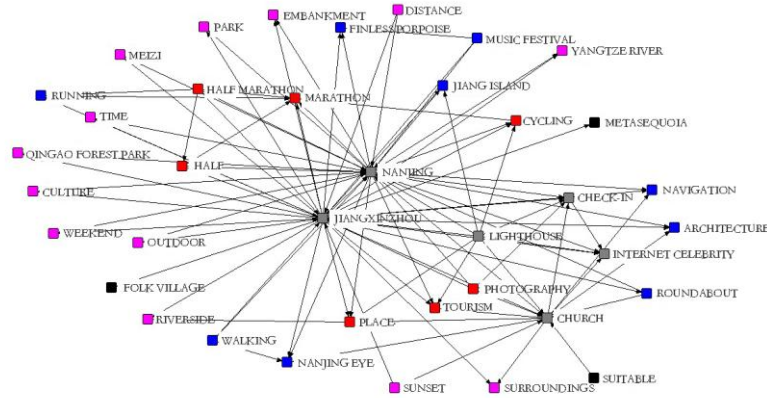


Fig 6 Semantic Network Analysis of Cultural Space in Jiangxinzhou

4. SPATIAL ISSUES AND OPTIMIZATION STRATEGIES FOR URBAN ISLANDS

4.1. Conflicts between Development, Nature, and Aesthetics

While urban island development enhances vitality, it also generates tensions with the natural environment and public aesthetics. The construction of ring roads, commercial facilities, and parks has diversified activity types but has also led to the reduction of ecologically sensitive areas and a decline in biodiversity. High-frequency terms such as “cycling,” “photography,” and “camping” in online texts related to Jiangxinzhou reflect public preferences for outdoor activities, while implicitly indicating increasing ecological pressure caused by human activities.

Development models driven primarily by economic benefits often overlook ecosystem integrity. The public expresses both appreciation for “beautiful scenery” and “nature,” and concerns about “commercialization” and “artificialization,” reflecting heightened expectations for the authenticity and integrity of ecological spaces.

Public perception of ecological space is heterogeneous, with diverse needs among different groups. Prolonged exposure to homogeneous environments may also lead to aesthetic fatigue, making it difficult to balance economic benefits, ecological protection, and diverse aesthetic demands. Therefore, it is necessary to understand diverse needs through surveys and public consultation, strengthen public participation, implement scientifically grounded planning, rationally allocate commercial and recreational functions, introduce eco-friendly industries, and promote green and sustainable development.

4.2. Lack of Diversity and Convenience in Public Transportation

Public transportation on the island suffers from insufficient diversity and convenience. Transportation modes are relatively limited, with few metro lines and incomplete coverage. Residents mainly rely on buses and metro services, lacking diversified travel options. In terms of convenience, issues such as unreasonable bus route design, long taxi waiting times, and inefficient transfers are frequently mentioned in online reviews, significantly reducing travel efficiency.

To address these issues, metro stations should be increased and coverage expanded. Bus routes should be optimized, with adjustments to stop locations and reductions in transfer frequency. In addition, traffic management should be strengthened, taxi service quality improved, and a comprehensive transportation information system established to provide real-time and accurate travel information to the public.

4.3. Imbalanced Building Types and Quantities with Monofunctionally

Due to constraints in planning, funding, and land availability, building development on the island exhibits imbalances in type and quantity, as well as functional monotony. Residential buildings dominate, while commercial and service-oriented buildings are insufficient, failing to meet residents’ daily needs and negatively affecting visitor experience. The relatively limited and highly concentrated online commentary on residential commercial housing further reflects planning deficiencies.

Most buildings are characterized by single functions, reducing spatial utilization efficiency and economic benefits. To address this, development should be guided by human needs, with an increase in commercial and service facilities and encouragement of mixed-use development that integrates multiple functions. Building quantity and density should be reasonably controlled, construction quality emphasized, comprehensive pre-development assessments conducted, human-centered design prioritized, and construction supervision strengthened.

4.4. Public Spaces Failing to Meet Diverse Needs

Public spaces on the island are functionally limited and primarily oriented toward basic living needs, while citizens’ demands for cultural, medical, and educational services are increasing. Online reviews indicate that tourists find recreational spaces lacking in supporting public service facilities and resting areas, while residents express dissatisfaction with insufficient medical and educational resources, citing inconvenience in accessing healthcare and a lack of diversity in educational provision.

To address these issues, planning should be demand-oriented, with in-depth investigation of the differentiated needs of residents and visitors. For deficiencies in medical and educational services, spatial layouts should be optimized, community health service stations added, and educational resources at different levels introduced. For recreational deficiencies, additional public service

facilities such as rest areas, dining spaces, and restrooms should be provided, along with amenities such as seating and shading devices to improve comfort and user experience.

4.5. Loss of Cultural Identity and Fading Historical Memory

The processes of gentrification and large-scale development have disrupted the original cultural landscape of the island. Overdevelopment of tourism resources and the public' pursuit of "internet-famous" attractions have weakened interest in traditional culture, leading to the gradual loss of cultural identity. Online texts show a decline in references to traditional elements and an increase in descriptions of modern commercial and entertainment activities.

Historical memory is also at risk: older generations of residents are passing away, while new residents have limited knowledge of local history. The pursuit of modernization and economic efficiency has led to the demolition or alteration of many historic buildings and sites.

To preserve cultural identity, it is essential to conduct in-depth research on historical and cultural resources and establish a comprehensive inventory. Heritage sites with conservation value should be restored and protected, while endangered folk traditions should be documented and transmitted through preservation efforts. Cultural promotion should be strengthened through media, cultural events organized, and volunteer groups established to encourage public participation. Integrating cultural characteristics with tourism development can help create distinctive local cultural brands and attract visitors to experience the island' historical heritage.

5. CONCLUSION AND PROSPECTS

Taking Jiangxinzhou in Nanjing as a case study, this paper employs a combination of field surveys and online text analysis to explore the spatial perception characteristics of urban islands under the influence of gentrification. The findings indicate that gentrification has driven profound transformations in both the physical and social spaces of Jiangxinzhou. Public perceptions of ecological, transportation, architectural, public, and cultural spaces are generally positive, with the highest satisfaction observed in public spaces and the most prominent negative sentiment found in cultural spaces.

During the development process, urban islands face several challenges, including conflicts between nature and aesthetics, insufficient diversity in public transportation, monofunctional building structures, inadequate public spaces, and cultural loss. In response, this study proposes optimization strategies such as balancing development and conservation, improving public transportation systems, diversifying building functions, adopting demand-oriented public space allocation, and exploring local cultural resources.

Future research could expand the scope of study areas and conduct comparative analyses across different types of urban islands. It may also enrich data sources by incorporating multimodal data such as images, audio, and video. Furthermore, empirical validation should be strengthened to assess the effectiveness of proposed optimization strategies. In the planning and development of urban islands, it is important to move beyond purely technocratic rationality, pay attention to everyday life, emphasize humanistic care and social equity, and encourage the participation of high-quality talent in promoting high-quality development, ensuring that the benefits of gentrification are equitably shared among all citizens.

REFERENCES

- [1] Chu Han, Xie Dixiang, Chang Jiang. Progress and Implications of Environmental Gentrification Research Abroad. *World Regional Studies*, 2023, 32(04): 170–180.

- [2] Meng Yanchun. Middle-Class Formation in the Process of Urban Renewal. *Urban Planning Forum*, 2000(01): 48–51+80.
- [3] Xue Desheng. Implications of Western Gentrification Research for Urban Socio-Spatial Studies in China. *Planners*, 1999(03): 109–112.
- [4] Qiu Jianhua. Implications of the “Gentrification Movement” for Urban Renewal in China. *Tropical Geography*, 2002(02): 125–129.
- [5] Zhu Xigang, Zhou Qiang, Jin Jian. Urban Gentrification and Urban Renewal: A Case Study of Nanjing. *Urban Development Studies*, 2004(04): 33–37.
- [6] Wu Qiyang, Yin Zuxing. A Review and Prospect of Urban Middle-Class Formation Research. *Human Geography*, 2008(02): 19–25.
- [7] Huang Xing, Yang Yongchun. Progress in Gentrification Research in China and the West and Its Implications for Urban Planning in China. *Urban Planning International*, 2012, 27(02): 54–60.
- [8] Guo Yijiao. *Nonlinear Design of Waterfront Landscapes on Urban Islands*. Changsha: Hunan Normal University, 2019.
- [9] Xu Min. Exploration of Diversified Development Paths for River Islands in Waterfront Cities. In: *Proceedings of the 2012 Annual National Planning Conference of China (Urbanization and Regional Planning)*. Zhenjiang Urban Planning & Design Institute, 2012: 7.
- [10] Xiong Xing, Tang Xiaolan, Zhou Mingfeng, et al. Reconstruction Strategies for Waterfront Landscapes of River Islands Based on Greenway Theory: A Case Study of Jiangxinzhou, Nanjing. *Jiangsu Agricultural Sciences*, 2016, 44(03): 210–215.
- [11] Crompton, J. L. An Assessment of the Image of Mexico as a Vacation Destination and the Influence of Geographical Location upon that Image. *Journal of Travel Research*, 1979, 17(4): 18–23.