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## Research on the Design of Communication Space in Youth Apartments from the Perspective of Interpersonal Communication Theory

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### KEYWORDS

*interpersonal communication theory,*  
*youth groups,*  
*public activity spaces*

### ABSTRACT

This paper explores the intersection of interpersonal communication theory and the living requirements of youth groups, guided by theories of interpersonal communication, communication and space, and resource sharing. By examining relevant case studies, it delves into the design of communication spaces in youth-oriented apartments. The study offers innovative concepts for public activity areas tailored to the needs of contemporary youth, aiming to address the problem of social isolation among young individuals.

### 1. Introduction

By the end of 2022, China's transient population expanded to 376 million, with approximately 220 million residing in rental housing, predominantly comprised of individuals below the age of 35 (National Health Commission of the People's Republic of China, 2022). In light of these demographic trends, the development of rental housing has increasingly become a focal point of policy initiatives (General Office of the State Council of the People's Republic of China, 2021), with particular emphasis on addressing the housing challenges faced by the youth (Ministry of Housing and Urban-Rural Development of the People's Republic of China, 2022).

Recent shifts in the living space preferences and expectations of the younger generation distinguish them from other age groups. A preference for private personal spaces alongside communal areas conducive to interaction is evident (Kuma, 2019; Rudlin & Falk, 1999). The behavior of community

interaction is influenced by various factors, including housing design, with different layouts reflecting varying preferences for communal spaces (Leao, Aguirre-Castillo, & Tian, 2011). In high-rise dwellings, physical distance has been identified as a key factor affecting neighborly interactions (Drigani, 2020), playing a significant role in fostering new community relations and social cohesion (Muhuri & Basu, 2018).

In response, researchers have conducted a categorical analysis of the design characteristics of youth apartments, proposing optimization suggestions from the perspectives of users, the architecture itself, and management (Zhou, 2015; Song, 2020). Particularly in optimizing communal spaces, perspectives from residential studies have provided innovative strategies (Dai, 2019), with spatial scale, sense of belonging, boundaries, and multifunctionality being key factors in analyzing the relationship between social interaction and communal spaces (Yao, 2008). Diversity, continuity, and cultural relevance are also deemed central principles in the

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design of communal spaces (Liu, 2020). In high-rise buildings, communal spaces, especially the podium layer, are considered essential in promoting neighborly interactions (Li, 2016), with their optimization viewed as a significant trend for future research (Wang, 2019).

This paper focuses on the podium layer space in centralized rental apartments, exploring its role in facilitating neighborhood interactions, providing transitional spaces between indoors and outdoors, and functioning as a 'grey space'. Despite being an easily overlooked area in daily life, the podium layer is a crucial locale for resident interaction. This study aims to delve into the usage needs of the podium layer space, aspiring to fill and enrich the research gap in the field of neighborhood interaction-oriented residential apartment podium layer in China.

## 2. Theory

### 2.1. Habermas' Theory of Communicative Action

Habermas argues that the necessary means for individuals to achieve freedom in modern society is through action, which can be categorized into four types: instrumental action, normatively regulated action, dramatic action, and communicative action (Table 1). The core concept in the theory of communication is communicative action, and its rationality constitutes its essence. Communicative rationality exists in communicative acts and possesses inherent, linguistic, procedural, and open characteristics. Effective communication, as proposed by Habermas, requires truthfulness, correctness, and sincerity (Bi, 2021).

In this paper, by incorporating Habermas' theory, the public activity space explores how participants can achieve consensus, integration, and cooperative

relationships through linguistic mediation. The communication process is transformed into a process of collaborative participation, where the communicative subjects have equal status, respect each other, and seek mutual understanding (Jiang & Hu, 2023). Habermas' theory provides valuable insights for this paper.

### 2.2. The Relevance of Communicative Action Theory to Public Space Design

#### 2.2.1. The Significance of Communicative Action Theory in Public Space Design

Communicative action theory provides theoretical support and guidance for the design of public spaces. From a perspective of social psychology, as a public activity space, it needs to meet people's needs for communicative behavior. For example, the layout and functional zoning of public spaces can be considered based on communicative action theory to better meet people's communicative needs and improve the efficiency of public space utilization. Additionally, communicative action theory can be applied to address issues in public space design such as pedestrian flow, ventilation, and lighting, thereby enhancing the environmental quality of public spaces. Therefore, breaking away from the homogenized functions and forms of public spaces requires theoretical foundations to bring forth new vitality.

#### 2.2.2. The Expectations of Youth Groups for Public Environments

Through research on youth groups, it has been found that their demands for public environments extend beyond basic residential needs and encompass the pursuit of a habitat with a stronger spiritual

Table 1: Four Types of Action in Habermas' Theory of Communicative Action

Action Type	Meaning
Instrumental Action	Also known as instrumental action, it is goal-oriented behavior where the actor, after comparing and weighing various methods, chooses the most ideal approach to achieve the goal.
Normatively Regulated Action	Refers to behavior exhibited by individuals under the constraints of shared group values. This behavior strictly adheres to the values collectively expected by the group.
Dramatic Action	Also known as performative action, it refers to actors intentionally presenting their subjective intentions to the audience and society. The purpose is to capture the attention of the listeners through their performance.
Communicative Action	Refers to the interaction between individuals, where language or other symbols are used to understand each other's states and action plans in order to achieve consensus. Language holds a particularly important position in communicative action.

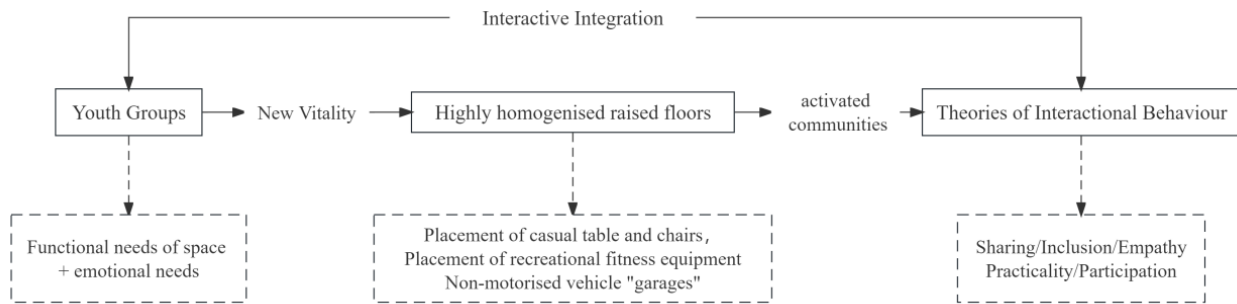


Fig. 1. Schematic Analysis of the Relationship between Social Interaction Theories and the Elevated Spaces in Centralized Rental Apartments.

dimension. Therefore, when designing public spaces, it is important not only to focus on their functionality but also to consider aspects that satisfy the spiritual needs of young people.

### 2.2.3. The Intrinsic Connection between Communicative Action Theory and Social Spaces for Youth Groups

The willingness to engage in social interactions is primarily driven by the desire for self-realization, a sense of belonging, and the acquisition of information and resources. Consequently, youth groups have a strong need for social interactions and often seek recognition from peers and the establishment of deep-level interactive relationships. With increasing diversity and individualization, their forms of social interactions have become more diverse, including both online and offline activities such as social media, parties, and gatherings. These forms provide more opportunities for social interactions and platforms for self-expression, while also facilitating frequent social activities. Therefore, the strong motivation for social interactions and the diverse forms of social interactions among youth groups contribute to their frequent engagement in social activities.

## 3. Methods

### 3.1. Principles of Public Space Design

#### 3.1.1. Principle of Functional Complexity

The relationship between various functional units depends on the behavioral patterns of users. Combining multiple functions together allows a space to meet the diverse needs of youth groups. This can be achieved in public spaces through the following ways:

**Multifunctionality of space:** Integrating different functions into a space to create diverse everyday

activities. For example, a building space can be used for fitness, socializing, reading, shared meetings, exhibitions, and more.

**Flexibility of space:** As a carrier for various activities, space should be maximally utilized. When space is not restricted, its functions can be flexibly used. The layout and furniture of the space should be flexible, allowing for easy reconfiguration to meet different social needs.

#### 3.1.2. Principle of Openness

Both the architectural exterior and interior spaces should adhere to the principle of openness. For buildings, the use of overhead structures can introduce natural light and establish communication with the external environment through bottom overhead forms. Additionally, spatial openness can be achieved by creating partitions and visual connections. Partitions serve to divide the interior space, allowing for partial isolation without completely closing off the space, thereby maintaining a certain degree of fluidity and facilitating chance encounters and conversations among users. The use of movable and changeable flexible partitions can create private spaces or divide large spaces into smaller areas, enabling autonomous control over visual and auditory permeability.

#### 3.1.3. Principle of Accessibility in Circulation

The design of spatial circulation should consider the needs of users, balancing convenience, continuity, and unity. When considering circulation and accessibility, rationality and comfort should be emphasized to accommodate residents' behavioral patterns and habits. Therefore, overly crowded or complex circulation routes should be avoided. Additionally, the use of colors, signage, and other means can help residents quickly identify and lo-

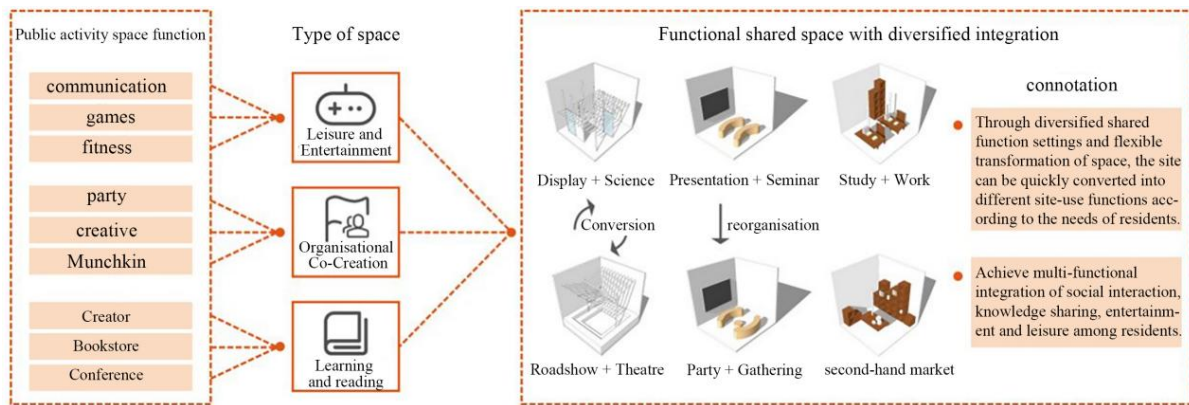


Fig. 2. Design Strategy of Diverse Integration of Shared Functions (Image Source: Author's Illustration)

cate different functional areas, thereby enhancing the internal continuity of public spaces.

### 3.1.4. Principle of Resource Efficiency

To achieve resource efficiency, the principle of maximizing the use of space and resources should be followed. Concentrated usage is a key method to achieve this goal. By concentrating usage, space and resources can be better utilized, resulting in convenience and savings. In public space design, this can be achieved through methods such as shared bookshelves, skill sharing, idle item exchanges, and information interaction, meeting residents' needs for shared experiences, while improving the sharing rate and utilization efficiency of resources.

## 3.2. Design Strategies for Promoting Social Interaction in Apartment Communal Spaces

Based on the previous exploration of the research status of communal spaces in apartments and the needs of youth groups, guided by theories such as Habermas' theory of communicative action and space, design strategies for promoting social interaction are proposed through case studies. These strategies include diverse integration of shared functions, visual connectivity for communication permeation, and multi-directional guidance of traffic circulation. The characteristics of each strategy are analyzed in detail, and various methods for promoting social interaction among youth groups are proposed, with the use of case studies for illustration.

### 3.2.1. Diverse Integration of Shared Functions

Functionality plays a crucial role in shaping the vitality of a space. Increasing the diversity of func-

tions within the same spatial area makes the attribute positioning of the space more ambiguous, but it also satisfies a wider range of people's needs. By flexibly transforming and creating shared spaces, the integration of multiple functions such as social interaction, knowledge sharing, and recreational leisure among residents can be achieved. Through rich activities and services in shared spaces, mutual understanding, communication, and cooperation among residents can be promoted, enhancing community cohesion and vitality. The flexibility of the space allows for quick transformation into different functional areas according to residents' needs. Such diverse spatial functions are more likely to facilitate crowd gathering and generate various social activities in the place, enhancing its vibrancy. Examples of public spaces include leisure and entertainment areas, co-creation spaces, and work/study spaces. When young people share these spaces together, it creates many opportunities for them to meet each other, thereby promoting interaction among youth groups.

#### 1) Leisure and Entertainment Spaces

In the context of centralized rental apartments, in order to better meet the diverse entertainment needs and varied participation of residents, the planning of entertainment spaces needs to consider multiple factors. Therefore, in public recreational activities, larger-scale recreational spaces can be used as carriers, supplemented by smaller-scale recreational spaces to achieve a reasonable division of recreational areas. In addition, it is necessary to integrate various entertainment spaces, taking into account the psychological and behavioral characteristics of users, in order to meet the different entertainment needs of residents.

To achieve the best results, it is advisable to consider incorporating common entertainment spaces

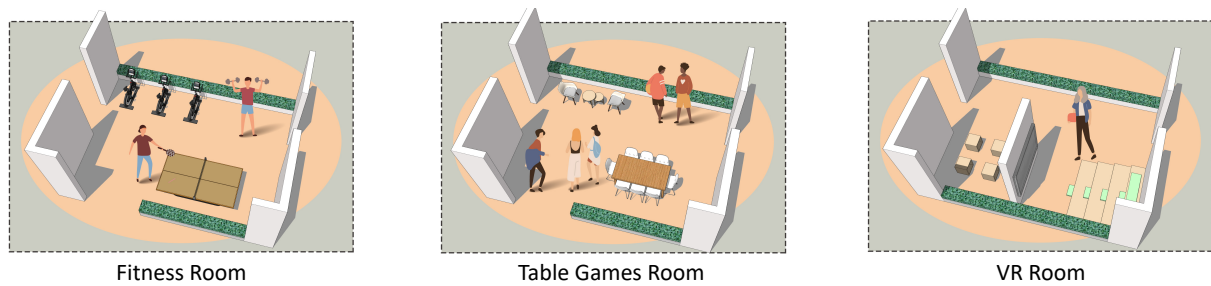


Fig. 3. Creative Entertainment Spaces (Image Source: Author's Illustration)

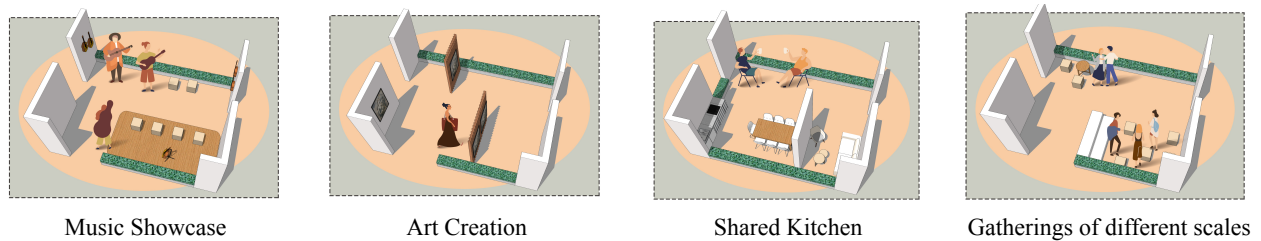


Fig. 4. Illustration of Co-Creative Activity Spaces

such as movie screenings, tabletop game areas, and fitness rooms. Additionally, adding creative entertainment spaces such as VR gaming rooms and party rooms (Figure 3) can also be considered. For divergent activities that do not require excessive consideration of sound and lighting factors, group vitality can be better stimulated by providing open and integrated spaces. This accommodates the multifunctional needs and improves the quality of the space, attracting more participation from youth groups.

## 2) Co-Creative Activity Spaces

In order to enhance tenants' sense of responsibility and belongingness in residential areas and encourage their active participation in the design process, designers have shifted from traditional function-oriented design to activity-oriented design. The purpose is to gather people together through shared interests and goals, attract tenant participation and communication through the planning and guidance of themed community activities, and cultivate emotional attachment to the rental apartment. Suitable spaces for gatherings of different scales should be provided based on the number of participants and the nature of the gatherings.

To enhance the interactivity and engagement of activities, digital technology tools such as social media can be introduced in community events, allowing tenants to share and communicate their ideas and experiences, thereby strengthening their connections and sense of identification with each

other. In addition, considering the personalized needs of tenants, personalized services and customized spaces should be provided, such as music showcases, art creation spaces, etc. (Figure 4). These personalized services and customized spaces allow tenants to experience a more free, comfortable, and personalized lifestyle within the rental apartment, further improving their quality of life and satisfaction.

## 3) Learning and Reading Function Spaces

The self-improvement consciousness and innovative spirit of the youth group are increasingly emphasized. By integrating reading functions into public activity spaces, designing study and reading areas and facilities, and encouraging tenants to focus on learning and culture, a behavior of "meeting friends through books" can be formed. This not only satisfies tenants' needs for knowledge and culture but also promotes communication and social interaction among tenants, increasing community cohesion. Additionally, incorporating collaborative functional spaces such as maker spaces and shared offices (Figure 5) in public activity spaces can facilitate knowledge exchange and intellectual collisions among young professionals from different fields. It also enables interdisciplinary collaboration and innovation in practice, promoting cross-disciplinary learning and intellectual collisions, providing opportunities for innovation, attracting active participation from the youth group, and fostering social interaction within the space.

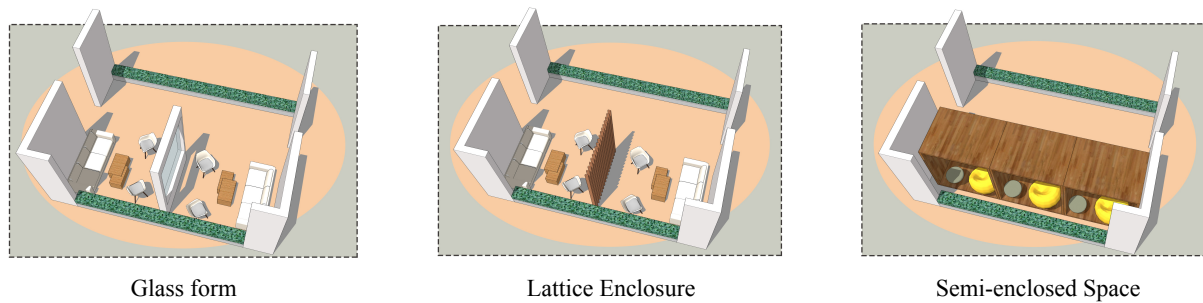


Fig. 6. Illustration of Creating Open and Visible Interfaces

### 3.3. Visual Connectivity and Communication Permeation

Enclosed spatial boundaries not only restrict the domains between spaces but also limit communication and resource sharing among people. However, visual connectivity and openness can create inclusive spaces and facilitate the association between different functional areas, thus achieving the purpose of gathering and communication (Hu & Zhou, 2014). Therefore, breaking rigid boundaries and creating visual connectivity and openness are important means to create spaces for interaction.

#### 3.3.1. Blurring the Boundaries of Space at the Ground Level

The ground level of a building serves as an important transitional space connecting the interior and the exterior. By extending outdoor landscape and greenery into the interior through a column-grid structure, a transition from privacy to openness is achieved (Li & Ling, 2020). Adopting a semi-enclosed construction method adds a sense of spatial field and blurs the boundaries between indoor and outdoor spaces. This design approach transforms the ground level space from merely providing social activity areas for the building's occupants to establishing connections with the urban space, increasing the sense of interaction, encouraging integration between the interior and the exterior, and creating more opportunities for communication among tenants. Additionally, the design of elevated spaces allows the activities inside the building to be visible to passersby, utilizes the advantage of elevated positions to introduce abundant natural light, and creates a clean, bright, and open space, attracting nearby residents to visit, relax, and contribute to the vibrancy and integration of the community.

#### 3.3.2. Creating Open and Visible Interfaces

The use of grilles and glass within elevated spaces effectively reduces the visual enclosure of the space. This visually expands the depth of the space and enhances visibility of activities and people on both sides of the space (Figure 6). This visual openness and visibility indirectly influence social interaction and activity occurrence. To further improve the design effectiveness, it is recommended to consider people's needs and behavioral patterns when selecting materials and layouts. For example, choosing materials that are easy to clean and maintain, providing suitable furniture and facilities to support social interaction and activities, etc. By implementing these measures, people's needs can be better met, resulting in improved social interaction and activity outcomes.

#### 3.4. Multi-Directional Guided Traffic Flow

The organization of traffic flow in public activity spaces plays a crucial role in influencing tenants' willingness to engage in social activities. Considering multiple aspects to attract tenants and increase their participation, including but not limited to the permeability, connectivity, and adaptability of the space. Injecting fun and excitement into the design of traffic routes stimulates tenants' subjective initiative and involvement, thereby fostering a collaborative living atmosphere and enhancing their sense of belonging and ownership in the long-term apartment.

##### 3.4.1. Multi-Dimensional Connections for Traffic Function

Efficient circulation and connectivity among public activity spaces in centralized rental apartments are vital for promoting social activities among young individuals. The willingness of users to utilize these spaces and the convenience of inter-space traffic routes play a key role. To improve the

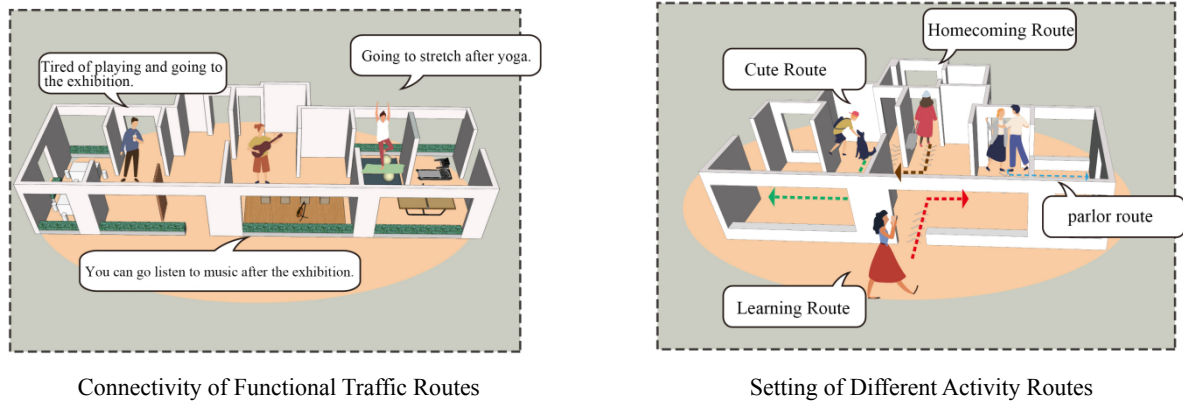


Fig. 7. Illustration of Multi-Dimensional Connectivity of Traffic Functions

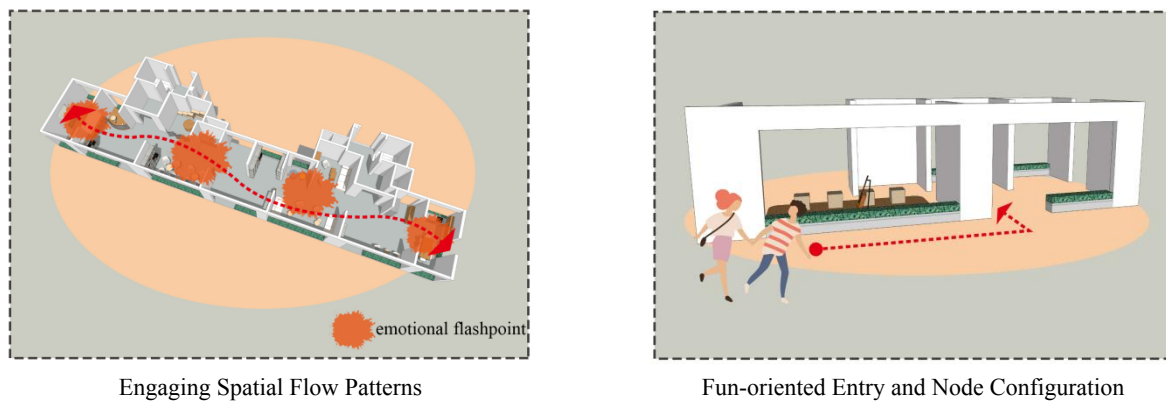


Fig. 8. Illustration of Multi-Dimensional Connectivity of Traffic Functions

utilization and convenience of functional spaces, various behavioral routes can be established within the space, such as routes for returning home, socializing, and pet-friendly routes (Figure 7), allowing individuals to choose traffic routes based on their specific activity needs. This spatial design not only enhances the efficiency of public activity spaces but also facilitates the development of social activities. Additionally, incorporating activities or spatial forms that attract young individuals in the space design can stimulate their spontaneity and initiative through functional integration, semi-enclosed spaces, and transparent materials, thereby increasing the liveliness and utilization of the space.

### 3.4.2. Fun-oriented Traffic Routes

Fun-oriented traffic routes can attract the active participation of young individuals. Adding landscape elements or items that reflect their interests or aesthetic taste along the traffic routes can enhance the visual appeal. Incorporating music elements along the traffic routes can attract like-minded tenants to gather, foster communication, and create engaging topics for social activities. Introducing interactive elements in places with high pedestrian

flow, such as emotion collection walls or pet story walls, allows people to engage with these elements during their walk, stimulating the creativity and self-expression of young individuals, and increasing the fun and participation (Figure 8).

By introducing fun-oriented nodes along the traffic routes, the enthusiasm of young tenants to participate in public activity spaces has been stimulated, gradually forming a social circle culture. Within this social circle, tenants spontaneously create a living atmosphere of self-management and mutual cooperation, further enhancing their sense of belonging and self-worth in the centralized youth apartment. In such a social environment, tenants are more likely to engage in various activities, make new friends, expand their social networks, and strengthen the sense of community.

### 3.5. Summary and Analysis of Strategies

This section is divided into two parts: "Principles of Spatial Design for Centralized Rental Apartments" and "Four Design Strategies." Based on the previous research and analysis of the current situation of centralized rental apartments, extensive references to domestic and international case studies

were utilized. Typical case studies with characteristic features promoting social interactions were selected for research and summarization. The findings were presented using simplified illustrations. Finally, four strategic approaches were proposed: "Multifaceted Integration of Shared Functions," "Visual Connectivity for Communication Permeation," "Multi-Directional Guided Traffic Flow," and "Information-Intensive Resource Sharing." These strategies aim to foster communication and interaction among tenants.

## 4. Results and Discussion

### 4.1. Main Research Findings

At the level of theoretical construction, this study first focuses on the context of the times and centers on the elevated spaces in centralized rental apartments. It examines and analyzes the application of theories related to social interactions in the design of public spaces in centralized rental apartments, both domestically and internationally. This forms the theoretical framework suitable for this study. Furthermore, this study analyzes and summarizes

the approaches through which spatial design can facilitate social interactions based on outstanding domestic and international case studies. The study employed a survey questionnaire to explore the behavioral and psychological characteristics, social interaction needs, and value orientations of young adults in four aspects: basic information, social interactions and living conditions, lifestyle habits, and spatial identification and needs. These findings contribute to the design objectives and references of this study.

At the level of spatial strategy creation, based on the analysis of the aforementioned cases and current issues, this study proposes design principles to promote social interactions in public spaces: functional diversity, spatial openness, visual accessibility, and resource efficiency. Moreover, specific strategies are presented. Strategy 1, "Multifaceted Integration of Shared Functions," includes leisure and entertainment spaces, collaborative activity venues, and learning and reading spaces, aiming to achieve integrated use of multiple functions by residents. Strategy 2, "Visual Connectivity for Communication Permeation," encompasses blurring the boundaries of spatial elements and creating free and

Table 2 Summary of Design Strategies for Promoting Sociability in Public Space Patterns  
(Table Source: Author's Illustration)

Design Strategy	Design Method	Ways to promote interaction
Multifaceted Integration of Shared Functions	Leisure and entertainment spaces	Increase common and creative entertainment spaces, such as movie screenings, board game areas, fitness rooms, party rooms, etc.
	Organize collaborative activities spaces	Create community activities with different themes, provide personalized services and customized spaces, such as music performances, art creation spaces, etc.
	Learning and reading spaces	Design study and reading spaces, incorporate collaborative spaces such as makerspaces and shared offices.
Visual Connectivity for Communication	Blurring boundaries of spatial elements	Ensure horizontal visual connectivity. Open space layout
	Free and open visible interfaces	Flexible spatial layout Good visual connectivity between indoor and outdoor spaces
	Multi-Dimensional Connectivity of Traffic Functions	Establish different traffic routes Relationality and semi-enclosed spatial configuration of different functional areas Transparency of materials
Multi-Directional Guided Traffic Flow	Fun-oriented traffic routes	Create attractive spatial scenes Fun-oriented entry and exit methods
	Shared items	Provide centralized management and shared spaces for items, set up exchange notice boards, etc.
Information-Intensive Resource Sharing	Shared skills	Organize diverse activities, provide platforms for information dissemination.
	Information sharing	Provide channels for information dissemination, such as bulletin boards, mobile apps, etc.



open visible interfaces to break rigid boundaries and foster connections between different functional spaces. Strategy 3, "Multi-Directional Guided Traffic Flow," involves establishing multi-dimensional connectivity of traffic functions and creating fun-oriented traffic routes to stimulate residents' subjectivity and participation. Strategy 4, "Information-Intensive Resource Sharing," covers the sharing of items, skills, and information, encompassing both physical and non-physical resource sharing. These research findings provide a solid theoretical foundation for the application of design methods in the elevated spaces of centralized rental apartments.

#### 4.2. Innovations

Firstly, based on theories of social interaction among young adults, this study focuses on the elevated spaces in centralized rental apartments as representatives of community interaction and as the key focus of the research. Considering the behavioral and psychological characteristics of young adults, innovative approaches such as the division of functional interaction spaces, rational utilization of spatial scales, and sustainable resource reuse are employed to create a harmonious spatial environment for young residents to engage in neighborly interactions.

Secondly, taking into account the development status and practical issues of relevant branded apartments in the city where the project site is located, a questionnaire survey is conducted among urban young residents. The study analyzes the strengths and weaknesses of competing products and formulates design strategies for the elevated spaces in centralized rental apartments that are suitable for the local urban character. By addressing common practical issues and incorporating user needs derived from in-depth research, corresponding solutions and adjustments are made in the practical design, making it an exploratory design that upgrades and renovates the social interaction spaces in the elevated spaces of centralized rental apartments.

#### 5. Conclusion

This paper has presented an analysis of the application of communicative action theory to the design of communal spaces within centralized rental apartments, emphasizing the creation of environments that facilitate social interaction among young residents. The study has highlighted innovative approaches to spatial design that prioritize communicative behaviors, proposing that thoughtful design

can counteract the trends of social detachment observed in this demographic.

The significance of this research lies in the novel application of Habermas's communicative action theory as a foundation for architectural design strategies. By elucidating the relationship between space and social interaction, this work provides a theoretical and practical framework for architects and urban planners seeking to enhance communal living spaces for the transient youth population.

The research, while offering a fresh perspective on the design of communal spaces, recognizes its limitations, including the selection of case studies and the emphasis on physical design elements without an extensive exploration of social dynamics. Future research should broaden the empirical base, consider the diverse socio-economic backgrounds of the young population, and explore the long-term effects of such design interventions. This will ensure that the development of communal spaces remains aligned with the evolving needs of urban residents, fostering communities that are not only functionally robust but also socially vibrant.

#### CRedit author statement

**Zhenlin Xie:** Investigation, Writing—original draft, Resources, Writing—review & editing. **Ming Xie:** Software, Visualization, Writing—original draft, Data curation. **Ke Xie:** Conceptualization, Resources, Writing—review & editing, Methodology, Supervision, Project administration. **Xuejun Qiu:** Investigation, Writing—review & editing.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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#### References

1. National Health Commission of the People's Republic of China. (2022). China migration population development report.
2. General Office of the State Council of the People's Republic of China. (2021). Opinions on accelerating the development of affordable rental housing. Re-

- trieved from [https://www.gov.cn/zhengce/content/2021-07/02/content\\_5622027.htm](https://www.gov.cn/zhengce/content/2021-07/02/content_5622027.htm)
3. Ministry of Housing and Urban-Rural Development of the People's Republic of China. (2022). Pilot program for developing youth development-oriented cities. Retrieved from [https://www.mohurd.gov.cn/xinwen/gzdt/202204/20220407\\_765542.html](https://www.mohurd.gov.cn/xinwen/gzdt/202204/20220407_765542.html)
  4. Rudlin, D., & Falk, N. (1999). *Building the 21st century home: The sustainable urban neighbourhood*. Architectural Press.
  5. Kuma, K. (2019). *Kengo Kuma's view of ten types of Japanese residences*. Guangxi Normal University Press.
  6. Leao, B., Aguirre-Castillo, A., & Tian, D. (2011). Sustainability and social interaction spaces in contemporary social housing. *Time + Architecture*, (4), 62-69.
  7. Drigani, F. (2020). *Communicating space exploration*. Springer Cham.
  8. Muhuri, S., & Basu, S. (2018). Developing residential social cohesion index for high-rise group housing complexes in India. *Social Indicators Research*, 137, 923-947.
  9. Zhou, Y. M. (2015). *Detailed design for dwellings II*. China Architecture & Building Press.
  10. Song, J. J. (2020). *Research on the space design of centralized long-term rental apartments for urban youth groups* [Doctoral dissertation, Tianjin Academy of Fine Arts].
  11. Dai, A. L. (2019). *Research on the space design of centralized long-term rental apartments for youth in Xiamen from the perspective of residential studies* [Doctoral dissertation, Xiamen University].
  12. Yao, Z. (2008). *The effectiveness of neighborhood interaction spaces* [Doctoral dissertation, Tongji University].
  13. Liu, L. (2020). *Research on neighborhood center interaction space design based on behavioral psychology* [Doctoral dissertation, Xiamen University].
  14. Li, Y. J. (2016). *Study on the internal public space promoting neighborhood interaction in high-rise residential buildings in the South* [Doctoral dissertation, Huaqiao University].
  15. Wang, J. (2019). The design practice of public open interaction space in youth apartments. *Architecture and Culture*, (6), 83-84.
  16. Bi, X. (2021). Re-critique of Habermas's theory of communicative action and the establishment of a theory of dialogic difference. *Humanities Magazine*, (6), 96-106.
  17. Jiang, Y. H., & Hu, H. (2023). Research on the design of shared spaces in youth apartments under the need for interaction. *Design*, 36(5), 140-143.
  18. Hu, L. H., & Zhou, H. M. (2014). Study on the environmental design of neighborhood interaction spaces in high-rise residential areas based on environmental behavior: A case study of selected high-rise residential communities in Guangzhou. *Decoration*, (9), 116-118.
  19. Li, W. Z., & Ling, F. (2020). Research on the design strategy of the interface of the undercroft resting space in residential buildings based on neighborhood interaction: A case study of Hefei. *Urban Architecture*, 17(18), 79-81.