Research on the Optimization Strategy of Public Space in Old Residential Areas from the Perspective of Landscape Space Creation

Ge He[*]

Gold Mantis School of Architecture, Soochow University, Suzhou, China
2242028963@qq.com
[*]*Corresponding author*

Abstract: As urbanization speeds up, transforming public spaces in old communities is an urgent task. Current renovation models mainly focus on functionality and practicality, neglecting environmental aesthetics and residents' spiritual needs. Chinese gardens, as a significant part of history and culture, reflect the concept of harmony between humans and nature, as well as ancient aesthetic ideas and spiritual pursuits. However, garden space creation techniques are rarely considered in community renovation. This paper aims to explore these techniques and their cultural value, and apply them to the renovation of old residential public spaces,. It suggests that garden space creation should focus on the visual experience of residential entrances and road sides, enhance the spatial experience of open spaces between homes through micro-renovation, and carry out large-scale transformations of public centers and squares to meet activity and user needs. The visual experience of entrance spaces is equally important and cannot be limited to functionality. These strategies can promote the transformation of public spaces in old communities, improving their aesthetics and cultural connotations.

Keywords: Old residential areas; Public space renovation; Landscape space creation; Cultural values

1. Introduction

In the context of rapid urbanization, the renovation of public spaces in old communities has become a crucial issue. Current renovation models can be categorized into three types. The first type focuses on material aspects, renovating buildings, roads, green spaces, and public facilities while often overlooking community cultural excavation. The second type involves a complete functional transformation, introducing commercial functions, which can lead to the displacement of original residents and a loss of community authenticity[1]. The third type aims to reflect community cultural connotations through superficial "cultural" renovations, mostly involving the pasting of historical and cultural symbols[2]. These studies predominantly emphasize functionality and practicality, with insufficient attention to environmental aesthetics and residents' spiritual needs.

As urban renewal progresses, scholars are increasingly focusing on intangible elements such as community characteristic cultures, humanistic stories, and historical events. Chinese gardens, as a key branch of traditional architectural art, carry profound historical, cultural, and philosophical significance. They are renowned for their unique design techniques, expressive conceptions, and respect for the natural environment. Gardens are not only artistic creations but also representations of life experiences, embodying the philosophy of harmony between humans and nature and showcasing ancient Chinese aesthetic concepts and spiritual pursuits[3].

However, in community renovation, the guiding role of garden space and culture in public space optimization is rarely considered. This paper, through literature review, summarizes garden space creation techniques and explores their cultural value. It analyzes the impact of garden space creation on old community public spaces and uses this to renovate old community public spaces. This approach has practical significance as it can promote the transformation of old community public spaces, enhance their aesthetic appeal and cultural connotations, better meet residents' needs, and improve the overall community image.

2. Current Status Analysis of Public Space in Old Communities

The rapid development of cities and their populations has led to an increase in old communities, which are widely distributed, house a large number of elderly residents, and suffer from poor infrastructure and inadequate public services, particularly a lack of sufficient public space (Fig.1). Factors such as social resource allocation, economic development, and financial pressures have exacerbated the aging of public spaces in old communities. Public spaces, by their nature, establish order, such as parks and squares for recreation and entertainment, and roads and entrances for travel. This analysis of the current status of public spaces in old communities aims to identify existing problems and bottlenecks and categorize public spaces for subsequent targeted optimization strategies.

Figure 1: Actual photos of the current situation of the residential community

2.1 Existing Problems in Old Community Public Spaces

2.1.1 Unreasonable Spatial Layout

The public spaces in old communities often have an unreasonable layout, with problems such as crowded roads, disorderly alleys, and densely packed buildings. These issues lead to low utilization rates of public spaces and inconvenience for residents' travel and leisure[4].. For instance, narrow alleys in some old communities make it difficult for vehicles to pass and for pedestrians to find suitable pathways.

2.1.2 Outdated and Dilapidated Facilities

The infrastructure in old community public spaces is often outdated, with serious aging of facilities such as public toilets and trash bins. This not only affects community environmental hygiene but may also pose health risks to residents. For example, some public toilets in old communities have old facilities and poor hygiene conditions, causing significant inconvenience and distress to residents.

2.1.3 Lack of Cultural Connotations

Old community public spaces generally lack cultural elements, making them unappealing and unable to meet the diverse cultural needs of residents. In some old communities, public space design solely focuses on functionality and practicality, ignoring cultural and historical contexts.

2.1.4 Lack of Functional Diversity

The public space systems in old communities are closely related to the surrounding population density and structure. Existing research mostly focuses on the needs of a single group, neglecting the commonalities and connections between different groups. Focusing only on the needs of the elderly or children while ignoring overall diversity can lead to low usage rates, reduced activity levels, and eventual decline. Current renovation research often concentrates on large areas, overlooking derelict spaces. Identifying and utilizing these spaces is crucial for revitalizing old communities.

2.2 Types and Analysis of Public Spaces in Old Communities

2.2.1 Residential Entrances and Community Entrances

These spaces serve as semi-private zones between living areas and public spaces, offering good accessibility. They are semi-enclosed, small-scale areas where people have relatively familiar relationships, fostering dependence, security, and a sense of belonging. Residents often chat and rest here, so adding small landscaping elements can enhance the atmosphere. Community entrances, in particular, are high-visibility, well-lit spaces that meet seniors' social observation needs and serve as the community's entrance image. Within a 1,500-meter radius, they have shops, clinics, etc., and seniors often linger here after shopping or medical visits, forming larger gatherings. Being the most intense area of vehicle-pedestrian interaction, they have limited fixed seating, so seniors use wheelchairs, stools, or shop steps. Design must balance internal use and external presentation.2.2.2 Open Spaces Between

Dwellings

2.2.2 Open Spaces Between Dwellings and Roadside Areas

These spaces are relatively open areas between buildings and along roads, with ample sunlight and a service radius of about 500 meters. They host activities like walking, exercising, chatting, and short rests. These spaces are close to residential structures, creating a safe interface, and are near main community roads with higher foot traffic and diverse activities. To improve the experience, landscaping and facilities should be integrated with rest areas for social and recreational activities[5]. However, with high vehicle traffic and strong spatial, privacy and safety are concerns. Comfortable spaces and scattered rest areas, such as near shops or residential entrances, are needed to enhance their functionality and appeal.2.2.4 Cultural Activity Centers

2.2.3 Cultural Activity Centers, Squares, and Green Spaces

These are key areas with large scales and beautiful greenery, serving multiple purposes within a 1,000-meter radius. They include recreation, fitness, and educational activities, combining green areas, activity grounds, and sports equipment for elderly outdoor activities. Located centrally in residential areas with a service radius of around 1,000 meters, these spaces feature diverse activities, strong openness, and public accessibility, accommodating groups of over 10 people. They have fitness and rest facilities to meet various social needs. Residents engage in activities like card playing, chess, chatting, and childcare. However, old communities often face issues like insufficient green space, low-quality greenery, and poor square maintenance[6]. Fixed seating is provided, and seniors use these spaces for drying clothes, cooling off, resting, and supervising children. Design should balance functionality and aesthetics, using landscape techniques to combine greenery and seats for a comfortable and charming space that meets resident needs[7].

3. Landscape-Driven Strategies for Renovating Old Community Public Spaces

3.1 Overall Renovation and Optimization Mechanism

3.1.1 Strengthening Natural Elements

In the context of urban aging, enhancing natural elements is crucial for the renovation of public spaces in old communities. This involves adding natural elements such as plants and water features. When selecting plants, it is essential to consider local climate conditions and design them according to the characteristics of the site and the spatial layout. Additionally, incorporating water elements like fountains can add vitality and interest to the space. This approach not only creates a visually appealing environment but also promotes residents' physical and mental well-being.
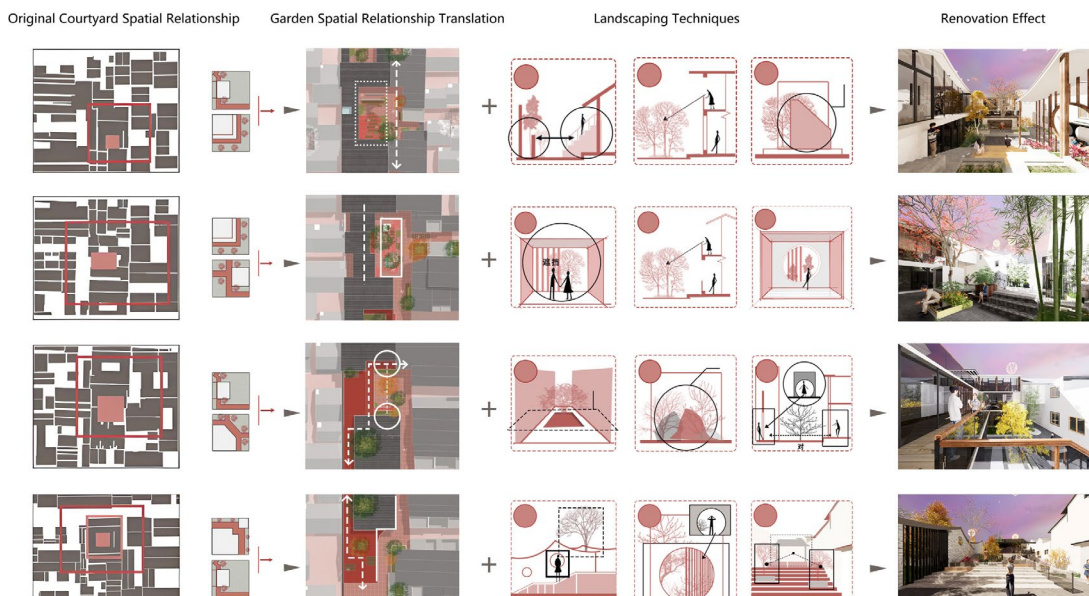

Figure 2: Garden Translation

3.1.2 Incorporating Landscape Cultural Elements

When renovating public spaces in old communities, cultural factors should be considered, especially in places with rich landscape culture like Suzhou. Integrating local historical, traditional, and regional cultural elements can enhance residents' cultural identity and transform public spaces into vibrant cultural hubss. This can be achieved through sculptures, historical markers, and cultural events such as festivals and calligraphy exhibitions.

3.1.3 Optimizing the Spatial Layout

The layout of public spaces in old communities often has issues that affect usage efficiency. To address this, the renovation should focus on optimizing the spatial layout by improving road and pedestrian systems for better connectivity and accessibility, adjusting building layouts for more comfortable and open spaces, and incorporating greenery elements to enhance ecological and aesthetic values. Landscape design techniques like combining plants with water features and using winding paths can create appealing and lively public spaces (Fig.2).

3.1.4 Enhancing Facilities with Landscape Ambience

The outdated infrastructure in old community public spaces needs updating to improve hygiene and residents' quality of life. This can be done by adding facilities like benches and fitness equipment, and incorporating landscape design techniques such as unique sculptures and art installations to enhance the visual appeal and interest of the space, encouraging greater resident usage.

3.2 Updating Strategies for Different Types of Public Spaces

3.2.1 Residential Entry Points

These semi-private areas, serving as transitions to public spaces, offer good accessibility and a small scale. As gateways to homes and venues for chatting and resting, their visual impact is significant. Enhancing these areas with small landscaping elements and rest facilities, using landscape techniques like rockeries and plants, can create a pleasant atmosphere and improve residents' quality of life.

3.2.2 Open Spaces Between Dwellings

These areas, adjacent to buildings and main roads with high foot traffic, host diverse activities. To avoid disturbing nearby residents while meeting recreational needs, they should be enhanced with greenery, facilities, and rest areas, incorporating landscape elements for added beauty and comfort, thereby improving residents' quality of life.

3.2.3 Roadside Areas

With strong spatial, these areas host activities like walking, exercising, chatting, and short rests. Renovation should emphasize visual appeal, incorporating landscape techniques with greenery and rocks, and adding scattered seats for a comfortable and sociable atmosphere. These spaces, with diverse activities and strong public accessibility, have large gathering scales. Renovation should integrate greenery, facilities, and seats to create a garden-like atmosphere, using landscape techniques such as layering and borrowed scenery to enhance artistic value and appeal.

3.2.4 Squares and Green Spaces

As key areas with large scales and beautiful greenery, they offer recreation, fitness, and educational activities. Design should balance functionality and aesthetics, using landscape techniques to combine greenery and seats for a comfortable and charming space that meets resident needs. These high-visibility areas, serving as the community's entrance image, should be designed with both functionality and aesthetics in mind. Incorporating landscape elements like plants and water features can enhance visual appeal and overall quality.

4. Conclusions and expectations

As urbanization advances, the transformation of public spaces in old communities is inevitable, driven by insufficient public space indicators and the strong demand from the large population. While current renovation practices have accumulated some experience, they often neglect environmental aesthetics and residents' spiritual needs. Chinese gardens, rich in historical culture and philosophical connotations, offer valuable insights for this transformation. This paper explores the application of

landscape space creation techniques in the renovation of public spaces within old communities. By defining types, analyzing characteristics and values, it provides practical strategies for integrating these techniques into the renovation process. The study proposes specific renovation plans for different types of public spaces in old communities, aiming to enhance the aesthetics and cultural quality of public spaces, satisfy spiritual needs, and improve the overall image of communities. In essence, this research advocates for the use of culturally rich landscape space creation methods to revitalize old community public spaces, thereby improving residents' quality of life and fostering more vibrant and inclusive community environments.

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