An Exploration of the Relationship Between Spatial Levels in the Built Environment and Social Interaction

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Abstract: Architectural spaces serve as mediums for social interaction, with their design shaped by the requirements of these interactions. This paper analyses interaction levels based on degrees of intimacy and spatial levels defined by boundaries, exploring the positive and negative effects of spatial hierarchies on social engagement. Using specific case studies, it examines strategies for designing spatial hierarchies in response to social interaction. The paper argues that well-planned spaces can enhance communication, optimise the use of public areas, and increase the time people spend in them. Conversely, designs that overlook the complexity of human activities may reduce opportunities for interaction and even encourage criminal behaviour. Architectural design should focus on the relationship between people and spaces, reconfiguring spatial hierarchies to align with diverse social relationships, ultimately fostering an organic connection between individuals and the built environment.

Key words: built environment; spatial levels; social interactions

1. Introduction

As time progresses, our social lives grow richer and more complex, while architectural spaces evolve to reflect the diversity of daily life, creating a mutually beneficial relationship. These spaces serve as essential venues for social interaction, guiding daily activities and subtly advancing social progress.

Social interactions arise from diverse individual needs and evolve with advancements in human civilization. The physical environment can influence residents' social status (Gehl and Mortensen, 2001), with increased interpersonal interactions leading to greater demands for leisure spaces. Architectural spaces foster the interdevelopment of space, people, and individual interactions, replacing old spaces with new ones. Thus, social interaction significantly shapes spatial hierarchy.

Human interest in space stems from survival needs and the desire to understand relationships within the environment. Individuals adapt to their surroundings, interact with others, and derive meaning from various forms of communication. These interactions aim to balance people and their environment, with Norberg-Schul (1971) defining existential space as a stable system of perceptual patterns. Spatial relationships, such as inside versus outside and proximity versus distance, are central to human activities. Architectural characteristics shape behaviors and foster a sense of community (Schmitz, 2017).

2. Levels of Interaction and Levels of Space

Communication and interaction occur at four levels. The first level involves sensory experiences through sight, sound, and other senses. The second level focuses on identifying and interpreting this sensory information. The third level synthesizes these interpretations with personal experiences to derive meaning. Finally, the fourth level connects received information with deep emotions and beliefs, potentially triggering significant emotional responses.

Architectural space consists of various levels: landscape, urban, and building layers, together forming a structured whole. The interactions among these layers shape environmental perceptions and individual identities. The landscape layer underpins daily activities, the urban layer expresses identity through density, and the building layer ensures privacy. Each layer must have distinct attributes to effectively meet these needs.

2.1 Levels of intimacy and interaction

The levels of interaction signify a perceptible yet intangible aspect of social engagement. Hall (1959) identifies four levels of spatial distances in interpersonal interactions: intimate, personal, social, and public distances, reflecting distinct social relationship structures.

In residential areas, a hierarchy of private, semi-private, semi-public, and public spaces helps residents understand their roles and reinforces natural surveillance. Private spaces, accessible only to the family, ensure privacy, while semi-private spaces, like yards, allow limited access to neighbors. Semi-public spaces, such as community gardens, are open but managed, whereas public spaces like parks are shared by everyone.

This hierarchical organization clarifies residential layouts, fosters mutual understanding and trust among residents, and enhances community identity. It also facilitates efficient communication on shared concerns, improving overall community quality. To establish a clear hierarchy between private and shared spaces, well-defined transitional areas and boundaries are essential to shape different levels of intimacy among residents.

2.2 Boundaries and spatial levels

Spatial levels and interaction levels differ, with spatial levels representing a clear hierarchy. Traditional northern Chinese residences illustrate the characteristics of spatial level delineation. In this architecture (Figure 1), four distinct spatial levels and three defining boundaries are identifiable. External space is defined by the ground and walls, while architectural space is bounded by the floor, walls, and ceiling.

The courtyard-style residence establishes an external boundary through the courtyard wall, distinguishing public life from family privacy. Inside the courtyard, walls and ceilings further enclose the "rooms," separating family life from personal space (Yu, 2009). The outermost boundary, the road, marks the division between public and semi-public spaces. The internal courtyard wall differentiates the courtyard from the garden, creating a semi-private space, while exterior walls and eaves define the boundaries between the courtyard and the rooms, constituting private spaces.
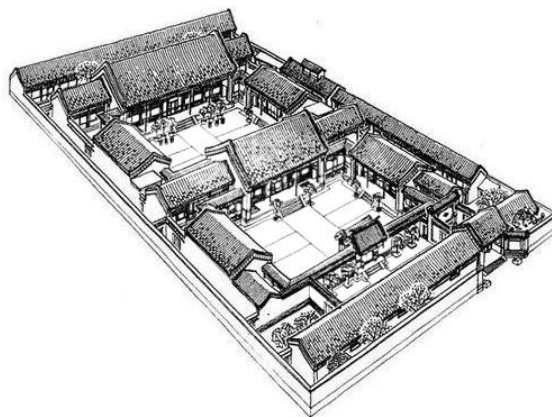

Figure 1. Traditional northern Chinese courtyard architecture.

3. The Impact of Spatial Level Design on Social Interaction

Material factors can either facilitate or inhibit interpersonal contact under specific environmental conditions (Francis, 2003). The existence of space serves as the foundation for social activities, with an appropriate layout enhancing communication and vitality, while an unsuitable one may hinder interactions.

3.1 The promotion of social interaction by spatial levels

Spatial levels can enhance communication by creating smaller, warmer environments where people can easily see and hear each other, appreciating both details and the overall atmosphere.

They also improve public space usage. Flexible boundaries that are neither fully private nor public help residents transition comfortably between spaces. While open plazas may have fewer lingering visitors, their edges often become popular resting spots, providing a secure environment and pleasant views. Increased public space usage fosters more social interactions.

Additionally, spatial levels can encourage specific groups to linger. Neighborhood open spaces, such as parks, support social activities among the elderly. Well-designed sidewalks and suitable landscaping create elder-friendly environments that promote gathering and conversation rather than just passing through.

3.2 The suppression of social interaction by spatial levels

Spatial levels can inhibit behavior by creating uninviting environments. Large spaces often feel cold and disconnected, as buildings and crowds maintain distance, leading to feelings of alienation and loneliness that reduce social interaction. A place's comfort relies on its ability to mitigate danger and physical harm. When activity spaces are limited, individuals tend to avoid socializing.

Spatial levels can also contribute to crime. Narrow, elongated alleys often feel unsafe due to their unique configurations, which reduce accessibility and visibility, resulting in less foot traffic. This lack of activity and surveillance makes these alleys attractive hiding spots for criminals, allowing them to engage in illegal activities with minimal risk of detection. Thus, these spatial layouts provide cover for criminal behavior, enabling offenders to operate more freely.

4. Spatial Design Strategies for Enhancing Social Interaction

Human beings, as primary actors in spatial activities, require architectural spaces to fulfill diverse needs (Borowski, 2014). Social interactions are a key aspect of societal activities within these spaces, with outdoor living and opportunities for encounters playing vital roles in forming and maintaining relationships.

Public spaces are increasingly integrated into social life, facilitating vibrant interactions that flow between architectural and urban environments. In these urban public spaces, individuals function as both observers and participants, engaging with their surroundings and each other, which fosters self-awareness and highlights the shared nature of social interactions.

Architectural design should account for the diversity of social groups to create suitable environments. For example, serene spaces for the elderly, lively areas for energetic youth, independent settings for couples, and spacious, semi-open zones for friends all cater to specific needs.

As tangible entities, architectural spaces accommodate various social actors, each generating unique interactions. Effective spatial design should reflect these interactions and accommodate diverse behaviors. Outdoor activity areas must provide safe environments, incorporating measures like non-slip surfaces and accessible pathways. Additionally, spaces can be divided into functional zones: activity, relaxation, viewing, and display, tailored to different groups. Thoughtful arrangements of infrastructure and landscaping enhance the overall functionality of social spaces.

5. Conclusion

Architectural spaces act as a medium for interpersonal interactions, offering a comfortable environment for communication. As society evolves, the diversity of interaction methods creates a complex social network, with varying spatial levels addressing these needs. Though subtle, the spatial structure in modern environments reflects the significant impact of social interactions.

Spatial layout can both facilitate and restrict social interaction. Thoughtful planning enhances interpersonal connections, boosts public space usage, and encourages specific groups to linger. Conversely, neglecting the complexities of human activity may limit interactions and increase crime risk. Thus, space design must balance the promotion of interactions with the diversity of social groups, ensuring a safe and convenient environment for varied communication needs.

By creating rich architectural spatial layers, we can foster positive social behaviors and interactions, enriching our living environments and making them more vibrant.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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