



Unraveling Old People's Park Preferences in Cold City Winters: A Case Study of Shenyang Urban Parks

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Abstract

The number of visitors to city parks in cold cities significantly declines during winter. However, certain sites within each park attract a concentrated group of people who are mainly older individuals. Identifying the characteristics of these favored locations allows for targeted winter landscape construction and renovation. This research investigates the usage preferences of older people concerning urban park spaces during winter. Utilizing participatory observation, we examine the utilization patterns of urban parks during the colder months. Spatial analysis using Depth map software provides specific quantitative values, revealing common features of the most popular spaces. Based on the findings, this paper proposes park design enhancements for cold cities in winter, catering to the needs of the aging population.

Keywords: Old people; cold city; urban park; use preference; space syntax

Introduction

The worldwide issue of population aging has led to an increasing demand for social communication among older individuals. Notably, social interaction becomes a primary requirement for senior citizens in urban parks during winter. Consequently, the study of urban parks in winter is crucial for addressing the needs of the elderly. While some research exists on designing spaces for the elderly's [1-3], park features can encourage old people's park visitation [4], different urban green can make physiological and psychological effects of old people [5], but few studies focus on the specific context of cold cities during winter. Similarly, there are studies on city parks in cold cities [6,7], such as Ice and Snow Visual Aesthetic in the winter [8], the relationship between mental health and trees in winter cities [9], but the emphasis on older individuals during winter remains limited. This paper aims to fill this research gap by exploring how to design parks for senior citizens in cold cities during the winter season. This article delves into the behaviors of older people in parks during winter, aiming to discern their usage preferences during this season. The objective is to develop improved urban parks that offer more opportunities for

socializing during winter, thereby enhancing the park environment for senior citizens and encouraging their outdoor activities and social interactions during the colder months.

Materials and Methods

The research employs a combination of qualitative and quantitative methods to investigate how older people utilize urban parks during winter. Initially, relevant information is gathered to understand the patterns of usage and the motivations behind their choices. Furthermore, the study utilizes depth map software to analyze the spatial relationships among all the spaces within the park. This analysis yields specific quantitative values, providing valuable insights into the spatial preferences of older individuals during the winter season. By integrating the findings from both qualitative and quantitative approaches, the research aims to uncover and better comprehend the spatial preferences of older people within urban parks in winter. This holistic approach allows for a more comprehensive understanding of the factors influencing their choices and can lead to targeted design proposals that cater to the needs and preferences of the elderly during the colder months.

Sample Selection

Before conducting detailed investigations, the author conducted a preliminary visit to 11 urban parks in Shenyang during the winter season. It was observed that in the cold city winter, people predominantly concentrated their park activities in the old urban areas, while the parks in newly built areas remained largely unattended. This pattern can be attributed to two main factors: higher residential density in the old urban areas and a larger population of older people residing there, making them the primary users of urban parks during winter. As the research specifically focuses on older people’s spatial preferences within urban parks during winter, parks with minimal or no attendance were excluded from the study. Consequently, the study selected five parks for in-depth observation, namely Nanhu Park, Zhongshan Park, Wanliutang Park, Wanquan Park, and Labor Park. These parks were chosen due to their relatively diverse types and scales, as well as their liveliness during the winter season. These selected parks provide suitable environments for studying the spatial preferences of older individuals during the colder months.

Data Acquisition

The research commenced by selecting Nanhu Park for a preliminary three-day continuous behavioral observation from November 20 to November 22, 2020, between 10:00 to 15:00 daily. This initial observation provided some initial insights into the characteristics of older people’s park usage during winter. Subsequently, the other four parks were observed from November 2020 to February 2021. Each space within these parks was observed four times on both weekdays and weekends, during the morning and afternoon hours. During these observations, various factors such as weather conditions, pollution levels, and people’s emotions were recorded. The researchers closely observed and recorded the activities of the park’s visitors, identifying their preferred gathering

spots and behavior patterns.

To gain further understanding, behavioral markers were used, and interviews were conducted to gather information about the habits and needs of older people’s park usage. In this comprehensive approach, the researchers aimed to gain valuable insights into the preferences and requirements of the elderly during the winter season in urban parks. Additionally, spatial maps of all five parks were created concurrently with participant observation. These maps were combined with the park guide map, serving as a basis for subsequent convex polygon analysis. This analysis aimed to identify patterns and relationships among the park spaces, providing quantitative data that could be used to inform the design proposals and enhancement for urban parks in cold cities during winter, catering to the needs of the elderly population.

Results of Participatory Observation

Main Users are Similar in Winter

The preliminary study conducted at South Lake Park revealed that, regardless of the temperature, the park consistently attracted a stable number of visitors throughout the day, with a majority of them being over 50 years old. The ratio of men to women in the park was roughly equal, and specific timeframes, such as 5:00-7:00 in the morning, 9:00-12:00 in the morning, and 1:00-4:00 in the afternoon, were marked by regular activities such as dancing, chatting, playing shuttlecock, and playing cards. Interestingly, the cold weather or the possibility of snowfall did not deter these visitors, as they continued to engage in their activities without hindrance. Similar patterns were observed in the other four parks as well (Table 1), with the main group of visitors sharing characteristics similar to those observed in Nanhu Park. Specifically, senior citizens formed the predominant group of visitors in these cold city Winter Parks, with many of them being retired or not actively engaged in work.

Table 1: Popular sites and behaviors in each park.

Site	Shape of the Site	Function	Activities
Site B in Labor Park (Figure 1)	Open	Transit	Dance; chat; Look at others.
Site H in Labor Park (Figure 1)	Open	None	Snow slide
Site E in Zhongshan Park(Figure 2)	Scattered	None	Dance; Handwriting; Chat; Look at others
Site K in Zhongshan Park(Figure 2)	Open	Exercise	Exercise; Chat
Site A and C in Labor Park (Figure 2)	Open	Entrance	Dance; play cards; chat; Look at others
Site B in the South Lake Park (Figure 3)	Centripetal;Having a visual center	Communicate; Rest	Dance; kick shuttlecock; chess; walk; play cards; chat; Handwriting; Look at others
Site A in the South Lake Park (Figure 3)	Centripetal;Having a visual center	Communicate; Rest	Chat; Look at others.
Site E in Wanquan Park (Figure 4)	Centripetal;Having a visual center	Communicate; Rest	Dance; play cards; skipping rope; walk; Chat; Look at others

Site B in Wanquan Park (Figure 4)	Open	None	Group Discussion
Site I in Wanquan Park (Figure 4)	Linear	Rest	Chat; Sun-bathe; Exercise; play cards; smoke
Site E in Wan liutang Park(Figure 5)	Open	Exercise	Exercise; Chat; Look at others
Site D in Wan liutang Park(Figure 5)	Surrounded	Ping-pong	Ping-pong

Regardless of the weather conditions during the research period, these individuals displayed a regular pattern of going out, spending time in the park, engaging in activities, and using specific locations within the parks. During the interviews conducted, it was found that the surveyed senior citizens shared similar family backgrounds and income levels. They faced relative limitations in terms of social support and could not afford more conducive environments for social interactions during the winter season. Consequently, they expressed a strong eagerness to utilize urban public spaces for social interactions. This need for social connections is considered a lifelong requirement, as vital as fulfilling physical needs. As people age, they often experience increased loneliness due to reduced social contacts and unmet social connections [10].

Winter Behavior Pattern is Consistent

During the winter season in urban parks, residents engage in a variety of activities, including fitness exercises, socializing

through chatting, playing cards, watching others, and capturing moments through photography. These activities are commonly observed across all parks, with chat groups and watching groups forming in every park. Playing cards and dancing are also prevalent activities, although they may not be present in every park. Notably, playing cards and dancing activities often occur alongside chatting and watching behaviors. These two behavior patterns, chat and watching, act as the primary driving force that motivates older people to go out and participate in park activities during winter. The social interaction and enjoyment derived from chatting with others and observing various activities contribute significantly to the attraction of parks during the colder months. By understanding these main behavior patterns, park designers and planners can create spaces that encourage social engagement and promote physical activities, catering specifically to the preferences and needs of older individuals during winter (Figures 1 & 2).

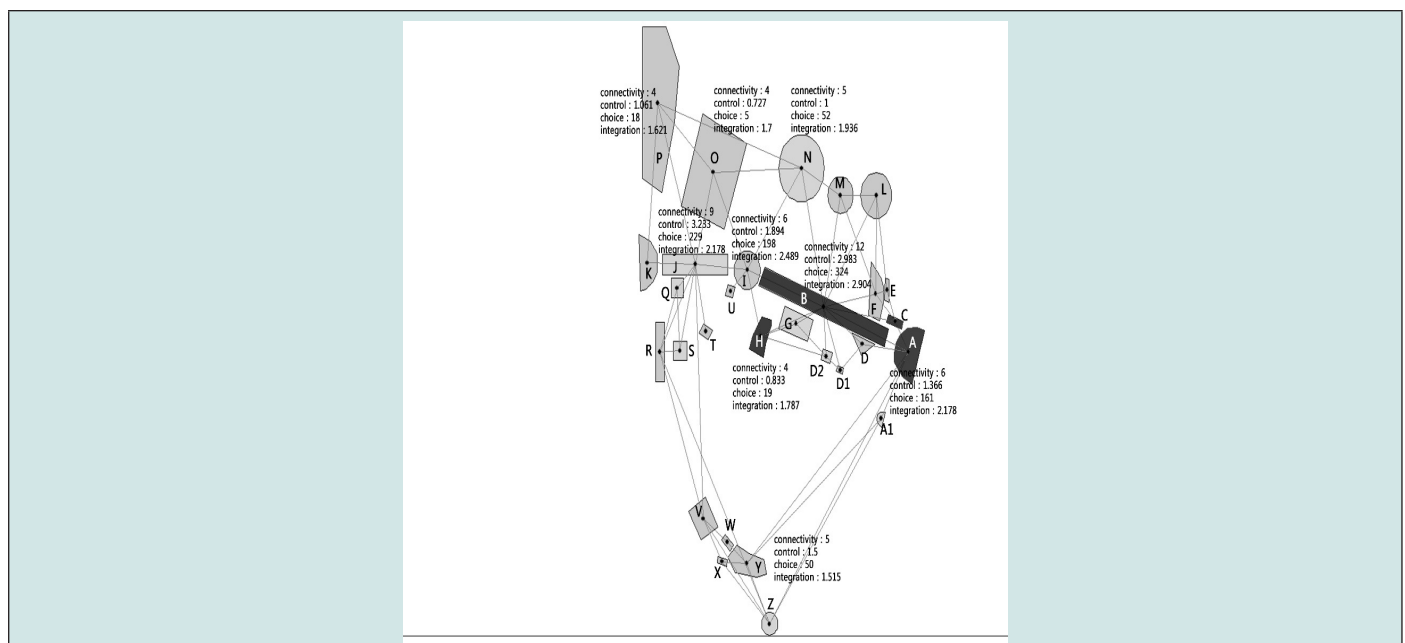


Figure 1: Labor Park convex polygon.

Winter Activity Space is Centralized

The research discovered that when older people select a location within a park during winter, their priority is not necessarily the most comfortable or aesthetically pleasing area. Instead, they show a greater interest in the activities taking place in the vicinity and the presence of other people. Thus, environments where they

can observe various activities happening concurrently are likely to be their preferred spaces. In each of the five parks studied, specific sites were identified as popular gathering spots for older people (Table 1). For instance, in South Lake Park, the favored location is Square B (Figure 3) [11-14]. In Zhongshan Park, visitors mainly congregate at sinking site E and site H, which has fitness equipment (Figure 2).

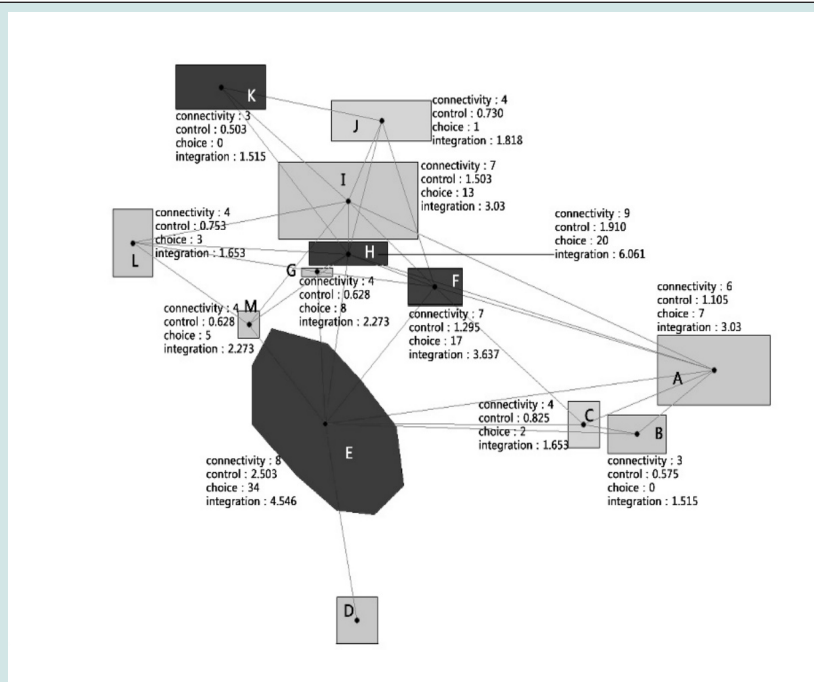


Figure 2: The convex polygon of Zhongshan Park.

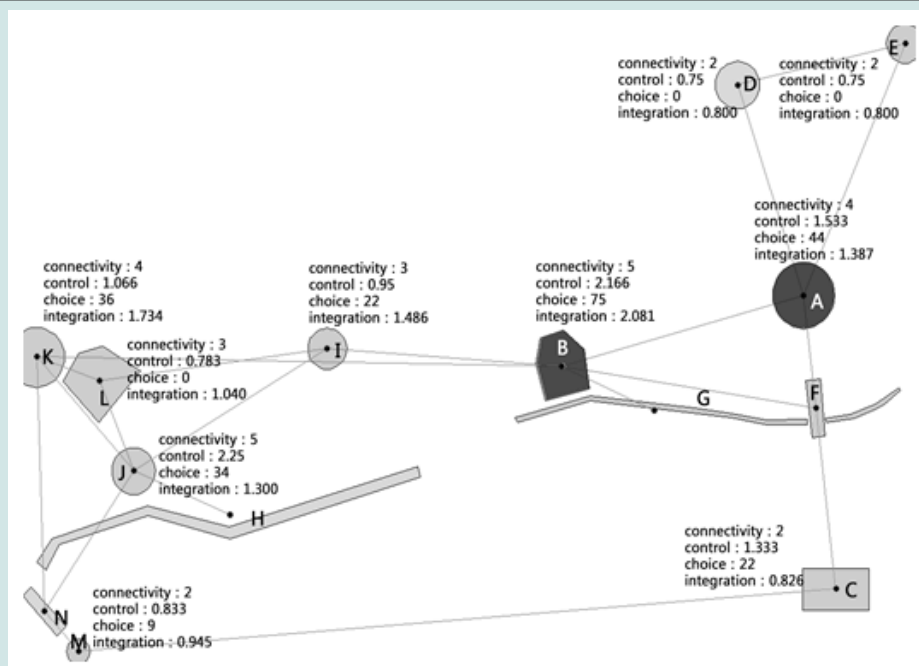


Figure 3: South Lake Park convex polygon.

Wanquan Park attracts people to gather in an open space B near the entrance, a central square E, a corridor D, and a sunny site I (Figure 4). Similarly, in Wanliutang Park, people tend to gather at a fitness equipment site E (Figure 5). Lastly, in Labor Park, the primary concentration of older people occurs at square A near the entrance and road B also close to the entrance (Figure 1). Understanding the characteristics of these popular spaces during winter allows for targeted park renovations, which can be of significant practical

importance for cold cities. By enhancing and designing these spaces to cater to the preferences and needs of older visitors, park authorities can create inviting and socially engaging environments during the winter season. This approach fosters the well-being and enjoyment of older individuals and ensures that the park remains a vibrant and valued community space, even in colder weather conditions.

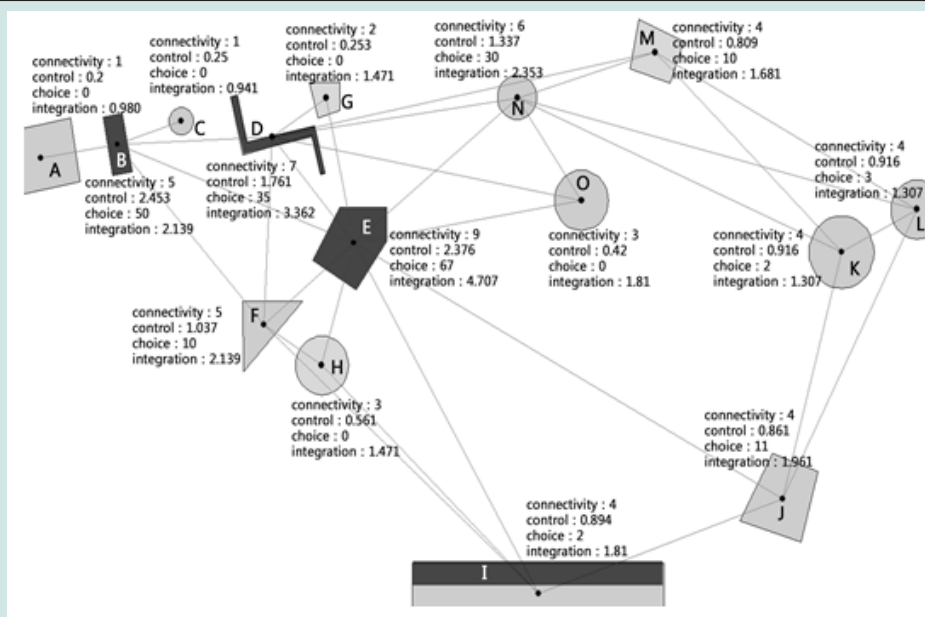


Figure 4: Wanquan Park convex polygon.

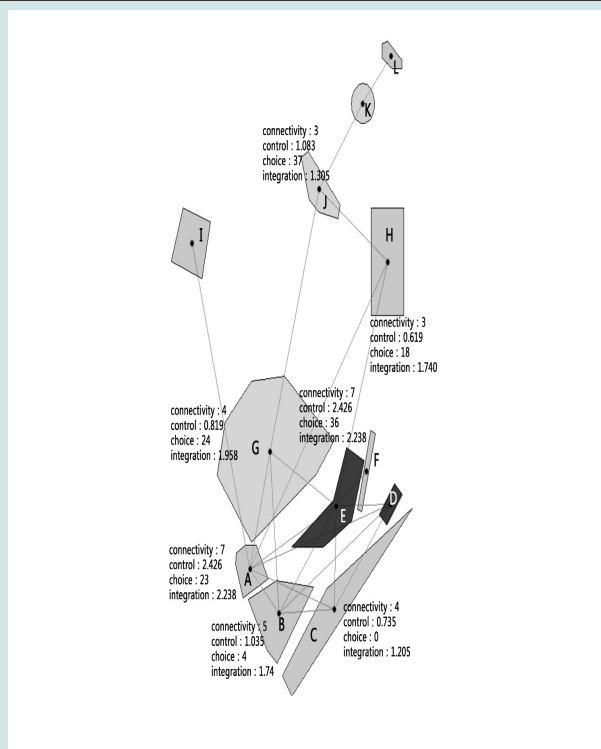


Figure 5: Wan liutang Park Convex Polygon.

Space Syntax Analysis

Space syntax theory, primarily utilized in urban planning and architecture, can also be applied to the study of urban parks at a small scale. However, in parks, there may be visible but inaccessible spaces that are not suitable for line-of-sight analysis. To address this, the convex polygon method is employed to analyze the organization of each space within the park. The research leverages

depth map software to abstract the spatial composition of the park, enabling the creation and analysis of maps and spatial connection relationships. By drawing the depth map convex map, researchers can obtain quantitative indices of the spatial relationships between each area within the park. This analytical approach facilitates a comprehensive understanding of how different spaces are organized and interconnected within the park, shedding light on

the spatial preferences and behavior patterns of older individuals during winter. By applying space syntax theory and utilizing the convex polygon method, the study gains valuable insights into the layout and spatial interactions within the park, which contributes to the development of targeted and effective design proposals for creating more user-friendly and socially engaging urban parks in cold cities during winter.

Convex Polygon

The analysis of convex polygon relies on four key indexes, each providing valuable insights into the spatial characteristics of the park and the preferences of its users:

- a) **Connectivity:** High connectivity indicates a space that is open and well-connected to other areas in the park, making it more accessible and observable. Such spaces offer convenient pathways for movement and interaction.
- b) **Integration:** Integration refers to the degree of accessibility and attractiveness of a space, influencing its capacity to attract more people. High integration spaces are more likely to draw larger crowds due to their appealing features.
- c) **Choice:** The degree of choice indicates the level of crossing and flow of people through a particular space. Higher choice values signify more opportunities for people to encounter and interact with others, fostering social engagement.
- d) **Control:** Control measures the impact of a space on adjacent areas. High control values suggest that a space holds significant importance within the park and is more likely to be noticed and utilized by park visitors.

In the Labor Park, space B exhibits the highest values for connectivity, control, choice, and integration, making it a central and influential area in the park (Figure 1). Being highly connected, people can easily access any part of the park from this space. Spaces

A and C, though not as crowded, are strategically located at the park's entrance, holding importance from a citywide perspective with their connectivity to the surrounding areas. These three spaces (A, B, and C) benefit from the best sunlight and protection from the north wind, attracting diverse activities in the park. In Zhongshan Park, space E stands out with the highest values for connectivity, control, choice, and integration during winter (Figure 2). This space attracts the most people and hosts a wide range of activities. An open space H, though less crowded, also exhibits high integration and connectivity, with higher control and choice compared to other sites. In the South Lake Park, Square B (Figure 3) holds the highest values for connectivity, control, and integration during winter, making it the most populated and behaviorally diverse space in the park. Additionally, Square A, which connects the horizontal bridge, exhibits the second-highest values for selection, connectivity, control, and integration. In Wanquan Park, the primary sculpture square E (Figure 4) garners the most crowd in winter, scoring the highest in control, choice, integration, and connectivity.

Following E, spaces D and B show strong connectivity and integration, with D having the second-highest connection value and B having the second-highest control and choice values. Wanliutang Park experiences relatively lower daytime footfall, focusing more on sports and fitness activities. During winter, most people gather in venue E (Figure 5), which demonstrates the highest connectivity, choice, integration, and control values. Additionally, venues B and C see some activities, primarily centered around fitness equipment. Venue D, enclosed with a table tennis field, provides a more comfortable micro-environment. Understanding the spatial characteristics and preferences of popular spaces in winter is crucial for targeted park renovations, especially in cold cities. By focusing on areas with high connectivity and choice, park designers can create more engaging and socially interactive spaces that cater to the needs of the senior citizen population during the winter season.

Spatial Relationship

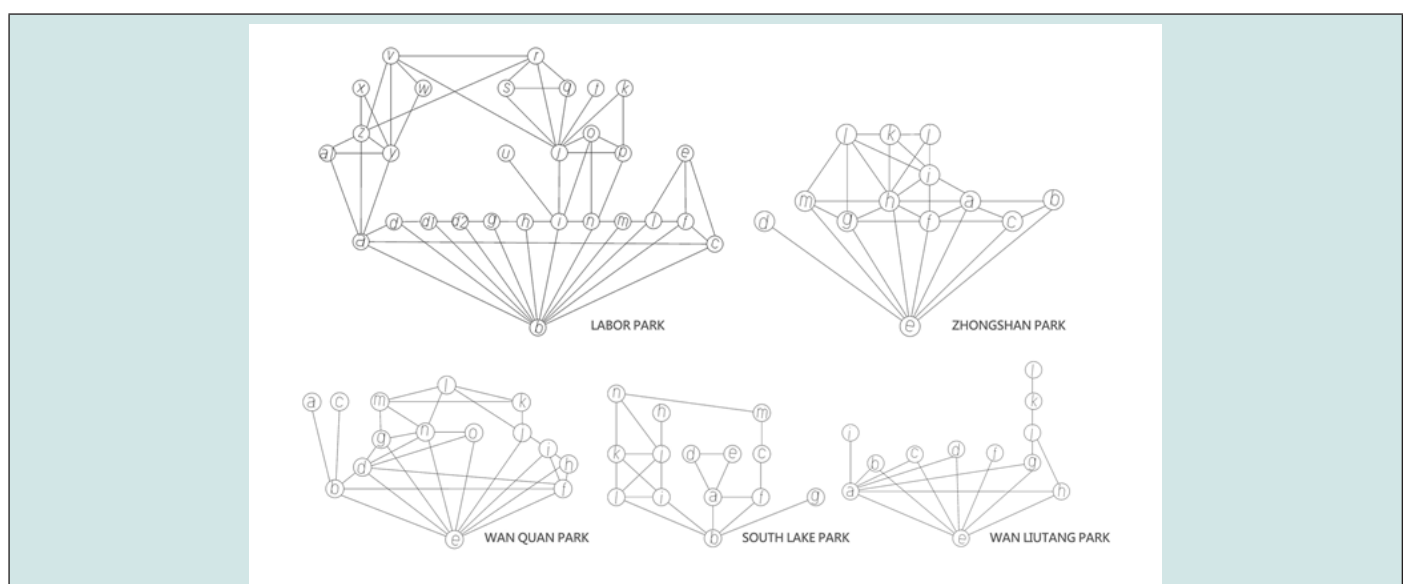


Figure 6: Wan liutang Park Convex Polygon.

The spatial topographic map of the five parks (Figure 6) reveals important insights into their spatial extension relationships and layout forms, shedding light on the level of activity and connectivity in each park during winter.

- a) Labor Park and Wanquan Park: These parks exhibit a more complicated spatial extension relationship, with a higher number of active people. The two parks feature open central diverging layout forms, with diverse tour routes. This type of layout facilitates higher connection values, integration degrees, and choice degrees [15,16]. The network-like extension relationship allows the two parks to have better accessibility and attract more people, contributing to their popularity among senior citizens during winter.
- b) Nanhu Park: Being built around the lake, Nanhu Park follows a linear layout around the water body, resulting in the lowest connectivity and choice among the five parks. The simplicity of the tour route and layout limits its potential to attract a large number of visitors during winter.
- c) Wanliutang Park: Constrained by mountains, Wanliutang Park has a relatively simple tour route, leading to a lack of connectivity. The park's layout poses challenges in forming very high connection values, choice degrees, and integration levels among its venues. This aligns with the observations during the scene survey.

The combination of analysis data from the space syntax software and the results of participant observation helps identify the characteristics of preferred urban parks in winter. Parks with open central diverging layouts and diverse tour routes tend to be more attractive to senior citizens, as they offer better accessibility and opportunities for social interaction. On the other hand, parks with linear or constrained layouts may have limitations in terms of connectivity and attractiveness for park visitors, leading to fewer people engaging in park activities during the winter season. Understanding these spatial characteristics can provide valuable guidance for urban park design and renovation, with the aim of creating more appealing and socially engaging spaces for the elderly population in cold cities.

5.7. The Preferred Site Characteristics in Winter

Both High Connectivity and Choice Degree

The analysis of the five parks highlights an important common characteristic of the most popular sites during winter: they exhibit both high connectivity and high choice. This observation aligns with the behavior of the elderly who frequent the parks during the day. The main group of senior citizens engages in various forms of exercise and activities during the daytime, and they are not afraid of being disturbed. Therefore, places that allow them to meet more people and showcase themselves tend to be more popular, as such locations offer both high choice and high connectivity. For example, in Wanliutang Park, space J has the highest degree of choice but low connectivity, resulting in little activity happening there. On the other hand, site J in Nanhu Park has the highest connectivity but low choice, leading to no activities taking place in that area.

Similarly, although entrance A in Wanliutang Park has the highest connection value, integration degree, and control value, its choice degree is low, resulting in minimal activity.

When comparing these two factors horizontally between parks, Labor Park and Wanquan Park consistently have higher connectivity and choice values in each of their sites compared to the other parks. In contrast, South Lake Park, Zhongshan Park, and Wanliutang Park generally have lower connectivity and choice values in their respective sites. This correlation is evident in the field investigation, with Labor Park and Wanquan Park having the largest number of people and livelier activities during winter, drawing many visitors to every site within the park. Overall, the combination of high connectivity and high choice proves to be the preferred site characteristics for old people, as it creates an environment that fosters social interaction, engagement, and a sense of belonging within the park during the winter season. This understanding can inform park planners and designers to focus on enhancing connectivity and providing diverse choices to create more attractive and socially vibrant urban parks for the elderly population in cold cities.

Special Function Site

Indeed, in some cases, certain areas within the parks may have low connectivity and choice values but still attract a crowd of people due to their specific functional purposes. These areas cater to specific needs and interests of park visitors, leading them to choose and frequent those spaces even though the overall connectivity and choice metrics are not high. For example, in Labor Park, site H is a place where children can ski slides, and it serves as an entry point for ice sports and access to the lake. While the connectivity and choice values may not be very high, this area still attracts a large number of people, particularly children engaging in ice sports, and they are often accompanied by others who gather to watch the fun. The specific function of this area, offering opportunities for children to participate in winter sports and activities, generates interest and social interaction among visitors, resulting in its popularity despite lower spatial metrics. Similarly, in Zhongshan Park, site k, where fitness equipment is concentrated, also draws many people, even though the connectivity and choice values for this site are low.

The presence of fitness equipment in this area caters to the specific interests of individuals seeking exercise opportunities, creating a social hub where people with similar fitness goals come together and engage in physical activities while interacting with one another. As a result, this area becomes popular despite not having high connectivity or choice values. These examples demonstrate that for people with specific functional needs, such as children seeking winter sports or fitness enthusiasts looking for exercise opportunities, even if a site may be relatively isolated within the park's overall layout, it can still be preferred and well-utilized due to its specific function and the social interactions it fosters. This highlights the importance of considering diverse and targeted features in park design to accommodate the various needs and preferences of the park's visitors. By incorporating spaces with different functionalities, urban parks can attract a wider range of

users and create more inclusive and socially engaging environments for all individuals, including the elderly population in cold cities.

A Comfortable Environment

Absolutely, you have made an astute observation about the importance of warm and windless spaces in attracting groups of people, especially older individuals, in winter. These spaces may not have high connectivity or choice values, nor do they necessarily offer specific functional features, but their comfortable micro-environment, such as being shielded from cold wind and receiving ample sunlight, makes them highly appealing to visitors. In the case of site, I in Wanquan Park, although it may not have significant spatial metrics, its micro-environment offers a warm and cozy spot for people to gather. The presence of a wall that shields from the cold wind and abundant sunlight makes this site an attractive place for older individuals seeking a comfortable and warm spot to engage in various activities, like playing cards, chatting, and basking in the sun. These types of spaces, even if not designed with specific functions in mind, become valuable social hubs due to their comfortable atmosphere and the social interactions they foster.

It is clear that different groups of senior citizens with varied needs and preferences will choose different places to stay within the park. While spaces with high connectivity and choice values will attract the largest crowds, areas with specific functions and those offering warm, windless conditions will also be preferred by certain individuals. By understanding and accommodating these diverse needs, park designers can create spaces that cater to a wide range of preferences, making the park more inviting and accessible for all, especially older individuals seeking social interaction and comfort in cold city winters. In conclusion, the main spatial features of parks chosen by senior citizens in winter include places with high connectivity and choice values, spaces that offer specific functions, and areas that provide warm and windless conditions. By incorporating and optimizing these spatial characteristics, urban parks can better serve the needs of older individuals, promoting social interactions, physical activities, and overall well-being during the winter months in cold cities.

Design Suggestion

Improving the extension and complement relation of space

The study has made an important observation regarding the relationship of space extension and its impact on the degree of connection and choice within urban parks, especially during winter. Parks with open, network-like layouts and multiple tour routes are more conducive to social interaction, making them more attractive to people in the colder months. On the other hand, parks with linear layouts and single tour routes tend to have smaller crowds in winter, as they might not foster as much social interaction. Looking at the park as a whole, improving its layout and spatial relationship can enhance overall connectivity and choice, thereby attracting more people. By considering and optimizing the park's design from

a macro perspective, it becomes possible to create an environment that encourages social interactions and draws more individuals to use the park during the winter season. Additionally, within the park, spaces with higher connectivity and choice values tend to promote social interaction and attract more people during winter.

By identifying and enhancing the connectivity and choice of key spaces and areas where people are likely to engage in winter activities, the utilization rate of these spaces can be improved, leading to a more active and vibrant park during the colder months. The author's findings that the presence of an active crowd in a specific space influences the winter landscape use in cold city public spaces further supports the idea that seeing and connecting with other people is a crucial factor for individuals when choosing a park in the winter. This emphasizes the importance of designing spaces that encourage social interaction and provide opportunities to meet and connect with others. In conclusion, park design should focus on improving the overall space extension relationship to enhance connectivity and choice throughout the park. Additionally, the design should prioritize key spaces that are likely to attract a crowd during winter and promote social interaction. By implementing these design considerations, urban parks can become more efficient and appealing in winter, offering opportunities for socializing and outdoor activities even in cold city climates.

Development Winter Mode:

Indeed, cold wind and sunshine are crucial factors that significantly impact people's willingness to go out in winter. Developing a mode that effectively shields against the cold air and maximizes exposure to sunlight can create a more comfortable environment for park visitors during the colder months. One such mode involves combining seating areas with walls that face the sun. The strategic placement of a wall on the north side of the seat can serve as a protective barrier against the cold north wind. The wall should be designed to be high and thick enough to effectively withstand the chilly breeze. By utilizing this mode in areas with high connectivity and choice values within the park, these spaces can potentially become the preferred gathering spots for senior citizens during winter.

The advantage of this mode lies specifically in its ability to provide comfort and protection from winter elements, making it particularly essential during cold and windy seasons. While its benefits may not be as evident during summer when the weather is generally milder, it becomes a valuable feature in creating inviting spaces for outdoor activities during the colder months. By integrating this design mode with the park's layout and prioritizing it in spaces that are already popular for social interactions and activities, park designers can optimize the winter experience for visitors, especially senior citizens. Offering comfortable, sunlit areas that shield against the cold wind can attract more people to use the park in winter and enhance the overall appeal and usability of the park during colder seasons.

Combination All Features:

Social interaction is a key element that connects all these different spatial characteristics and is essential for meeting people's needs in winter. By combining the three spatial features together – high choice and connectivity sites, special functional areas, and sunny spaces – park planners can create a more inclusive and socially engaging environment for park visitors, especially senior citizens. For new parks, it is indeed wise to designate areas that provide the most comfort during winter as the core zones for winter activities right from the planning phase. By focusing on these core areas, park designers can ensure that they prioritize connectivity and choice when designing the layout and infrastructure. This will enhance the appeal and usability of these spaces during winter, attracting more people, especially older adults, to utilize the park during the colder months.

Combining functional spaces, such as fitness areas, with the core spaces can create a diverse and multifunctional park layout. This approach allows senior citizens with varying needs to have more choices and options for activities during winter. Additionally, integrating seats with short walls that effectively shield against cold winds in areas with high connectivity and choice values can provide a more comfortable winter space for park visitors. In summary, by integrating social interaction, functional spaces, and comfort-enhancing features in park design, planners can create welcoming and vibrant urban parks in cold cities that cater to the needs of all visitors, especially the elderly. This approach will not only increase park usage during winter but also contribute to improved community engagement and overall well-being among senior citizens.

Epilogue

Absolutely, combining the findings from investigations and space syntax analyses of the five parks is crucial to understanding the preferences and needs of older individuals in winter. The identification of spaces with high connectivity and choice, as well as spaces offering specific functions or comfortable environments, provides valuable insights for park designers aiming to cater to the social needs of older people during cold city winters. By incorporating these features into park design, planners can create spaces that are not only visually appealing but also functional and inviting. Spaces with high connectivity and choice can encourage social interactions and gatherings, fostering a sense of community among park visitors, particularly older individuals who seek social engagement. These spaces can serve as hubs for various activities and events, bringing people together and enhancing the overall atmosphere of the park. Furthermore, integrating specific functional areas into the park layout can provide opportunities for older adults to participate in activities that cater to their interests and abilities.

Whether it's fitness equipment, game areas, or other designated spaces, these features offer a variety of options for recreational and

social activities during winter. Additionally, creating comfortable environments, such as areas shielded from cold winds and exposed to sunlight, can significantly enhance the park's appeal during colder months. These spaces provide a more enjoyable and inviting setting for older individuals to spend time outdoors, encouraging them to visit the park regularly and stay engaged in social activities. In conclusion, by combining the insights from investigations and space syntax analyses, park designers can craft urban parks that effectively meet the social needs of older individuals during cold city winters. Incorporating spaces with high connectivity and choice, specific functional areas, and comfortable environments will create a park that fosters social interaction, promotes physical and mental well-being, and becomes a cherished resource for the local community, particularly the elderly population.

Author Contributions

Methodology, Wan Sun; software, Wan Sun; formal analysis, Wan Sun, Pengyu Shan; investigation, Wan Sun, Pengyu Shan; writing—original draft preparation, Wan Sun; writing—review and editing, Wan Sun.

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Conflict of Interest Statement

All authors have no potential conflict of interest.

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