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Human Behaviour Induced by Spatial Order

Vaidehi Raipat

Abstract

Space truly becomes a place not merely because of the built and the unbuilt that design it, but also because of the way its users use it, behave around it, interact with it, and interact with each other in it. Space that surrounds every individual, in which an individual exists, interacts and performs, is known as “Human Space”. Organization of the Built environment around the users within their ‘human space’ is known as “Spatial Order” which is the key to formulation of non-verbal communication. Non verbal communication refers to the body language an individual adopts in order to convey a message to the fellow users of the space. This Non-verbal language subsequently becomes the basis of verbal communication that lays the foundation of Human Behavior within a particular spatial order.

The spaces that we occupy, the things that we use, our perception of the built and unbuilt that surrounds us, and the defensible spaces that we develop around them, define our lives. Human perception of a space, their behavior in that space, and the relationships they develop in that space when put together formulate the essence of “Spatial Empathy”. It is the central emotion responsible for determining human-human interaction in a particular space. An in-depth analysis of an individual’s behavior in a particular ‘spatial order’ and his attitude towards his fellow humans in the same spatial order can be defined as ‘Spatial empathy’. This concept can be analyzed to describe the nature of interpersonal relationships in a particular space.

With the help of elaborate examples and illustrations, this chapter uses qualitative methods to discuss and analyze the various aspects of Human Space, Spatial Order and Spatial Empathy in Urban Public areas. What are the various types of spatial orders in Urban Public areas? How does the spatial order influence Human Behavior? What is the impact of Spatial order on Interpersonal Relationships? These examples have been formulated using visual observation techniques that involve the analysis of an individual’s behavior towards another in different types of Urban public spaces. These examples aim to contribute to the detailed understanding of Spatial order and its impact on interpersonal relationships that develop in that space with the help of comprehending a Human’s perception of a particular space and its influence on their behavior.

Keywords: human space, spatial order, built environment, social empathy, interpersonal relationships

1. Introduction

In the current era of dynamism, Space is also one of the many products that humans consume, and hence just like any other product, space and its meaning is always in continuous transformation. Our attitude and behavior towards fellow humans extensively depends on our life's physical/material aspects that we value or bestow significance. The typology of our needs and wants determines the typology of our relationships with the people around us. What are the 'things/spaces' that set value in our lives? - is a question with a very dynamic answer that is always evolving- with every generation, every innovation, and society's ever-changing cultural values. These changing aspirations and lifestyles also change the expectations humans have from the built environment that they regularly occupy. Most designs and spatial research revolves around examination of built as singular entity responsible for driving the functions around it. Edward W Soja mentioned in his book 'The political organisation of space' that while human activity and behavior are analyzed as if they occur in a "spaceless environment devoid of terrestrial location, distance and directional relationships and other characteristics associated with a geographic context". All too often, traditionally induced behavior patterns become inherent part of an individual's lifestyle and play an important role in the way people interact with the spatial order that surrounds them and the fellow users of that space [1]. Hence, undoubtedly the Built environment plays an essential role in determining our behavior towards the people with whom we share this space, simultaneously the culturally induced behavior determines our relationship with the built environment. As a result, the meaning of human interactions and human relationships evolves with time, culture, and innovation, leading to the transformation of the typology or quality of the interpersonal relationships that exist in a particular space because of its spatial order.

2. Setting of the background

History has witnessed many transformations in its built environment which is responsible for a paradigm shift in human behavior and interpersonal relationships. As the agrarian society shifted into being an industrial society, our cities evolved into dense concrete forests of industries- polluting and yet looking down upon the rest of the less industrialized built environment. As humans invented lifts and cranes, the buildings started to grow taller, and as we invented faster modes of transport, the distances started seeming shorter yet growing larger. Humans started traveling more considerable distances to meet friends and move further away from family because of work and leisure. Narrow streets lined with short buildings were replaced with wide streets lined with tall structures, allowing vehicles to take over pedestrians and, steel and concrete to replace grasslands. As cities started to densify, both homes and families became smaller. In the 19th–20th century, the world experienced another shift, i.e., from the industrial society to a service society that commodified lifestyles and made our cities into nothing but a prominent market place. Every family dinner or a friendly get together was now incomplete without 'Dining out' hence upgrading food to a commodity of leisure and luxury from merely a necessity. Malls became the new hangout destination for friends, and shopping was rendered into a leisurely act, not something merely driven by necessity. Today, in a world before the pandemic, we would hang out with our friends and family in restaurants, malls, and shopping streets. We tend to connect with them over things we own and can afford, not over the nostalgia of the past or mere bonding of emotional

compatibility. This paradigm shift in perception of reality is because of the built infrastructure that our cities present us with, a spatial order that prioritizes ‘having’ over ‘being’. Streets are designed for vehicles to undermine pedestrians, establishing the superiority of car owners—making the concept of owning a car not a need-based act but rather a social symbol of superiority; this ultimately transformed into a necessity as our streets glorified the mechanical modes of transport.

Today, we find streets lined with large billboards displaying the hopes of having a better life by moving into a villa in the countryside which offers its residents an out of the world experience and lifestyle, with spaces more than adequate, amenities beyond usefulness. These elitist encounters of an individual, while navigating through the city in his day to day life, reinforce the concept of commodifying living. As physical distances increase, emotional attachment is converted into responsibility. Humans no longer make friends at a bus stop because we do not know what to expect from our fellow travelers - a warm smile or a cold stare? As people skills have degraded technological skills have taken over our spatial requirements and expectations. At an airport, we look for a seat closer to a charging point and not to a person who has shared with us a warm smile. Sometimes even co- travelers known to each other tend to sit apart if they need access to charging points located far away from each other. The above examples are not a judgment on the cultural change taken over our society, but an expression of acknowledgment of the transformations that drive our spatial needs today. Hence, to maintain healthy interpersonal relationships, today’s spatial designers must capture the need of the hour and design spaces with uninterrupted access to gadgets so that the co-travelers need not distance themselves from each other to remain virtually connected with the rest of the world. The ‘New Normal’ imposed by this unexpected COVID 19 does question, to an extent, the old social ways of gathering with friends and families in restaurants or other physical spaces. This has given birth to a new typology of virtual space, devoid of a spatial order which was public, and has rather driven humans to create cozy private corners that help them abide in a synchronous way with this virtual space.

Spatial organization’s power can be used to communicate both positive or negative attitudes by affirming or denying a particular language or behavior and facilitating the setting of the tone of a space or an organization. “Building design can influence language by how spaces are configured and how access to various locations determines who may speak to whom, when, and where. For example, simply by what it takes to gain access to certain spaces in a community, and whether they are designated as public or private (for example, a door marked “private” clearly conveys the message that we are not to enter), residents and employees can feel a part of or left out of the various aspects of the community” [2]. Users must be wary of such messages in any place while using it. “Honouring the cues given by the built environment—such as where to have private conversations—can help keep everybody comfortable” [2]. Space that comprises many such messages of the prohibition or forbidden spaces leads to an undermined sense of community and hurts the residents’ social life. Navigating through our cities exposes us to various such messages, and for a better experience and a better understanding of the prevailing culture, designers need to make sure that these cues are easily readable and cater to the users’ social and privacy needs.

3. Human space

Cities are an expression of coexistence, an agglomeration of culture that continually evolves and continuously transforms lifestyle. Today’s cities illustrate a

dichotomy of the aspirations of 21st-century users and the conventional life processes that the city's built environment caters. Every place is designed by The space created around the building/physical entity placed in it, the use of the building itself, and the users who use it. The spatial order of the built environment imposes a specific behavior in its users. This behavior governs the relationships that the stakeholders/users of the space develop. The influence of spatial order on human relationships remains a lesser-explored parameter in the study of interpersonal relationships. This facet is strongly impacted by situational aspects of the era and its culturally induced behavior.

The most recent and widely experienced example of this pandemic is the utilization of public spaces. As "Social Distancing" is the principal motto for self-preservation today, sharing of benches in a park, which used to lead to casual chit-chat and sometimes a lifetime of friendship, is just a concept of the past. Today, people tend to walk past each other on streets without recognizing acquaintances- as people have half-hidden faces and have started maintaining large distances from each other. Redundancy of the street furniture has led to a transformation in establishing relationships with unknown people, and this is just a minor step towards the changing space. A paradigm shift in the design and placement of street furniture is needed to cater to interpersonal interaction needs when social predicaments dictate public space use. It is, therefore, safe to conclude that the built environment of a place dramatically impacts human behavior and most importantly the 'human to human' interaction, signifying that the relationships that people can establish on streets and any other private, public or semi-public space are greatly influenced by the specific spatial order that exists in that place. Another similar instance that reinforces this concept is the notion that supports the implication of urban design in achieving a socially sound city or a neighborhood. For instance, one can meet prospective business clients or develop deep, meaningful relationships by meeting strangers in a place of comfortable shade, but one can even miss-out on noticing an old friend while navigating through a very congested street that has uncontrolled light and noise levels.

Humans develop a cognitive relationship with the environment surrounding them, and this relationship dramatically impacts their behavior and attitude towards others around them. Psychologists refer to cognition as the mental activity of processing information and using that information in judgment [3]. Social cognition helps us perceive and predict the behavior of the people who surround us and our response to their actions. Spatial cognition involves the active interpretation of symbols and events happening in the space around us. This cognitive relationship can be at various levels- starting from the scale of a dwelling, to a neighborhood, to a city and even the burgeoning urban context. People's interaction with their physical space is a result of their cognitive abilities and expresses a lot about their desire or willingness to communicate with the others around them - this is known as immediacy. For example, most gathering spaces are designed as vast enclosed or semi-enclosed spaces clear of visual obstructions to ensure that every person in the room is put on display, so it becomes easier for the other to notice, meet and greet. An introvert would tend to stand in a corner, taking the support of a wall to display his lack of interest in interaction. This is a way of non verbally communicating with people surrounding him to convey his disinterest in mingling. On the other hand, an extrovert attending the event to network with more people will tend to be in the centre of the room occupying more space, hence non verbally communicating his desire to mingle (see **Figure 1**).

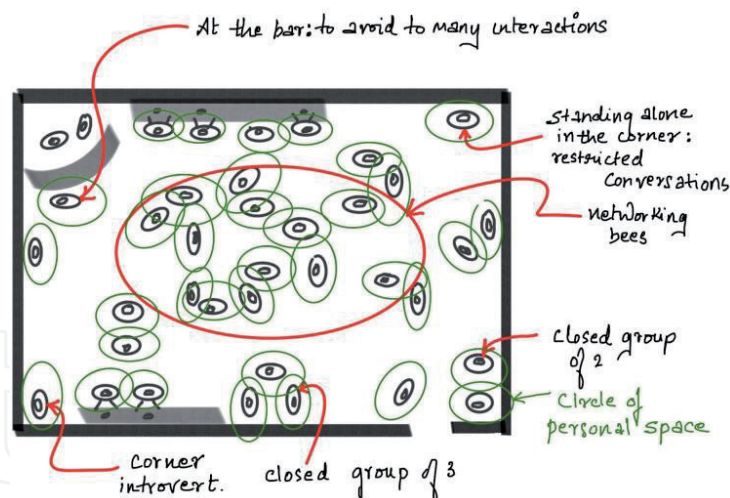


Figure 1.
 Human response to spatial order, source: Author.

Humans tend to develop defensible spaces around themselves, and one of the City planner Oscar Newman developed the concept of ‘defensible spaces.’ He used this to define “how public and semi-public areas in public housing can be brought under the control of residents. The two major components of defensible space are surveillance and territoriality. Good surveillance is achieved by proper positioning of windows and video cameras. Residents’ feelings of territoriality are enhanced by real and symbolic barriers that mark areas as belonging to particular buildings” [4]. “Territoriality is a pattern of behaviour and attitudes held by an individual or group that is based on perceived, attempted, or actual control of a definable physical space, object, or idea. It may involve habitual occupation, defence, personalisation, and marking of that space” [5]. A person sitting on a park bench is always more approachable to a stranger than someone sitting on their private porch. A classic display of territoriality can be seen in the street hawking zones where the hawkers tend to place their display to mark their business space and deflect encroachment from other hawkers and other stakeholders. It can be perceived as an individual’s relationship with their physical space and their behavior with the fellow humans in that space. “Personal factors, physical and social aspects of situations, and culture can lead to territoriality. For example, males generally manifest more territoriality than females.

Defensible space theory argues that physical arrangements increase territoriality feelings and behavior and that this increase leads to a decline in territorial invasions. These physical arrangements may be at the block or neighborhood level (e.g., altering traffic flow) or at the house level (e.g., fences and plantings)” [5]. ‘A house’ is the most private space that any human owns, and hence he establishes space defenses around it to safeguard his privacy, and it is assumed that all human-human interactions in this space are personal or intimate. Bill Bryson, in his book ‘At Home,’ suggests that every small aspect in a home is intensely thought. He also talks about homes as spaces with a varied typology of built spaces but catering to the similar typology of relationships. “Houses are quite odd things. They have almost no universally defining qualities: they can be practically any shape, incorporate virtually any material, be of almost any size. However, wherever we go in the world, we know houses and recognize them domestically when we see them. This aura of homeliness is, it turns out, is extremely ancient” [6]. There are many privacy levels inside this personal space, and it can be defined by how the spaces inside the home are demarcated and circulation patterns between them are designed.

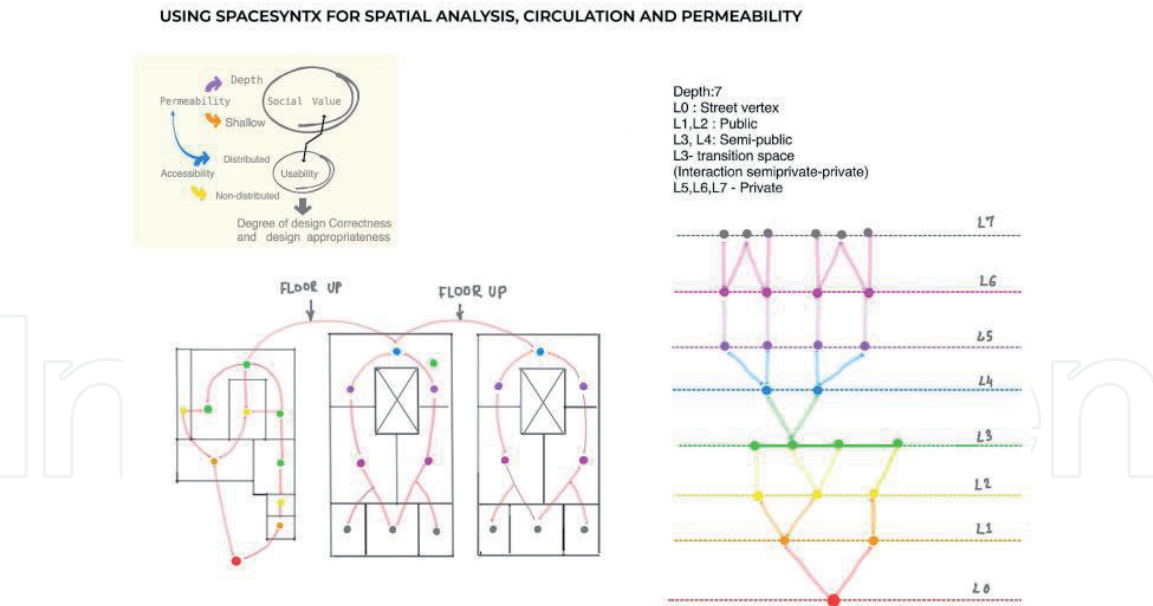


Figure 2.
Spatial levels of permeability (privacy), source: Author.

Every human surrounds themselves with four levels of usable space, categorized based on the territoriality level that they intend to maintain in any given space (see **Figure 2**). Usable Human Space can be defined as the expanse surrounding an individual that can be used for communication and interaction. These can be categorized into 1. intimate space for close conversations, whispers, embraces, and touching, 2. Personal space is used for interaction with close friends and kins 3. Social space for group interactions among acquaintances or the once taking place in a standard setup, 4. Public space is the one that comes into the picture at large gatherings for public speaking. The generally built construct around us defines the category of human space that is being put into use by an individual, hence defining the typology of interaction that is expected to take place among them. “Culture is one factor contributing to people’s perception of how proxemics should be used. People from different cultures have different views on what proper personal space should be” [7]. The following **Figure 3** illustrates these hierarchies in the types of spaces.

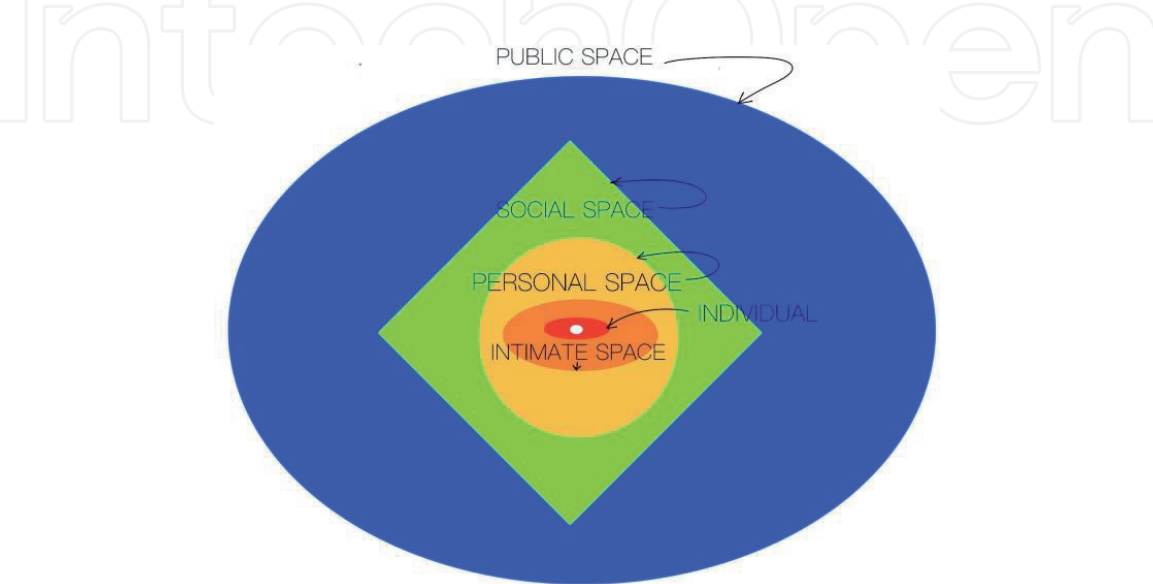


Figure 3.
Types of space surrounding an individual, source: Author.

4. Spatial order

The pattern in which things are arranged or organized in a particular space is known as spatial order. “In composition, spatial order is an organizational structure in which details are presented as they are (or were) located in space—from left to right or top to bottom. Also known as a place or space structure, spatial order describes things as they appear when observed. In descriptions of places and objects, spatial order determines the perspective from which readers observe details” [8]. The spatial order of a built environment sends out messages to its users. These messages are perceived by the users in a way that they have culturally learned. The concepts of Spatial Semiotics can be used to read these messages. They evoke specific behavior among the users, and this behavior becomes the essence of the association that develops between two or more people in that space. For example, while walking down a street, a pedestrian never maintains the same pace; he tends to walk through an abandoned, dilapidated establishment at a much faster pace compared to a long shop frontage, which is engaging, involving, and buzzing. We can therefore conclude that “people usually feel differently in vast open spaces, in a cathedral, museum or palace, and have a different set of feelings in their former primary school, childhood home or living room” [2].

Spatial order can be inviting or intimidating, comfortable or uncomfortable, pleasing or apprehensive, and this is responsible for determining how users interact with their fellow users in the given spatial order. Spatial organization is responsible for transforming cultural patterns, which induce meaning to the space that eventually responds to users’ needs and fancies. User behavior and beliefs, in turn, impose onto the space around them a specific order which reformulates the spatial organization in such a way that space becomes more user friendly and dynamic.

Accompanying a friend to an art gallery, located in an enclosed building with air-conditioning, we unknowingly tend to maintain distance between each other, seldom interact to comment on an exhibit, and incline towards whispering in in case we need to communicate. However, visiting a street art festival with the same friend evokes a different standard of interaction. We tend to visit each exhibit together while indulging in rigorous discussions about the exhibits. In the above situation, the gallery’s spatial order - enclosed and controlled environment induces a controlled and proper behavior and relationship among the friends, as opposed to the open, free, and informal interaction imposed by the spatial order of the street art exhibition. Similarly, an art gallery ensures minimal interaction with the artist that includes formal complementarities; whereas, a street art exhibition will incline towards a more informal and cozy conversation with a friendly exchange of complementarities (see **Figure 4**).

In the above diagram, the Art gallery’s spatial order imposes a norm of maintaining a certain social distance level. Cross-referencing **Figure 3**, we can conclude that people marked in green inside the art gallery occupy each other’s social space only, while on the street, the art exhibition imposes a more cozy and informal interaction. Here, in most instances, visitors occupy each other’s intimate space and, in some instances, also share their personal space with the artist. Here the spatial order induces a behavior leading to non-verbal communication expressed using body language, and this nonverbal communication becomes the driving force for verbal communication. The verbal communication inside the gallery is limited to the exchange of whispers used to pass on short important messages but, in the street exhibition area, it extends to long discussions carried out in higher decibel levels.

Space and society are two independent concepts that function in total entanglement. When space becomes a place when its given a name. Henri Lefebvre in his book “The Production of Space” discusses how the meaning of space ‘historically’

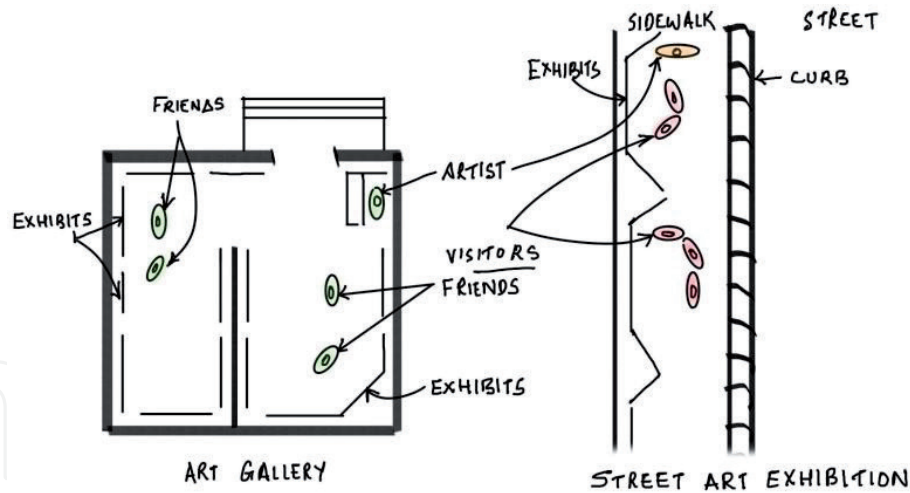


Figure 4.
Human interaction, source: Author.

was merely referring to an empty area and was a mathematical concept. Social space at that time was an unknown idea. With a strong backing of existentialism he argued that space as a concept wasn't absolute. Eventually, mathematicians tried to categorize the concept of space into various types or sets of spaces, but failing to do so with complete logic they abandoned this concept for the philosophers to overtake. As Leonardo da Vinci suggests, it became in no time 'a mental thing'. This 'mental thing' or better termed as 'the mental space' is the one which gives meaning to the real or physical space. The combination of mental space and physical space formulate the social space [7]. For instance, while planning an outing with friends in a nearby park we cannot refer to the park as 'just the park', it either needs a name or a point of reference. For example, let us meet at the park near my office, here 'my office' is the point of reference that gives a social meaning to the space. This recognition is never singular but always shared with a larger group, and in this act, the social dimension inevitably comes into the picture [1]. In an attempt to decode the relationship between spaces and human interaction, he states that; "the conjunction between space as a geometrical form, and society conceived generally as a bundle of relations, has been conceptualized in four ways: – organized spaces affect society (ecological approaches); – society molds spaces which become territories or organized spaces; – society and spaces are united in specific circumstances to form an indistinct whole (fusion or conflation approach); – space and society are circular: they are distinct but interactive, and produce a cumulative effect" [1]. An individual tends to establish a cognitive association with the space surrounding them, and this relationship is responsible for the user's behavior in a given space. This cognitive association is in the same hierarchy as the definition of types of space, intimate or personal is the house, social space construes the neighborhood while the city is a vast public space. An individual's relation to the surrounding urban context, as explained earlier, is also very much culture driven. The users can respond differently to the same spatial order, immediate (neighborhood) or enlarged (city) if they come from different cultural backgrounds.

5. Conclusion

This chapter is an attempt to develop a narrative that can provide a multi-dimensional overview of the diverse spatial order and its impact of the relationships that humans develop while navigating through these spaces. It is a fusion of spatial

and social studies which attempts to empower spatial design with social causes. An amalgamation which has been long due, this chapter intends to introduce the vast prospects of this fusion. As the society has started viewing 'Human Space' as a product, a consumer good which has an ever increasing value, it is very important to make sure that this product is capable of inducing behavior and relationships that are socially and culturally sound. This chapter aims to act as an aid of initiation for amalgamating social and spatial studies so that a user friendly and an inclusive built environment can be created.

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Conflict of interest

The author declares no conflict of interest.

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References

[1] Osti, G. (2015). *Socio-spatial relations: an attempt to move space near society* (4th ed.). Italy: EUT Edizioni Università di Trieste.

[2] Ronch, J. (2020). Spaces and interpersonal communication - I Advance Senior Care. Retrieved 23 September 2020, from <https://www.iadvanceseniorcare.com/spaces-and-interpersonal-communication/>

[3] Stangor, D. (2020). *Affect, Behavior, and Cognition*. Retrieved 26 November 2020, from- <https://opentextbc.ca/socialpsychology/chapter/affect-behavior-and-cognition/>

[4] Robert Sommer, in *Encyclopedia of Applied Psychology*, 2006

[5] R. Gifford, in *Encyclopedia of Human Behavior* (Second Edition), 2012

[6] Bryson, B. (2016). *At home*. London: Black Swan.

[7] Luthans, Fred, and Jonathan P. Doe 2009 *International Management: Culture, Strategy, and Behavior*. p. 201 New York: McGraw-Hill Irwin.

[8] Nordquist, R. (2020). *What Does Spatial Order Mean in Composition?*. Retrieved 24 September 2020, from <https://www.thoughtco.com/spatial-order-composition-1691982>