

Landscape Design Suitability of Old Community Pocket Parks in Urban Micro-Renewal

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Abstract: There are a large number of old communities in China, and some communities have a lack of green infrastructure that does not meet the needs of residents and do not meet the development of modern cities. In recent years, pocket parks have emerged as the center of attention in the construction of old communities in many cities at home and abroad, which can effectively solve the problem of insufficient greening and leisure space in old urban communities. Studies in the last decade demonstrate an absence in comprehensive examinations of community pocket parks. This paper aims at the background of urban micro updates, in order to improve the quality of community public space environments as the breakthrough point, through nearly 15 years of the relevant literature from 4 databases (i.e., Google Scholar, Web of Science, CNKI, Wanfang Data), summarizes the previous study of the pocket park design suitability of research, and then the old community pocket park renovation suggestions the community pocket park to make full-time age-friendly community life circle. The results show that more than 30 domestic and foreign literature, with more than half employing various qualitative and quantitative methodologies, affirm the suitability of pocket parks for multiple aspects of the living environment. The remaining studies focus on the suitability evaluation of public space landscape design planning for pocket parks. These conclusions provide a reference direction for the old community pocket park renovation update, help in addressing residents' needs, conform to the law of urban development, and further improve the community environment construction.

Keywords: Urban micro-renewal, Landscape suitability, Old community pocket parks, Design of pocket parks

1. Introduction

1.1. Research Background

In recent years, with the advancement of the construction of national park cities, and pocket park in our country, many old communities need to update green facilities. Generally, we can divide them into four categories: residential, recreation, traffic, and office. Residential pocket parks are distributed in the residential environment, and the daily life of the most closely use of idle space near the settlement. With the rapid urbanization, green space is gradually being occupied by facilities such as housing and workplaces. As a result, it becomes more and more difficult for urban residents to enter the green space [1]. As a material expression of the integration of modern urban residential areas and

historical traditional streets and alleys, the community is also a place for the spirit of urban residents. However, with the city of the new wave and the growth of people's spiritual demand for beauty, the disadvantages of the lack of green space construction in old communities in the city are gradually revealed.

1.2. Research Meaning

As the mainstream theory in the field of urban architecture and planning, urban micro-renewal lacks certain pertinence in the application of community space reconstruction. Therefore, the study of old community pocket park renewal with the basis of urban micro renewal theory as the background is conducive to improving the application of urban micro renewal theory in the field of pocket parks and expanding the research ideas of urban renewal theory in this field.

1.3. Research status and gaps

According to the relevant literature in recent years, most studies focus on the analysis and evaluation of the suitability of pocket parks, mostly the suitability for the elderly [2] and children [3], the design of pocket parks, such as the AHP model [4], and the suitability of environmental protection, most of which are from the perspective of environmental recovery [5]. However, there is still a lack of systematic and quantitative understanding of the suitability of community pocket parks, which may influence the future decision-making process of old community pocket parks.

1.4. Goals of the study

In view of this knowledge gap, this study used a scoping review for a quantitative analysis and scope review of 31 papers published in the 4 databases between 2011 and 2025. This study aims to produce scholarly research results in the suitability of the pocket park in community construction, provide general suggestions for community pocket park planning and design, alleviate the shortage of a series of problems, and promote the green development of the community and urban environment.

2. Methods: A Scoping Review

This study presumably reviews the existing papers, including pocket parks, mini parks, mini parks, pocket parks, small urban parks, community parks, small public green space, and research results appear in different publications related to the suitability of pocket parks. The study used Google Translate software to address language translation issues, while using widely recognized databases to retrieve English, peer-reviewed academic literature and government posters and reports: Google Scholar and Web of Science for English publications, CNKI and Wanfang databases for Chinese publications. Two different databases were used to ensure that all relevant papers were included. The review was double-screened between October 2024 and December 2024 by authors by searching for keywords in the publication title, keyword, abstract, and full text content. The papers were published between 2011 and 2025. Selected papers were based on different geographical locations, subject direction, and publication years. In the selected literature, the focus is on the environment or the suitability of the population. In the selected papers, the author selected four representative review papers.

The paper is summarized according to the following four aspects: publication year, research topic, research method, and research conclusion. More specifically, the purpose of this study is to answer the following four questions. 1. What are the research hotspots of pocket parks in recent years? 2. What perspectives are these studies starting from? 3. What are the research methods often used? 4. What factors affect the suitability of the planning and design of pocket parks in old communities?

The selected literature was classified and summarized according to the similarity and differences in each aspect. Finally, by summarizing the research trends and theme changes of scholars in the past 15 years, this paper puts forward suggestions for the reconstruction of community pocket parks in China, so as to promote the improvement of community green space environments under the background of urban micro-renewal.

3. Results and Discussion

3.1. Publication Year and Numbers

This review 31 articles, in this study, they were categorized into five categories by year, and the results are shown in the pie chart below (Figure. 1). Six of which were published from 2011 to 2013, which included the exploration of the suitability of small public green spaces and small urban parks and the adaptability of pocket parks in high-density cities. Four of the articles published between 2014 and 2016 began to focus on the suitability of pocket parks for community construction. Two of these articles were published between 2017 and 2019, and studies focused on exploring the suitability of pocket parks to their living environment. In ten of the articles, published between 2020 and 2022, studies began to explore the suitability of pocket parks from the perspective of the community pocket park user group. 10 were published from 2023 to 2025, and most of the studies focused on the specific design techniques and strategies of community pocket parks to explore the suitability of pocket parks.

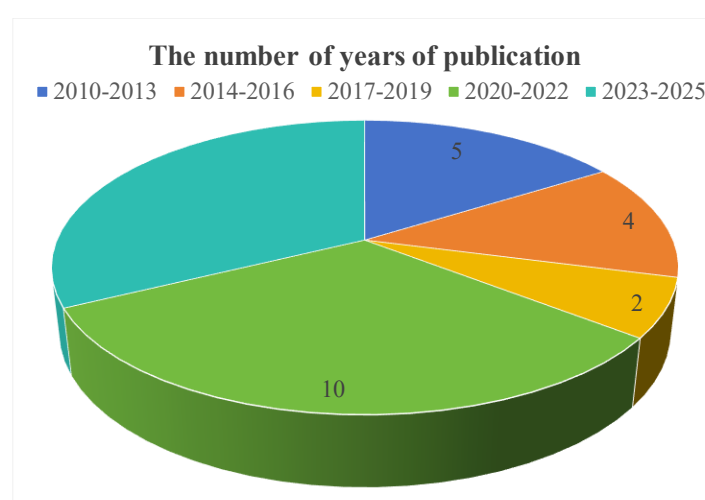


Figure 1: The number of years of publication.

3.2. Research Perspective

The study found that the pocket parks were analyzed in four angles in the selected literature: user group, design strategies, environmental protection, and research review.

Of the more than 30 selected articles, 9 articles evaluated pocket parks from the perspective of users, they focused on the gender difference in the Chinese middle-aged and elderly in pocket park use [2], took research on age-friendly renewal design [6], and studied the impact of a child-friendly design on children's activities in community pocket parks was studied [3].

There are 8 studies focusing on pocket park design, they researched parameters contributing to the design of a successful pocket park [7]. Or developing a pocket park prescription program for human restoration [8]. They took an implementation strategy for pocket park construction in high-density urban areas [9]. They also examined the possibility of implementing pocket parks [10]. 10 articles on the suitability of pocket parks in environmental protection, they researched functional-environmental

evaluation of pocket parks in urbanized areas [11] and associations between park characteristics and perceived restorativeness of small public urban green spaces [12]. 4 literature reviews on Pocket Parks, about the systematic literature review [9] and a review of the evidence [13].

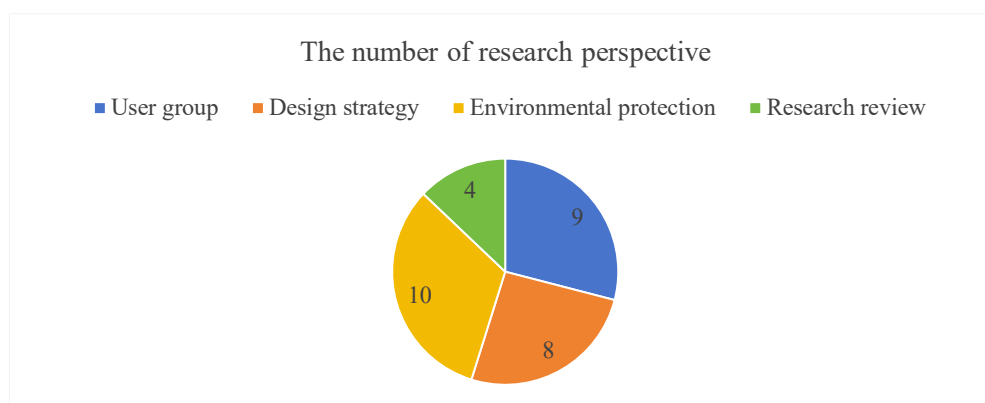


Figure 2: The number of research perspective.

Can be seen from the above pie chart (Figure. 2) research trend of nearly 15 years, in terms of pocket park suitability, more and more people choose to stand in the perspective of pocket park users to analyze, and the pocket park to the suitability of the study of the environment is in steady growth, of course, focus on the study of pocket park landscape planning suitability also has a rising trend.

3.3. Research Method

Most of the 30 literature studies use qualitative and quantitative methods, and some are reviews of previous studies; most of the studies on environmental suitability in pocket parks are based on qualitative methods, while the studies on pocket park design focus on qualitative methods. The studies selected for this paper were categorized into three categories based on the research methodology, and the results are shown in the bar chart below (Figure. 3).

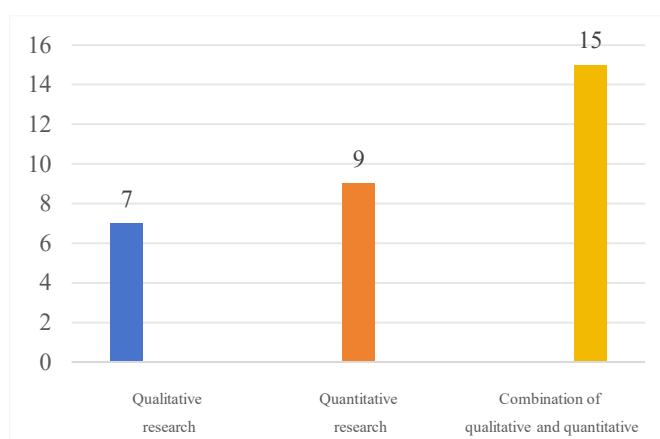


Figure 3: The number of research method.

Seven of the literature studies used quantitative-based research methods: they used multi-source data to understand the factors affecting mini-park in Nanjing and Yancheng [14] and investigate the influence mechanism of park usage intensity and flexibility [15]. 9 articles were based on qualitative studies: they focused on environmental effects from pocket park design according to district planning

patterns [16]. 15 articles were based on the combination of qualitative and quantitative studies, like assessing restorative components of pocket parks using conjoint methodology [17].

3.4. Research conclusion: Factors Influencing Pocket Park Planning and Design

Based on 32 literature studies, it can be found that it is necessary to study the suitability of pocket park planning and design in community construction and greening. From the perspective of factors affecting the suitability of the planning and design of pocket parks in old communities, I summarize the following points:

The objective factor: The pocket park of the old community has its particularity. The pocket park of the old community is small and is greatly influenced by the buildings and plants in the community. The objective factors of the old community are the important reasons affecting the suitability of the pocket park. Some studies found that income, distance from home to the pocket parks were negatively correlated with SUGS use [18]. The vegetation in the old community pocket park has an obvious recovery effect on the old community environment [19], so the vegetation is the objective factor affecting the suitability of the old community pocket park. The shading and evapotranspiration effects of old community buildings and vegetation with high building density are also one of the objective factors affecting the suitability of community pocket parks [20]. The accessibility and community functional structure of old community pocket parks are also essential factors affecting the suitability of pocket parks. The old community microclimate also has an impact on the suitability of pocket parks [21]. Community pocket parks play an important role in alleviating the high-density urban heat island effect [22]. Therefore, the mitigation of the community heat island effect by the old community pocket park is the judging factor of the suitability.

The subjective factor: There are also many subjective factors that affect the suitability of pocket parks in old communities, such as various behavioral activities and artistic aesthetics of community residents, the historical and cultural background of the community, etc. Some studies found that community interaction is a subjective factor in promoting the renovation and renewal of community pocket parks [23]. The study shows that the use of sports facilities in pocket parks by old community residents is also a major factor affecting the suitability of pocket parks [24]. The study found that pocket parks have an obvious role in promoting intense physical activity in the community residents [25], so the residents' demand for pocket park sports facilities is also a subjective factor affecting the suitability of pocket parks. Small public green space plays a certain role in human psychological repair [26], so the demand of old community residents for the release of psychological pressure has also become a subjective factor to judge the suitability of pocket parks. Studies have consistently reported on the importance of pocket parks for mental well-being, with social benefits following closely behind [27]. The research shows that pocket parks are restorative environments for people, so the demand of old community residents for pocket parks is the criterion of its suitability [28]. Various factors, including internal, external, physical, and socio-economic ones, affect the utilization of pocket parks. The mechanisms of these factors and their interactions demand deeper understanding [29]. Old community pocket parks can bring community benefits to residents and make the community more inclusive, more sustainable, and more livable [30], all of which can be used as judging factors to judge the suitability of old community pocket parks.

According to the above research, this study summarizes an old community evaluation system in the following Table.1, this evaluation system can provide standards and direction for the renovation and upgrading of pocket parks in old communities.

Table 1: Factors affecting the suitability of community pocket parks

Type of factor	Factors
objective factor	buildings
	vegetation
	Community structure
	Park accessibility
	Facilities and Landscape Design
subjective factor	Socio-economic factors
	Characteristics of population groups
	Age and frequency of visits
	Visual and perceptual characteristics
	Maintenance and management
	User satisfaction and preference

4. Conclusions

Through 31 at home and abroad on various aspects of the pocket park suitability, one can infer the influential factors affecting the suitability of older community pocket parks. By eliminating the generalized factors impacting pocket park suitability, the issues associated with older community pocket parks become more pronounced. First, in the old community pocket park, most cannot respond to the policy of modern urban renewal, and they need to transform and update. Secondly, for the old community residents, both the quantity and the quality of the pocket parks cannot meet the needs of the residents. Finally, as a part of the community and even the city, the suitability of the pocket park needs to be considered from micro (community reconstruction) to macro (urban renewal). In this regard, the factors influencing the suitability of pocket parks in old communities were summarized, and specific suggestions were proposed for addressing common issues in the renewal and renovation of pocket parks in old communities in China. This serves as a reference for how to increase the suitability of old community pocket parks in China.

Factors affecting the suitability of old community pocket parks include subjective factors and objective factors. Objective factors mainly come from the community environment, old community buildings and vegetation have aging problems, indirectly damaging the old community pocket park original environment and function, so the pocket park around the buildings and vegetation affect its suitability. Objective factors As far as the pocket park itself is concerned, the design of the pocket park and the builders of the internal sports facilities and landscape design both directly affect the suitability of the pocket park. Subjective factors start from the needs of residents. The old community pocket park undertakes the main functions of residents 'leisure and entertainment, relaxation and exercise, etc. Therefore, residents' satisfaction with pocket park is the most direct and important factor affecting the suitability of pocket park.

According to the research, some problems need to be solved in the micro-renewal of pocket parks in old residential areas. First, the renovation and renewal of pocket parks in China needs a suitability evaluation system of community pocket parks. For pocket park construction and designers, the site selection, quantity and quality of old community pocket parks are often limited by the developers funds, which thus affects the suitability of old community pocket parks. Secondly, the aging problems of the old community itself, the weakening of the ecological environment function, indirectly damage the function of the old community pocket park. Finally, the suitability of the old community pocket park finally needs to be judged by the residents. However, at present, the design of the old community is the same, and the residents do not participate in the design of the pocket park, so the suitability of the pocket park cannot be reflected.

By studying 31 articles and combining with the above problems in the old community pocket park, there are the following suggestions:

- 1) The suitability evaluation system of old community pocket parks under the background of urban micro-renewal should be established to provide norms and directions for the renovation and renewal of old community pocket parks. The findings of this paper Table 1 can be used as a reference.
- 2) Attention should be paid to the repair and renewal of the surrounding environment of the old community pocket park, such as the renovation of buildings, the pruning of vegetation, the repair and improvement of roads, etc., and not to interfere with the embodiment of the function of the old community pocket park.

Improve the suitability of the old community pocket park is for the old community residents can have a better living environment, community as part of their lives, community pocket park not only has the function of community green space, or residents to carry out social activities and release the place of psychological pressure, "pocket park suitability" is in the service of the residents, the ultimate goal of this study is to explore the old community pocket park in the background of urban micro update improve its suitability, create a better living place for the community and the people, meet the needs of more residents, in the old community construction more appropriate pocket park. We hope this study will serve as a valuable reference for the construction of more suitable community pocket parks in China.

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