

Investigating the Characteristics of Open Spaces to Enhance Social Interactions in Neighborhood Environments

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Abstract

In recent decades, stability and sustainable development have been proposed as one of the key areas to improve human living conditions. Meanwhile, increasing social interactions as one of social sustainability measures in the neighborhood environments has been considered because the residential environments are parts of larger urban areas and play an important role in the sustainability of megacities. In this study, according to the importance of neighborhood environments, measures to design open space in order to promote social sustainability have been discussed. The method used in this study was cross-sectional and to gather data, library-documentary sources and field observations were used. Initially, social interactions criteria in neighborhoods were recognized, then effective characteristics in designing open spaces including caring traffic restrictions, promoting walking, and considering the residents in different ages were investigated.

Keywords: society, social stability, social interactions, neighborhood environments, open spaces

Introduction

Human needs and ways to meet them are considered in social stability. As Abraham Maslow classified human needs and one of them in his category are social needs, thinking of the needs and finding a solution, especially in the residential and neighborhood environments is an important and inevitable issue. Socialization is a learning process and involves ways to control or direct individuals' behaviors. In contemporary societies, socialization often occurs in a small family, and then children gradually step into the society. Since cultural environment in which human are born affect their behaviors, it may seem that there is no individuality or freedom tendency for human and follow pre-made templates provided by society, but such a view is fundamentally wrong. Socialization is also the base of human freedom and individuality. In the process of socialization, every human being finds a sense of personal identity and the ability to think and act independently (Giddens, 2004). This process is the evolution of human and society. Trust and integrity are available in the sense of *we are* that recalls the orientation (Desvan, 2003). Since human beings are social creatures and communications and social interactions are their basic needs, and also social interactions among the residents in the neighborhood environments as one of the key factors in Iranians' lives, the need to create open spaces in the neighborhood environments to promote social interactions and following social stability is strongly felt. For this reason, most researchers who have investigated the issues related to stability in Iran have been trying to discover the architectural and urban sustainability values of Iran. Most of these studies just investigated the overall sustainable development of the Iranian Architectural features. Also, in 2003, a book entitled "environment and social behavior" was published in which human social behavior in relation to the physical environment was reviewed and proposed how to use them in the context of social interaction especially in terms of key concepts of privacy, personal space, territory and crowding (Altman,

2003). Ismail Zarghami (2010), in his article entitled “determining sustainable social factors in housing complexes of Iran cold and dry climates, the factors affecting social stability in residential complex located in the city of Ardabil was analyzed from the perspective of residents. This study aims to determine the characteristics of open spaces which promoted social interactions in the residential spaces and neighborhood environments. The present article is intended to be the first to review measures of social interactions in the neighborhood environment and then evaluate the characteristics of ideal open spaces in the neighborhood environment which increase social interactions. This study aims at answering the following questions:

1. What are the criteria to enhance social interaction in neighborhoods?
2. What are the characteristics of ideal open spaces to use in the neighborhood?

Concept, approach, and the foundations of social sustainable development

Social stability is one of the important aspects of sustainable development. A group of researchers have pointed four main elements including social justice, solidarity, participation and security to define social sustainability. In this sense, factors such as equal opportunities with progress for all people, living with cooperation, equal opportunities for individuals in social roles with safety and security of livelihoods and human settlements against natural hazards, and promoting life quality have been the bases to measure social sustainability. In this context, due to the nature and difficulty to measure subjective indices of social sustainability, there were no significant studies. In general, it can be said that social stability with its main structures, quality of life, is assessed. Reducing social tensions, ways to organize consistent with social conditions, disability equality, women and racial groups, ethno – religious, education and environmental awareness, health and adequate shelter for all, expanding the role of the family and society, Political rights and participation and promoting social values are the major issues of sustainable development of the cities (Goodland, 2003). Social sustainable development can be generally called positive social changes in the society. Hence, according to Estes, fulfilling the needs with raising the level of freedom is essential for social development (Estes, 2001). Johnston meant social development basically to strengthen the vitality of civil society and increasing social and cultural values. Achieving manmade sustainability as a part of the human environment that contains the basis of socio-economic activities depends on the establishment of a dynamic equilibrium between the physical space of human, inclusive environment, and space users. The dynamics of this equilibrium in response and accountability of physical environment to demands and needs of users and also changing conditions are inclusive. Accordingly, sustainable manmade environments can be concluded as follows: human sustainable environments impose physical and psychological problems to their residents over time. Social sustainability means to maintain and improve social capital, forming homogeneous and integrated societies with mutual interests, relationship and interaction between groups of people, society with the feeling of sympathy, patience, flexibility, and love and loyalty that is often associated with moral capital. Social capital refers to the equal rights of people and the religions and cultures and also protecting the values used to raise human beings in the societies. Security, adaptability, hiring quality, eliminating energetic poverty, building insulation, flexible schedules, healthy life, home cares, continuing education, are the social goals of sustainable development. Sustainable design while improving the quality of working and living environments should not interfere with human comfort so it increases productivity and reduces stress and will have a positive impact on the health and welfare of the people.

Social interactions and communication

Ordinary tasks of daily living which engage humans in face-to-face interaction with others and in more or less permanent constitute much of his social activities. In the realm of social

relations, each person examines themselves not only against the others, but in the realm of relations among these people and they often identifies their capabilities while interacting with the other people and makes his identity and creates meanings (Twood, 2000). Activities such as interacting with other people and observing their activities contribute to individuals' growth by creating social context and society. Communication, exchange, interaction lead human with their living places to a satisfying equilibrium and human find their own balance with the environment in physical, mental, material and spiritual connection (Kalatbari, 1995). Individuals' interactions, primarily and essentially advantaged cultural traits and have a key role in social development, take place in a social context. In the past, social interaction was limited primarily to the face-to-face relationships, and cultural artifacts are rarely spread outside of the limited realm of social life. Cultural transformation was insignificant, and the need for human identity, was provided. But as the society goes from simplicity to complexity, the human communication gets more complex forms.

The concept of neighborhood

In this study, the concept of neighborhood with an emphasis on the perspective of sociology and urban design were expressed. Neighborhood can be determined by physical characteristics such as type of house that people have; interaction patterns and social organizations that demonstrates; and ethnic structure, economic, social and demographic description of the population. In this paper, the concept of neighborhood with an emphasis on the perspective of sociology and urban design were expressed. Neighborhood can be described by physical characteristics such as type of house that people have; interaction patterns and social organizations they demonstrate; and ethnic structure, economic, social and demographic residents. Teyvan simply defines the neighborhood as a place where one feels to be at home there. Most social scientists describe the concept of neighborhood as the intermediate level of social organization between the homes and cities which permit the individuals to achieve a coherent sense of being together and significantly communicate with larger societies. In fact, what exists in the invisible sense of being together may be the best means to describe neighborhood. Newman (1996), Keller (1965), Alexander (1965), and Herbert (1936) emphasized that the neighborhood is a geographic area in which social interaction and community take place.

Neighbors' social interactions

Neighbors' interactions can be defined as the social behavior of residents living in their living environment. These interactions can happen regularly or irregularly and informally or accidentally. As mentioned in the previous sections, the need for interaction with others is natural and necessary for a healthy life. It is rooted in human biology, physiology needs and makes it easy to operate and is in fact a psychological need. Always, a good neighborly relation is necessary to comfort, support and care of little kids, borrow items from each other, and help each other in times of emergency. The results of different studies indicated that the structure and physical design of residential environments can be effective in improving the relations. Creating semi- private and semi- public spaces as a space for interaction in a residential environment is essential (Javid, 2010). However, it is worth noting that residence time correlates positively with the degree of neighborhood interactions and social cohesion because living for a long time in a neighborhood makes more chance for the residents to learn about each other and increase their degree of social interactions.

Security and reliability in the neighborhood environment

Both security and reliability are key factors in establishing the comfort of the occupants whose result is a friendly and reliable environment (Chaves and Mcmillian, 1986). The result of the

safe and friendly environment is to improve and expand the network of relationships among residents. In the absence of security in the community, it may cause the residents to move out of the neighborhood and expand their networks relationships to the outside of the neighborhood that lead to depletion in the community. Consequently, a successful community is the one which makes the members and residents, a regular, predictable, and protected social space (Javid, 2010). Oscar Newman defined defensible space in his book as defensible space, which is a term for a series of including space systems, real and symbolic barriers, defined areas of influence and the possibility of further care that together make an environment to be controlled by residents. Defensible space in a residential area is organized in such a way to meet the safety of their families, neighbors and friends (Newman, 1981). Modern high-rise buildings and apartments lack what Newman called it a defensible space. There are no semi-private spaces such as stairs and sidewalks crucial for the formation of informal social networks. Small urban environments formed in big cities will be eliminated due to high density of tall buildings where residents do not have the ability to control external behavior or recognize strangers. Architectural design can specify a region to be under the influence of a group or not (Mac Andrew, 2008). Cold and numb space of the complexes is completely incompatible with the surrounding environment and warning the isolation and vulnerability of the inhabitants. The apartments themselves are non-protected and hiding places and escape routes destroy the social cohesion. When a person or group of people is forced to protect themselves, fight against crime can be greatly reduced (Newman, 1981).

Therefore, being familiar with each resident and communal interaction and extensive activities in the neighborhood is one of the fundamental solutions to enhance the security and reliability in the residential environment. In this way, we can avoid the possible entrance of strangers and insecurity. In fact, with the increasing intimacy between neighbors, the responsibility to protect every family housing complex goes up and there will be a safer environment.

Increasing social interactions in the neighborhood environment

To increase social interactions in the neighborhood environment, there are a number of ways as presented in Table 1.

Table 1: Increasing social interactions in the neighborhood environment

1	Roadway traffic restrictions and promoting the implementation and design tips	In order to reduce the destructive effects of automobiles, bicycles and pedestrians in residential areas should be prior to the cars. Residential areas should be protected from the pressure of their future car or their substitutions (Alexander, 2008). In individuals, factors that provoke the sense of belonging to a place such as plant space, neighborhood associations, and children attendance provoke the feeling of friendship (Mojtahedi, 2010). Increase in the roadway traffic usually reduces the amount of social interactions. Several studies, including research "Iliad and Lyntl in 1979 " proved the correctness of the claim.
2	Placement of a group of houses in a group and create a set of residential	In the pattern of houses, Alexander suggests that arrange the houses in a way to form irregular but distinct from 8 to 12 houses around common lands and ways. Put residential collection together so that everyone can walk among them without feeling of privacy violations (Alexander, 2008). A collection of houses in a group and with protecting their territory and respecting the hierarchy are serious supporters of family cohesion and sustainability in a context of cultural, social and psychological.

3	Residents attendance in the neighborhood open space	<p>Anyone living in their neighborhood can communicate with certain people in their lives. Teenagers see young couples, old people see young people. People who live alone are supported by extended families. Infants think of adults as their models and all of them are devices that individuals find their life approaches (Alexander, 2008).</p> <p><i>The presence of elderly</i> = meeting and talking with others and feeling to be involved in the activity are really important to many seniors (Nozari, 2004).</p> <p><i>Presence of Children</i> = children play on sidewalks and streets where part of the neighborhood's social life flows. Absorbent places for children are associated with security risk elements available in those places. Lack of opportunities for youth legal gatherings and relationship, increases the possibility of their involvement in anti- social activities (Long, 2009).</p> <p>Living in cities has been so dangerous and worrying that children cannot be left to roam alone. There are the dangers of cars and trucks speeding and dangerous machinery, the risk of low frequency, but malevolent child kidnapping, or rape, or sudden attacks, and also for small children, the risk of loss (Alexander, 2008). So, considering the above, and bearing in mind that children's large percentage of time is spent at home, creating the conditions for their presence in the residential environment is important and considering the impact of games and children's activities in their growth life, caring the game and designing a game space for kids is very important.</p> <p><i>The presence of women</i> = due to more time available for ladies some arrangements should be considered during the daylight for the presence of women in their home environment. The neighborhood open space can be turned into a space for children to play and their presence and also their mothers or those taking care of them or the people who are with them also use this opportunity and expand their social contacts and are well aware of them.</p>
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Source: authors

Open spaces in residential environments

Since designing residential open spaces in order to establish social stability in residential neighborhoods is considered as a key to promoting social interactions of residents of all ages (children, middle-aged, elderly), in this section residential open spaces, the residents' expectations of these spaces, activities can be done there, and the basis of designing residential open spaces were studied.

The concept of open space

Single space or series of organized spaces, neat and with order are called open space which is located among built levels and an admission to activities and human behavior. Open spaces as common space of construction appears like communicating space among different activities in the form of specific framework highlights a part of urban form. Residential open spaces are kind of crystallization of social life where the citizens are living. The inherent behavior is closely associated with the environment, so organizing human behavior and its application in time and space, is the most important factor in designing open spaces. Human being is the main component of this space which credits the space by their values and norms. Designing open spaces, the art of sorting external physical environment are to support human behavior and the designer of open spaces set the activities in a three dimensional space at any time. Successful projects are coordinated with the other people who have used it and on the other hand, it represents a connection with the surrounding

environment (Nozari, 2004). Residential open spaces, while providing opportunities for growth, creativity, fosters interaction, social and contrast interaction, applications such as communication, relaxation, entertainment and a place for circulating and cohesion residential site, are quite effective in reducing pollution and improving the environment (Nozari, 2004; Heidari, 2008).

Residents' expectations from open space of residential environment

Designing residential environments is not only a physical responsibility, but also social process. Physical design of residential spaces, preparing the environment and its connection with the surrounding neighborhood spaces, all need to be planned and implemented to meet the needs and expectations of different groups living in the area (Nozari, 2004). Some residents' expectations of the residential open space as follows:

- To link the residential environment with the spirit of the citizens and to provide sufficient motivations for social life and mobility, the residential environment should be attractive and pleasant, and enhance the quality of life to the acceptable point.
- Another important factor that must be considered in the design of residential open spaces is providing easy and independent mobility and residents' freedom in motion.
- Providing movement security in residential open spaces is another expectation of the residents.
- Providing appropriate conditions to foster creativity and the growth of creativities, promoting personality, and development of constructive social relationships are the other goals of designing residential open space.

To do this, the available facilities and appropriate density of population for communication between different age groups, social interactions and collaborative activities within the ability of individuals need to be investigated. The number of residents and the number of people using any means or process in a residential environment, in other words, the allocation of adequate facilities to coordinate with the population in residential neighborhoods can be effective in the regulation of social behavior (Nozari, 2004).

Activities related to residential open spaces

Wherever people are present, other people are attracted to that location and get together, move among each other and looking for a place for themselves among others, then new activities begin. Looking, listening and talking are all the activities determining the quality of a space. Good space with good facilities plays an important role in the formation of such activities. These spaces reinforce social contacts and meet their psychological needs (Nozari, 2004). Activities done in the residential open space include:

- Necessary activities including all daily activities such as going to school or work or everyday purchases.
- Optional activities (including talking, walking, breathing, sitting, watching, playing, and enjoying) would be done if the person want and appropriate conditions of time and place were provided. These activities are dependent on the physical conditions of the environment.
- Social activities that do not depend on the presence of others in public spaces, and include greetings, discussion, group activities and games, or listen to the speech of others. The role of physical environment is effective in shaping the meetings, dialogues and social activities (Gehl, 1987).

In residential areas, if the choice is between sitting in the yard of a private and semi- public open space facing the street, people often select the second choice which has more interesting issues to look. Opportunity to see, hear and meet others is the most important attractions of open spaces

and pedestrian walkways. According to some research, when the environmental quality in terms of spatial - functional and also the use of appropriate varied colors and on vertical and horizontal surfaces are improved, the rate of attraction of people to the open spaces increases. Studies have shown a direct relationship between the volume of pedestrian traffic and social activity, while, between the roadway and pedestrian traffic volume, the relationship is reversed (Gehl, 1987).

Hierarchical access

Residential open spaces form a large part of the house environment and is considered as the natural continuity of private spaces, from home to a residential area and the city. The establishment of social and physical structure associated with the hierarchical access in residential open spaces access, in a way that people gradually go from private spaces into public spaces, creates a sense of security and belonging to the environment and lead to greater use of public space. This hierarchy provides people a better understanding of their residential area and gradually semi- private and semi-public spaces turn into a part of the residential settlement. Easy access to public open spaces in residential areas will attract people and activities to these areas. The relationship between public and private spaces and the design of the border area between the two zones are the effective factors in attracting people to the public open spaces and to excrete it. The existence of clear marked land boundaries between public and private spaces which the person is just in public or in private spaces greatly reduces the attraction of public open spaces. But the existence of flexible boundaries in terms of transitional and intermediate zones (semi- public semi- private) which act like link rings, facilitate the movement between private and public spaces, both physically and mentally(Nozari, 2004).

Impact of environmental factors on pedestrian

Environmental factors have a significant impact on residents and their willingness to participate in the residential open spaces. Climate is a limiting factor to use open spaces during extremely hot or cold days. Fresh air, proper temperature, appropriate relative humidity, relatively quiet airflow and protecting against rain provides, perfect and comfortable conditions for human. Micro- climate and topography are also important factors affecting pedestrian. Wind is another climate factors that can be controlled by vegetation or structures. Noise and air pollution as well as other factors impact directly on the residential open spaces (Nozari, 2004; Rostamkhani, 2007; Marcus & Sarkissian, 1986).

Elements and components in residential open spaces

Residential open spaces are regarded as a place for human activities and behaviors. Elements of residential open spaces include walking trails, horse trails, gardens, children's play areas, sitting areas, etc as they can be observed in table 2 and 3.

Table 2. Elements and components in open spaces and their features

No.	Considered aspects in the residential open spaces	Features and specifications of open spaces in residential
1	The residents' expectations from the residential open spaces	To link the residential environment with the spirit of the citizens and to provide sufficient motivations for social life and mobility, the residential environment should be attractive and pleasant, and enhance the quality of life to the acceptable point. Another important factor that must be considered in the design of residential open spaces is providing easy and independent mobility and residents' freedom in in motion. Providing movement security in residential open spaces is another

		expectation of the residents. Providing appropriate conditions to foster creativity and the growth of creativities, promoting personality, and development of constructive social relationships are the other goals of designing residential open space.
2	Activities associated with residential open spaces	<p>Necessary activities including all daily activities such as going to school or work or every day purchases.</p> <p>Optional activities (including talking, walking, breathing, sitting, watching, playing, and enjoying) would be done if the person want and appropriate conditions of time and place were provided. These activities are dependent on the physical conditions of the environment.</p> <p>Social activities that do not depend on the presence of others in public spaces, and include greetings, discussion, group activities and games, or listen to the speech of others. The role of physical environment is effective in shaping the meetings, dialogues and social activities (Gehl, 1987).</p>
3	Hierarchical access	<p>Easy access to public open spaces in residential areas will attract people and activities to these areas. The relationship between public and private spaces and the design of the border area between the two zones are the effective factors in attracting people to the public open spaces and to excrete it. The existence of clear marked land boundaries between public and private spaces which the person is just in public or in private spaces greatly reduces the attraction of public open spaces. But the existence of flexible boundaries in terms of transitional and intermediate zones (semi- public semi- private) which act like link rings, facilitate the movement between private and public spaces, both physically and mentally(Nozari, 2004).</p>
4	Impact of environmental factors on pedestrian	<p>Environmental factors have a significant impact on residents and their willingness to participate in the residential open spaces. Climate is a limiting factor to use open spaces during extremely hot or cold days. Fresh air, proper temperature, appropriate relative humidity, relatively quiet air flow and protecting against rain provide perfect and comfortable conditions for human. Micro- climate and topography are also important factors affecting pedestrian. Wind is another climate factors that can be controlled by vegetation or structures. Noise and air pollution as well as other factors impact directly on the residential open spaces (Nozari, 2004; Rostamkhani, 2007; Marcus & Sarkissian, 1986).</p>
5	Elements and components in residential open spaces	<p>Sidewalks = designing and planning for easy and independent movement of individuals in open spaces has effective impact on increasing safety and pedestrian facilities, especially those with low power. The existing difference in between colors, neighborhood and materials used in flooring can play a positive role in creating different levels of zoning and separation of different levels of a single path (Nozari, 2004; Rostamkhani, 2007; Marcus & Sarkissian, 1986).</p> <p>Riding trails = for quick and easy access to the residential complex traffic arteries should be created and provided the for automobiles movement.</p> <p>Green space = in addition to modifying the urban landscape, have effective roles in providing certain number of the natural elements essential in physical and mental balance of various segments of the people. The people who need to live in the limited spaces including home, work and transportation vehicles need more than ever to relax in natural environment. This issue is especially true for children, youth, and elderlies (Nozari, 2004; Marcus & Sarkissian, 1986).</p>

	<p>Children's open spaces = these places are the first places for children independent interactions to deal with the world out of the house. Children understand their environment with details. Colors, neighborhood, shapes and finally the playground, tempt children to communicate more with the environment and to learn more (Nozari, 2004). In table (2-17), children's playing spaces are classified.</p> <p>The area around the playground should be surrounded and properly covered. Playgrounds can be separated from surroundings by the use of trees and shrubs (Nozari, 2004; Rostamkhani, 2007; Marcus & Sarkissian, 1986).</p> <p>Places to sit = Sitting is under the influence of two specific conditions: the climate and space. According to observations, the benches with more visibility to the surrounding activities are used more than the benches with less visibility to the surrounding. Also the benches with great view of the crowded sidewalks are used more than the other benches (Gehl, 1987).</p>
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Source: authors

Basics of designing residential open spaces

Designing residential open spaces should meet the residents' needs. In addition, existing variety of age groups, different ages and capacities, needs and desires rises over time in individuals with a wide variety of practices should be identified. It is the designer's responsibility to provide the residents opportunities in order to adapt physical and mental development with more comfort and self-esteem. Designing can promote socialization, convenience and consistency with the new environment, safety and comfort or effectively, lead all ideas to the failure. Residential physical and social environment should support human normal activities without diminishing the autonomy or isolation. Thus, the environment should provide the needs for development process in childhood, youth, middle age and old age (Nozari, 2004). Therefore, the Fundamental objectives in the design of residential open spaces are as follows in table 3.

Table 3. Fundamental objectives in the design of residential open spaces

1	It should have physical characteristics necessary for the resident to understand the environment.
2	It should have necessary clarity and readability.
3	It should Provide a good understanding of the environment beauty.
4	It should anticipate spaces for leisure time and recreation of the residents.
5	It should provide the requirements to establish the optimum individual privacy and also a sense of belonging and attachment.
6	It should provide the conditions necessary for peace and harmony with local microclimate.
7	It should provide necessary facilities to meet the residents' needs and their mental and physical conditions, especially children's, elderlies and disabilities.
8	It should provide safety and security for people living in the neighborhood.
9	It should provide convenient access for residents.
10	It should provide suitable conditions for establishing social connections with around people and environment the provide.

Conclusion

Neighborhoods are as a key element of urban life. Considering measures to promote social interactions in the environment, will improve the living conditions of the residents, afterwards improve the residents' quality of life and increase the quality of life in the city scale. Social interactions in neighborhoods will be established on the basis of safety and security in the

neighborhood environment. To increase social interactions, factors such as traffic restrictions both for cars and pedestrians, placing a series of homes in a cluster, the presence of the residents in the open spaces of neighborhood including all ages seniors, children, women, should be considered. Caring the open spaces such as the residents' expectations of this space, associated activities which can be possible to do, Hierarchical access of access and environmental factors that affect pedestrians including sidewalks, driving path, open space, children's play areas, places to sit, will have an important role in enhancing social interactions in the neighborhood environment. The legibility of space, creating conditions for the comfort of residents, providing security and safety for residents, meeting the needs and residents' mental and physical conditions, especially children's, elderlies, and disabilities will be the effective factors in designing residential open spaces in order to create social interactions of the residents and increasing social stability in the neighborhood environment.

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