

Behavioural Impact of Interaction Spaces Approach in Architectural Design

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ABSTRACT

Architecture is the art and science of the built environment with communication process through design and specification under taken for the benefit of users' social interaction and comfort. Users' societal behavior in spaces and building fabrics, their social relations and their gathering areas are among the important issues of architectural programming and architectural performance. The problem of environmental boredom emotional and psychological stress in perpetual enclosure can be highly inconvenient. The socio-behavioural essence of the environment is considered a determinant via data from relevant sources gathered through the best means to ensure clarity in design and construction implementation. Consequently, secondary data was used to provide information to help establish the overall performance of the architectural design as it affects the users who were engaged within the building interior and exterior. This paper established that designed spaces create livability pleasure in architectural planning while design elements such as appropriateness in inter spatial arrangement, courtyards, seating furniture, lighting and ventilation are recommended requirements for interactive comfort.

Keywords: Architectural design, behaviour, interaction space, social interaction,

INTRODUCTION

Alexander (2011) noted that design drawing is an iterative and collaborative act, which involves recording ideas, recognizing functions, finding new forms, and adapting them into the design. In the early phase of design, architects draw diagrams and sketches to develop, explore, and communicate ideas and solutions including interactive spaces. Thus, drawing is not only a vehicle for communication with others; it helps designers see and understand the forms and functions they work with.

Pallasmaa (2005) observed that architectural spaces strengthen the sense of reality and self. It frames and structures experiences and projects a specific horizon of perception and meaning hence, architecture becomes a powerful means of leading and redirecting attention, feelings, and thoughts to firm points which gives a therapeutic effect through the functional organization of spatial structures. Large complexes like school buildings and shopping centers are, of course, excellent examples of such organization and configuration. In hospitals patients, their families and medical staff reported positive effects from exposure to uplifting art and healing gardens as a result of a directed view of the interactive space

Practically Gifford (2002) put the theories into concrete practice and argued that Architectural design is ultimately about the configurations, connections, shapes, and orientations of physical forms. Even the most abstract design diagrams are early efforts to explore and resolve spatial layout concerns. Architectural

diagrams represent not only physical elements but also forces and flows (e.g., forces of sun and wind and flows of people and materials). Thus arrows, lines, and other symbolic representations of forces and flows appear in architectural diagrams conveying spatial characteristics such as magnitude and direction.

Users' societal behavior in spaces and building fabrics, their social relations, and their gathering areas are among the important issues of architectural programming and architectural performance. These issues show many implications about the usage of interior spaces in buildings and the characteristics of physical determinants, which play a very fatal role in social interaction in spaces. As there are many contributions to the physical characteristics of the environment.

The properties of the physical environment affect the psychological processes of the individuals and groups using that environment and their socialization with their environment. Lau (2007) acknowledged that there are many reports, studies, articles, and books about the relationships between architectural elements, forms, spaces, places and human psychological experiences. Richard (2003) corroborated that every physical environment includes the existence of a social environment and every social environment includes the existence of a physical environment; because socialization is one of the basic human needs. The fulfillment of this basic requirement is possible when the spaces are designed in a way to have properties giving opportunities for social interaction. Among education spaces, faculty buildings are social environments giving an opportunity to young people to socialise, share interests, have relationships with each other, and develop relationships within groups and belonging feelings.

Social behaviours, social interactions, and gathering areas of students in faculty buildings are important issues from the point of architectural programming and architectural design performance. This study is dependent on the evaluation of social environments in faculty buildings considering the students' social interactions within the selected faculty building. In the scope of this evaluation, long-term observations directed at the determination of students' social interactions and gathering areas were carried out, the planned spaces of the building were analysed through Syntax 2D and as a result, the effect of the spatial configuration on social interaction was consequently evaluated.

Hillier, (2007) observed that the location of these spaces, their way of coming together with other spaces, the physical characteristics of the space, and their connectivity with outer space can develop movement patterns in humans that will support or prevent their interactions. Evidently, the building plan impacts the behavioural traits of the users of the physical space. The spatial configuration exists in the relationship between a series of spaces where the individuals move in, come across, and notice others. It implies that spatial configuration can be planned in a way to provide or obstruct the realization of social interaction as a spatial behaviour mode. This paper highlights the behavioral reaction of users through the assessment of the spatial effects of these buildings in the built environment. Through a feedback approach, how a more inclusive view of an ideal architectural space can be realized. Also, relational syntaxes are discovered even though some are shown to be more influential than others.

Statement of The Research Problem

The socio-behavioural essence of the environment can be considered as a determinant, such issues like mental representations, architectural legibility, and way finding, not only help to understand the level of visual stimulation in the interior space, but also point out a specific place reflecting social interaction level of the building fabric. The overall performance of the architectural design with effect on the users is largely obvious in the activities the users engage in within the building fabric, whether limitingly restrictive or outrightly expressive. This will culminate into determining preferences for interactive spaces based on properties mainly derived from topological properties such as memorable and describable characteristics of physical features and assigned functions. The output nature of behaviour of the end users in the building fabric generally, are paramount sociopsychological investigation that can only be measured through the end

users in the building fabric. The satisfaction level could be leaning to the negative or positive side and this is dependent on the nature of design and material deployment in the spatial investigation. How to enhance the social communication with the help of public space? How to lay out the classroom to promote the enthusiasm of study? How many academic buildings in the university that have met the user satisfaction index and displayed a visible sense of interactive activities is the reason for this study.

Aim and Objectives

This paper determined to explore the impact of interaction spaces and their interrelationship to the notion of socio-behavioral phenomenon in academic buildings by identification of architectural design elements capable of enhancing spatial connectivity.

Justification of the Study

The performance of a man in the building fabric is largely conditioned by the afford abilities and provisions in the architectural design at its conception and implementation, which can affect the growth and economy of a nation. A conducive environment is needed for optimum performance hence there is a need to efficiently design buildings through data and well-informed planning for formal and informal interaction.

LITERATURE REVIEW

Architectural and scientific research studies on the relations of environmental factors and human psychological, physical behaviours and experiences have already directed architects to improve, or even change the way of design. These researches are mostly focusing on three objectives: The first one is to talk about the close relations of human senses and architecture. Holl (1994) , Pallasmaa (2005, 2005) , and Zumthor (2006) explained the importance of human senses and perception; Arnheim (1977) focuses on the dynamics of visual aspect; Malnar and Vodvarka (2004) put forward multi-sensory concern in architectural and landscape design. The second one is to describe the different psychological experiences from different architectural forms. In this area, there are many reports, studies, articles, and books about the relationships between architectural elements, forms, spaces, places and human psychological experiences, such as Weston (2003) who described the meanings of each material, and Lau (2007) in support of a luminous environment in the Monastery of La Tourette. The last one is to find what people really need in the realm of architecture and environment, which is called environmental psychology or architectural psychology. Hall (1969) gives the basic theory of psychology; Bell, Green, Fisher and Baum (2001) including Gifford (2002) were scholars that put the theories into concrete practice.

According to McCullough (2004) practical architectural design and interaction design can overlay and heighten social consequences. it as an 'operable inability' system where two disciplines converge on the design and shift from foreground objects to background experiences. Architecture is the art and science of the built environment. It is an act of conception through material understanding and representing the formation of cultural order. It is a social product, mimesis of society's intents and etiquette; thus, it reflects what a society holds important. Architecture is about permanence and materiality. Among some other technical issue certain properties of such spaces: User-centric: physically situated and support user's intention, actions, and etiquettes Participative: should support multi-user participation for a richer experience, and Transformative: Open systems for extensible places, and this extensibility must be casual easy to learn with adequate non burdensome description of complex technology.

In a rather simple descriptive manner, *Siramkaya* and *Aydin (2013)* averred that the formation or degree of social interaction is directly related to the physical conditions of the space. Therefore, there are circumstances preventing or supporting the social interaction in the space (Figure 1). While some factors like the walls, long distances, and high speed between individuals obstruct the social interaction, short

distances, low speed and right locations can support social interaction (Gokce, 2007). Hence the needs of the space user can be met through articulated syntax.

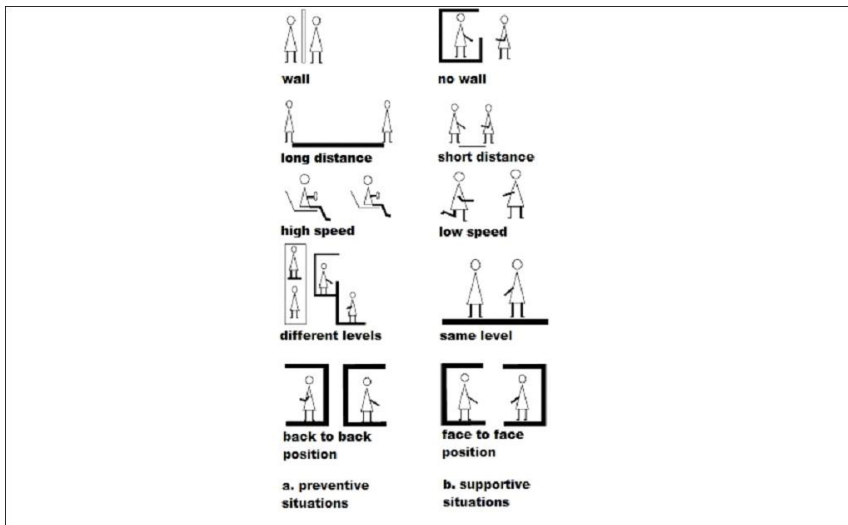


Figure 1. Supportive and preventive conditions depending on the physical environment for social interaction (Adapted from Gehl, 1987).

Maslow’s (1970) hierarchy of needs includes social interaction as a need and it contains actions and feelings like being belonged and attached, joining a group, loving, being loved, accepted and etc. Socialization and establishing social relationships are very important for youth development. The young should gain earnings aimed at socialization like establishing positive social relationships and adapting to the milieu they live in for their psychosocial structures to develop in a healthy way. The educational infrastructure populated by youths must be socially responsive. Within the Architectural context, interaction can be defined in parallel terms as a reflex or instinctive reciprocation of buildings to the action of the user. The artificial agent is the building or built environment, including any machine or computation technology that is integrated with architecture. Natural agents are inhabitants and environmental factors: sun direction, natural light, temperature, humidity, wind direction and speed, and weather conditions related to seasonal changes, etc. Social interaction—a state of free togetherness in which people with different physical and mental abilities find opportunities for interaction—is one of the basic human needs since birth.

Basic needs of students and staff of faculty buildings as the young’s milieus for education are important from the points of physical, social and psychological views. Faculty buildings are complicated social organizations composed of structural, social and functional elements. In these spaces, there should be spatial arrangements for young people to expand their social network with others and interact with the ones of the same age. In this way, they can feel connected or belong to the society which can be supportive in improving direction for the basic needs of the young generation.

These needs, in the view of Siramkaya and Aydin (2013) can be named as friendship, affection, safety, becoming an individual, having differences, to feel belonged to a society, experiencing adventure and new experiences and learning. It is important for architects to identify what the spatial characteristics should be in the environments where the social interaction is important and necessary. In this study which is handled with the aim of interrogating the effect of spatial configuration on social interaction in architectural design—the existence of social interaction in faculty buildings and effect of the spatial configuration on this interaction are investigated via space syntax analysis.

Architecture is preemptive in its initial stages of concepts, schematic drawings and model scenarios that are produced as intangible representations of possible actions and interactions that may occur in the future.

Hence Skov (2013) emphasised that design criteria be fashioned based on the study of action space for target occupants. To derive the configuration of action-space for neo-nomads, size, shape, usage patterns, environmental and spatial plasticity of space; their demographic data and lifestyles are examined in order to anticipate potential use of technology, as well as future possible actions and interactions that may take place in their living environment. These are through certain movement patterns classified as neo-nomadic. As architects and designers, it is a task to take a concrete stand on the problem and to communicate same in the built up and open spaces. The responsibilities and action are a derivative of the comprehension of the needs and reality of the impact of space over learning and assimilation capacity as depicted in Figure 1. Security concerns also can be considered while enhancing interaction for psychological stability among users and this to a large extent will be reflective of their lifestyle nomadically.

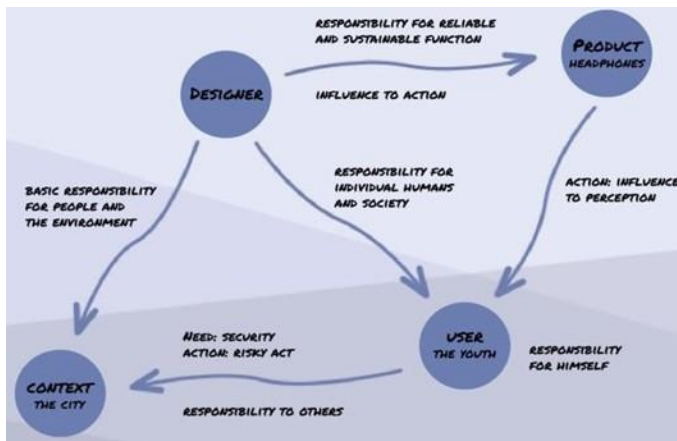


Figure 2: Action, influence and responsibility of Architects in spatial definition.

Source Lindner(2017)

The neo-nomadic lifestyle according to the international society for bio urbanism (2013) has been considered through observation, literature, and subjective personal experiences pertaining to individual, socio-cultural, economic and technological aspects. Study unveils those neo-nomads “live light” in terms of personal belongings and space requirements. Their simple living is characterized by multi-functionality and optimization of space. The boundaries of action spaces for their daily living activities are blurred. The proposed neo-nomadic living space must represent space optimization and spatial plasticity in the form of a use-neutral living space that adapts to the constant transitional and temporal shifting from living to work, personal to social, and physical to digital. Spatial solutions must extend beyond the conventional multi-purpose furniture design of compact living into the architectural realm of space-making.

The occupant’s actions and behavior are influenced not only by spatial context but also by the ability to interrelate and modify spatial experiences in real-time. Interaction converts ideas into immediate actions, forging unique relationships with machines and objects and endowing new meanings. As an active participant, the occupant is engaged in a continuous dialogue with the living space, facilitated by experiential space-making and its influence on the perceptual process of space. This interaction adds a unique dimension to the role of architectural space influencing human behaviour.

One criterion is to design an adaptable living space that can change in spatial quality, feel and appearance, according to the user’s needs. Spatial solution is sought in the creative realm of emotional, empirical paced design that surpasses the strict physical boundaries of size and shape. Affective space formation of traditional architecture with variables of space perception, color, texture and materiality is introduced as a means of spatial alteration in which visually graspable sensorial spaces mean to house an occupant’s diversity of possible functions at conceptual, psychological, functional, creative and aesthetic levels. As activity depends on context—prevailing mood, emotions, spatial setting or atmosphere, the intention of performing an

activity and efficiency of performance rely on physiological and emotional comfort triggered by perceived psychophysiological and aesthetic spatial qualities.

In the field of interaction design, Siang (2021) observed that the concept of user experience is used to express a more user-grounded orientation of how systems and people may relate. Concerning the integration of interaction in the architectural design process as shown in figure 3.

Houben. (2015) claimed that successful integration of communicating systems in architectural design projects can only be achieved when architects distinguish said systems as a material that they can approach in much the same way they aim to express an architectural message. Interactions in systems with multiple components quickly lead to complex relationships and decision situations that are difficult to predict.

The Beer-Lambert law stated that for a simple case (walking behaviour of a legged agent under dynamic conditions) that the behavior of the agent is the result of the coupling of two dynamic systems—namely the agent and the environment—and cannot be assigned to just one of the systems. This coupling is also known by the term situatedness, meaning an agent’s behavior cannot be comprehended unless considered the way it is linked to its environment. Clancey additionally stated that much of what is done is a re-coordination of previous combinations of perceiving (or sensing), conceiving (or deciding), and moving (or acting) rather than the manipulation of an explicit knowledge model.

Interaction Design

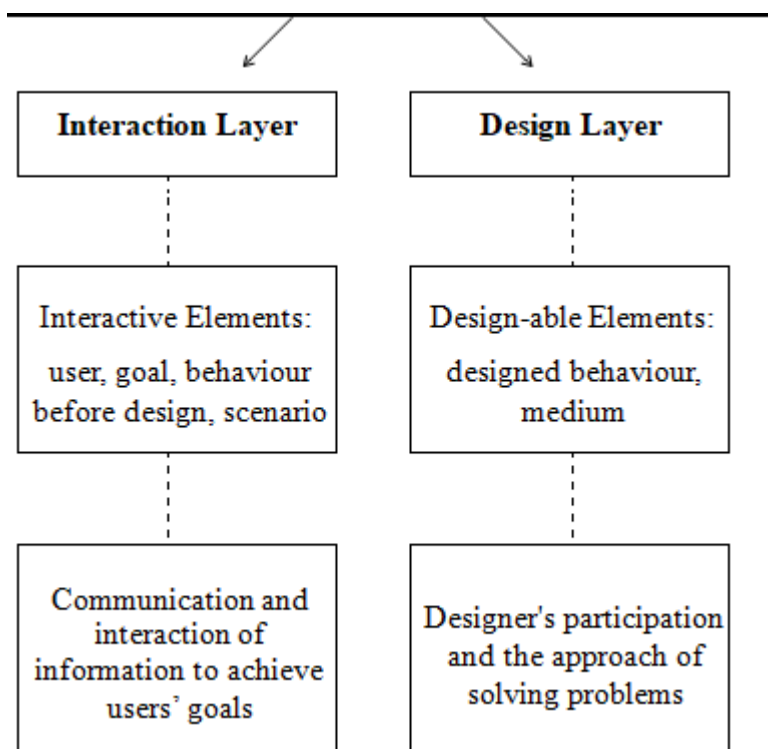


Figure 3: The elements of interaction design

The design of interactive architecture implies that responsive buildings are by definition situated; which means simple input–response schemes to guide the behaviour of interactive buildings cannot suffice. With multiple components, also the concept of agency needs to be extended to the interaction of multiple agents together. Classical agent frameworks use utility as a measure to decide what to do. However, with multiple agents, and situatedness in the equation, utility values are not sufficient anymore. In multi-agent systems it

is acknowledged that agents need to communicate and may not share the same utility- or agenda. Thus, agents need also to build assumptions about the other agents and assign levels of trust to agents in the system. The most important implication, which cannot be stressed enough, is to move beyond a utilitarian clarification of performance maximization.

Environmental designers specify that architecture feed social interaction. When the architecture is considered in the course of this aim, it is necessary to evaluate the spatial configuration. In this sense, spatial formation is evaluated in the scale of the physical and functional distance between people, groups and activities. Wells (2009) noted that, the arrangement of rooms, walls, doors and separators affects the opportunities of people to see, hear and react to each other. Barriers, openings, street locations and physical provisions can provide opportunities or form obstacle for social interaction Gibson's "affordance theory" includes important hints about social interaction and space.

Gibson (1966) examined the interaction between physical environment and individuals. According to this, the thing providing occasions for the individual to interact with his environment is the characteristics of physical environment and the conditions he lives in. Affordance theory focuses on how the physical environment can encourage an individual to do cognitive activity. These are the characteristics of the perceived and recognized environment, which may cause behavior because of their functional importance. In this sense different environment patterns facilitates diverse behaviors, in other words they support some behavior while restrict some others (Yildiz & Sener, 2006).

The formation or degree of social interaction is directly related to the physical conditions of the space. Therefore, there are circumstances preventing or supporting the social interaction in the space. Gokce, (2007). argued that while some factors like the walls, long distances, and high speed between individuals obstruct the social interaction, short distances, low speed and right locations can support social interaction. From the point of social perspective, the built environment in the view of Peonies and Wineman, (2002) can be defined as, an area for meeting, existing together and being aware together. The borders separating the built environment and the connections combining it arrange the behaviours, activities, and the people to come together and stay away from each other. The boundaries, surrounding and the characteristics of adjacency, containment, sub-section, accessibility and visibility in the space create relationships

Sommer, (1969) explained that spaces are identified as "low interactional (sociofugal)" and "highly interactional (sociopetal)" environments according to their characteristics determining the level of social interaction The concepts of sociofugal and sociopetal are the concepts firstly exposed by psychologist to explain the space quality. According to Osmond (1957), "the spaces providing the opportunities of eye contact and conversation distance between people" are named as sociopetal. As oppose to this, sociofugal arrangements that obstruct the interactions of the people in conservation distance by causing them to look different ways from each other. Unlu (1998) expresses that low interactional environments are the spaces, which can be defined as "hard architecture" where personalisation is extremely difficult, while highly interactional environments provide some options appropriate to personalisation forms in the level of behaviors.

Brand (1998), mentioned that the process related to how the space for a useful and effective social interaction can be designed is very complicated and requires a dense knowledge. In this complicated process, it is quite important to evaluate personal and cultural characteristics of the individual, spatial characteristics, perception of the space and the qualities of the social relationships in society as a whole to design spaces supporting social interaction.

It is encouraging and persuading others in a process that contains and implies all sorts of transferring the meaning. Mark Meagher (2015) noted that the "poetic potential" of responsive architecture, and architects must develop a deep and robust understanding of manifold types of change in buildings."

Cameline Bolbroe (argued for a shift inattention away from the object to an “act of inhabitation,” dealing with temporality, retention, learning and appearance. It seems apparent that various interaction styles are needed for the evolution of interactive buildings. This introduces the question how the building system would figure out which interaction style is the most appropriate, and how in an interactive manner the user different interaction styles may be adopted.

Conceptual Framework

The design and evaluation of the user experience for social communication is a major issue. These social experiences are thus closely related to the feeling, emotional and affective experiences and satisfaction of the interaction as well. Cognitive researchers have assumed that communication competence exists if the communicator has a diverse range of social knowledge and the cognitive abilities required for effective communication (Omar,2014). Communication is one of the most important concepts taken up in connection with surrounding of the towns.

Communication in organizational life as observed by Ayuba (2014). provides a basis for understanding virtually every human process which occurs in an organization. communication means skill of transferring information, thoughts and human behaviors from one person to another person. Aristotle, the Greek philosopher, may be the first thinker who mentioned communication.

Sarokhani (1993). regarded communication as an event during which two or more persons exchange their ideas, views, feelings and opinions and inform each other of the use of the messages of which meaning is equal for all of them. Mohsenianrad (1995). posited that it is the transfer of the message to another person and is the basis of society formation and expansion of the communication causes to expand the culture. Actually public spaces can give meaning or significance to local communities by individuals or groups (Kurniawati, 2012).

Supportive social environment is the condition that employs social support which according to Laurens (2012), Lewin and Staats (2004) stated that one of the most important factors responsible for the success of changing communication and human being behaviour in a small group, is the social interaction being able to experience group. Modern corporate communication practitioners are expected to manage extremely complex and varied operations of an organization (Mohamad2014). Also, social media have become an integral part of communication behavior, and organizations cannot ignore social media in their crisis communications any longer. With social media presence being integrated and embedded in our everyday life, the field of communication such as internal, external and corporate communication have also been revolutionized. Because social media is built on relationships, it is worth revisiting what makes a good relationship. In a personal relationship, openness, communication, engagement, and reciprocity are all important factors to developing a strong bond and a quality relationship (Husain, 2014).

Public Domain

Public domain is the field that persons have social interactions with each other. Whatever occurs in our cities is that we use two main cells in our cities: from home to workplace and vice versa, however we also visit other cells, for leisure, learning and so on. It means that the city has turned into means that direct us to two destinations and have a transient role while the public domain is the destination and goal, not a transient place. Urban spaces and our life quality should create this demand in the citizen to go out of their homes to see urban space. Only in this case, the persons will establish communication (Khosravi, 2005).

Public spaces have dominated the spaces for contacts and social-cultural communication for vehicle transportation. Hopper and Nielsen (1991) studied the impact of social interaction to change group standards or social norms on recycling behaviour, by identifying a person in the neighborhood. It identified four basics of attractive experiences including cultural practices, physical conditions, the content of the installations, and social practices. Even the replacement of some spaces for transportation led to the loss of many

traditional urban spaces with important social-cultural performance, but cities need spaces that fulfill Social-cultural relations and have suitable performance. In Iran, tea shops, charsooghs, lines, squares, and shrines were regarded as main urban spaces (Masoudi, 2001). Traditional markets (bazaar) which are place of social interaction represented urbanism, emergence of identity and social life of the city and group images of the citizens and reflection of tribal and cultural values of the urban civilization of Iran.

Market creates a strong network of social relations by creating unity and relationship between elements and performances. Open space of the mosques that is across the market can gather different persons in the market once in a day to perform religious duties in addition to communication. Other spaces, which are socially and culturally important, are traditional squares such as Hosseinieh. These squares are spaces with different performances. The most important performances include religious ceremonies including show and music, poetry and speech which are means of showing talents and capabilities of the people in the district. These activities show that people have created special traditions and customs to preserve social relation. Traditions are predictable cultural behaviors, norm which is accepted and has a long record and should be preserved. Other functions of traditional squares include spending leisure time, daily visits, exchange of news and information, informal educations, transfer of experiences and performing charity affairs and relief. These spaces are the places for performing group activities that the persons use in any age group, with any education, any job, and income. Generally, it is more important to be present in such spaces than to know how to reach them.

There are some links between space and the person and his identity, touching the space, presence in the space and experiencing it and more importantly experiencing entrance to the distinguished place (Gharib, 1997, Taghizadeh, 2002, Habib, 2006). Typically, urban places are classified into some groups due to the functional level, like district places, urban spaces, and inner-city spaces. Public spaces can be divided into artificial and natural spaces in terms of the physical structure (Golchinfar, 2006). Voluntary presence of the citizens in space increase opportunity for social interactions also has a direct relationship with space utility, desirable and good space increase tendency of presence (Khosravi, 2005).

Street Furniture as an interactive Element

Broomhall, Knuiman, Collins, Douglas, Lange and Donovan, (2005) were of the opinion that public open space should endeavour to provide for multiple users. For instance, by way of landscaping and the provision of facilities, a sporting oval can be designed to provide for children, sports people, and walkers.



Plate 1 Seats as components of street furniture

Since recreational open spaces are multifunctional in nature, Omoleke (2012) suggested that; they could become avenues through which people are able to interact with nature, recreate and socialise. It was further buttressed by EPA, (2017) that open spaces provide recreational areas for residents and help to enhance the beauty and environmental quality of neighbourhoods. The extent of interaction depends to a large extent the availability of street furniture.

RESEARCH METHODOLOGY

In carrying out this study, the data and information from relevant sources were gathered through best means to ensure clarity and unambiguous and information. This was achieved through the analysis of data by the use of simple statistical tools. The data and information of these studies were collected from different secondary sources such as textbooks and internet accessed facilities. The methodology is designed to address space syntax and the phenomena of the abstraction-to-architectural reality process.



Figure 4 Public domain and space syntax

Consequently, the methodology comprises a series of analytical frameworks used to reveal different qualities of the architectural spaces and more importantly the relations among them. The analytical methodology sets out to identify the relations among the structural, experiential, functional and architectural-element dimensions of space in architecture. The structural dimension refers to the ways one space connects to another while the experiential dimension refers to the ways in which spaces are experienced. The functional dimension refers to the ways people use space, while the architectural-element dimension refers to the ways architects assign physical entities to space. The concept behind the analytical methodologies is to proceed from a global picture of aspatial configuration to the internal logic of space and, in parallel, from abstraction to architectural reality.

RESULT AND FINDINGS

Systems may have different goals: apart from performance, relations may also be geared toward supporting, engaging, signifying and entertaining. Systems can engage in different styles with the user, such as in an instructive way, as a conversation, series of manipulations, or in an explorative way research in individuals' situations (such as age, gender, lifestyle and background for private buildings) and social conditions (such as standard of living, culture and history for public constructions).

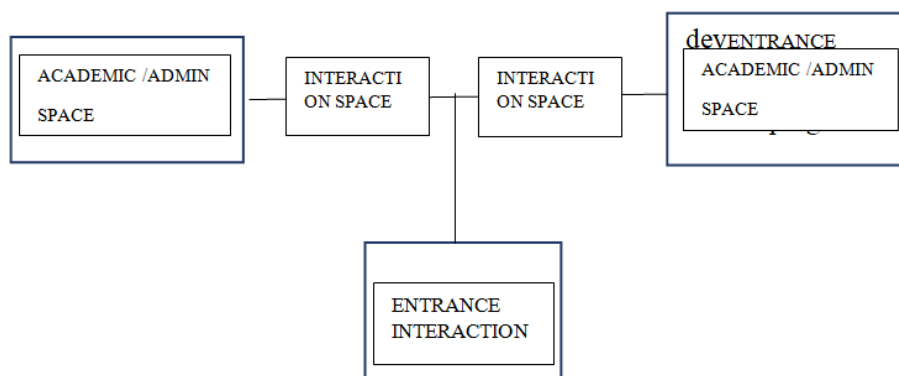


Figure 3 Courtyards as elements of interactive space

That can minimize the gap between the designers and the people who will eventually live and work in these buildings. Sufficient communication between designers and clients should be taken at the first step. Second, design with concern about environmental psychology can strengthen the bond of unity, mutual understanding and exploration of peaceful coexistence.



Plate 2 Trees within courtyards as an elements of interactive space

The interactive process can alter secret and mutual suspicion that often tend to conflict and global attrition. Learning in a friendly influenced architectural designed environment will unconsciously foster knowledge exchange and academic collaboration amongst alma mater and alumnus of various institutions.

RECOMMENDATION AND CONCLUSION

It can be concluded that there is no modest solitary solution that will work for complex systems like interactive spaces approach in architectural design. The feelings of personal space, territoriality, crowding and privacy exist everywhere, even though they may change in a different condition. Architects should develop ways to fulfil these requirements, especially in detailed design. Responses to questionnaires from end users should be analysed, in order to improve the design method for the future projects. The analytical spatial approach can contribute to the significant interactive experience through the deliberate incorporation of identified traditional elements such as courtyards, lighting visual and other sensual communicational elements.

Courtyards and landscape street furniture within and without faculty buildings should be provided to attract sitting, discussion and sharing of personal and academic ideas amongst staff and students of the institution. Transparent, less obscured material and designs should be greatly encouraged in building for visual and other forms of sensual communication. Barrier free and universal accessibility within and around faculty designed buildings in form of ramp and internal walkways should be a copious element of design in faculty buildings.

REFERENCE

1. Alexander (2011) *The Voluntary Simplicity Movement: Reimagining the Good Life Beyond Consumer Culture* University of Melbourne – Office for Environmental Programs; Simplicity Institute
2. Ayuba, S. H., Abd Manaf, N., & Hamzah M. R. (2014). Leadership: Communicating strategically in the 21st century. *Procedia – Social and Behavioral Sciences*, 155, 502 – 506.
3. Broomhall, M.H.; Knuiman, M.; Collins, C.; Douglas, K.; Ng, K.; Lange, A.; & Donovan, R.J (2005). Increasing walking: How important is distance to, attractiveness, and size of public open space? *Am. J. Prev. Med.*, 28, 169–176.
4. F (1997). Designing squares for the city. *HONAR-HA-YE-ZIBA, Journal of Fine Art*, 2, 33-42.

5. Gibson, J.J. (1966) The Senses Considered as Perceptual Action based approach. Scientific Research Publishing <https://www.scirp.org> › reference › References Papers
6. <https://scholar.google.com> › citations
7. GökçeK, Derin A, Journal of Theory and Practice in Education The Role of intercultural competence in foreign language teaching.
8. Golchin F, S. (2006). Factors influencing social interaction in urban open spaces. M.S. Theses, Iran of University Since and Technology, Tehran, Iran.
9. Gifford, R. (2002). Environmental Psychology: Principles and Practices (2nd ed.). Boston, MA: Pearson Custom Publishing. [Paper reference 3]
10. Holl, S. (1994). Questions of Perception: Phenomenology of Architecture. New York: Princeton Architectural Press. [Paper reference 1]
11. Hopper, J. R., & Nielsen, J. M. (1991). Recycling as altruistic behavior. Normative and behavioral strategies to expand participation in community recycling program. Journal of Environment and Behavior,23, 195.
12. Houben M · (2015) The relation between short-term emotion dynamics and psychological well-being: A meta-analysis. Psychol Bull. doi: National Institutes of Health (.gov)
13. Husain, K, Abdullah, A. N., Ishak, M., Kamarudin, M. F., Robani, A., Mohin, M., & Syed
14. Hillier B · (2007) Space is the machine — measures is positively misleading The study of space within buildings using space syntax methods UCL Discovery University College London <https://discovery.ucl.ac.uk> › SITM
15. Jarmusch, A. (2003). Mind-Set: Research Project Will Study Architecture’s Impact on 50503. Brain. http://biology.ucsd.edu/about/news/article_050503.html [Paper reference 11]
16. Khosravi D. O. (2005). Design dialogue space in city. M.S. Theses, Iran University of Since and Technology. Tehran, Iran.
17. Lau, B. (2007). The Poetics of Sacred Light: An Investigation of the Luminous Environment in the Monastery of La Tourette. In The 24th Conference on Passive and Low Energy Architecture. PLEA Conference Paper No. 0532. [Paper reference 1]
18. Maslow, A. H. (1954). Motivation and personality. New York: Harper & Row.
19. Masoudi, K. (2001). The urban space, place of social interaction, Journal of shahrdariha, 26, 12-15.
20. McCullough M.E. · (2002) The Grateful Disposition: A Conceptual and Empirical ...University of California, Berkeley <https://greatergood.berkeley.edu> › Gratitude PDFs
21. Meagher M. (2015). Designing for change: The poetic potential of responsive Architecture University of Sheffield School of Architecture, Arts Tower, Western Bank, Sheffield S10 2TN,United Kingdom online at www.sciencedirect.com
22. Mohamad, B., Bakar, H. A., Halim, H., & Ismail, A. R., (2014). Corporate Communication Management (CCM) and organizational performance: A review of the current literature, conceptual model and research propositions. Procedia – Social and Behavioral Sciences, 155, 115 – 122.
23. Mohsenianrad, M. (1995). Study of communication (2rd ed). Iran: Sourosh publishing.
24. Omar, N., (2014). Communication competence during the preparation phase of the direct selling communication activities. Procedia – Social and Behavioral Sciences, 155, 228 – 235.
25. Osmond H. (1957) A review of the clinical effects of psychotomimetic agents National Institutes of Health (.gov) <https://pubmed.ncbi.nlm.nih.gov>. doi 10.1111/j.1749-6632.1957.tb40738. x.
26. Pallasmaa, J. (2005b). Touching the World—Architecture, Hapticity and the Emancipation of the Eye. In The 8th Meeting of Heads of European Schools of Architecture (pp. 34-41). Chania, Greece: European Association for Architectural Education. <http://www.eaae.be/wp-content/uploads/2017/04/20051073.pdf>[Paper reference 1]
27. Richard N. (2003) The Geography of Thought: How Asians and Westerners Think Differently. and Why University of Michigan Richard Nisbett | U-M LSA Department of Psychology <https://lsa.umich.edu> › psych › people › emeriti-faculty
28. Sarokhani, B. (1993). Sociology of communication (4rd ed). Iran: Etelaat publishing.
29. Siramkaya, S.B., & Aydin, D. (2013). Social Space Concept in Psycho-Social Development of University Youth and its Exemplification in Faculty Buildings <https://www.academia.edu> ›

30. Staats, H., Harland, P., & Wilke, H. (2004). Effecting durable change. A Team approach to improving environmental behavior in the household. *Journal of Environment and Behavior*, 3, 341.
31. Siang Y. (2021) <https://www.interaction-design.org/literature/article/what-is-interaction-design>
32. Skov (2021) Bio urbanism <https://www.biourbanism.org/an-introduction-to-neo-nomadic-urbanism-as-potentiality-for-the-future/>
33. Sommer, R. (1969). *Personal Space: The Behavioral Basis of Design*. Englewood Cliffs, NJ: Prentice-Hall.
34. Taghizadeh, M. (2002). Impact on the city's architectural and cultural values, article. HONAR-HAYE-ZIBA, *Journal of Fine Arts*, 11, 62-76.
35. Talebi, J. (2005). Social relations in urban space. *Letter from the Social Sciences*, 24, 161-180.
36. Ünlü A (1998) The syntactic analysis of Turkish houses between 17th and space syntax network <https://www.spacesyntax.net> › 41 Unlu 300
37. Wells, & Carter K. (2009). Maladaptive thought control strategies in generalized anxiety disorder, major depressive disorder, and non-patient groups SAGE Publications <https://journals.sagepub.com> › Doi › jep.007910
38. Weston, R. (2003). *Materials, Form, and Architecture*. London: Laurence King. [Paper reference 1]
39. Yildız & Sener, (2006) Criteria of successful campus open spaces. ResearchGate <https://www.researchgate.net> Criteria-of-success...
40. Zumthor, P. (2006). *Atmospheres: Architectural Environments, Surrounding Objects*. Basel: Birkh. user. [Paper reference 1]