



**Investigating Movement Patterns in Urban Public Open Spaces and Their
Impact on Urban Design**

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Abstract

The main audience of an urban space is its users, and urban space becomes significant only by the presence of people. Therefore, it can be said that the success of any urban space is due to its response to needs of users and consistency of design (body) and content (behavior). As a result, research on the users of an urban space can be applied as a valuable resource in the planning, design and management of urban spaces. In this way, to measure the responsiveness of an urban space, paying attention to current behaviors and using a variety of behavior settings will be the first step, so that a clear picture of the current state of urban space and consistency between the design and the content can be achieved.

This research aimed to investigate the movement patterns of users in public spaces using descriptive analysis in order to obtain a more complete evaluation and recognition of such spaces.

It was concluded that various patterns, whether in pauses or in movements, can be extractable, and urban public spaces can be better designed by recognizing and predicting each of these patterns.

Key words: Movement Patterns, Open Space, Design

Behavior of environmental users is important in view of the fact that in order to create places, where people want to be present in, it is imperative and essential to practically pay attention to the needs of users with regard to the component and the whole (Whyte, 1988: 24-30), and to this category that how people use a space reflects their wishes (Whyte, 2013: 106).

Activity refers to all actions of human done to meet one of his needs. Despite the wide variety of human behaviors, they can be classified into smaller groups and can be called a certain activity due to their similarity in physical aspect or their contribution to meet human needs (Pakzad, 2010: 41).

The results of Jan Gehl's behavior settings show that people's activities in public spaces are classified into three categories, each of which requires different characteristics in the environment; essential activities, selective activities and social activities. The first category, which is compulsory, includes essential activities and occurs almost in all circumstances, and the surrounding environment has the least effect on their occurrence; activities

like going to school, shopping and other general and daily activities fall into this category. The second category of activities carried out in urban spaces is selective activities which occur only when there is a willing for doing them, and conditions of time and place are favorable; activities like walking, sitting and relaxing in attractive places are classified in this category. The third category is social activities that, depending on the characteristics of urban space, cover a wide range of interpersonal relationships. The specific conditions of spaces for standing, sitting, eating, playing, etc. affect these activities. When the environment is of low quality, only the necessary activities will be carried out, but in environment with high quality, not only the necessary activities are performed, but also the desire to spend more time on these activities increases due to better conditions (Gehl, 1987: 9-14). Due to the nature of the sample, most of the current activities are selective and social.

In addition to standing in one place and recording people's movements, behavior settings can follow specific people and record their movements in particular, which is called tracking. This method is appropriate for measuring the speed of walking and recording where, when and what activity takes place in the direction of individual's movement (Gehl & Svarre, 2013: 28).

How to pause in space directly affects the time spent in space. This is important because longer stops mean greater vitality of cities (Gehl, 2013: 143). The more people are persuaded to stay in urban space, the more purpose of creating lively urban spaces will be achieved. (cooper marcus and fransis, 1998, 346) This analysis will be very relevant to the suitability or inappropriateness of furniture and can be considered as a benchmark in this regard. Comfortable, flexible and safe sitting spaces are the most important prerequisites for the success of urban space and the basic principles for encouraging greater presence in space (Whyte, 2013: 45-50). Stopping in the space under investigation can be divided into three types of primary sitting, secondary sitting and standing. In hot and cold weather, more than half of people stopped in the space, especially in standing form. The main reason for this was the inadequacy of sitting spaces, especially the primary sittings, which were not insulated against hot and cold weather and they were metal. The secondary sittings, which are edges defining the space and are made of stone, are not considered as good insulators of hot and cold weather; however, primary sittings are better than the metal ones. A group of more than four people are reluctant to sit on primary sitting spaces, and if they sit on the secondary sittings and edges, they can barely interact with each other. The fact that more than half of people prefer standing to types of sitting (especially the primary sitting) in the whole space, confirms this subject that the sitting spaces are not appropriate. While standing is generally a short-term activity and the time a person can easily stand is limited (Gehl, 2013: 135).

Conclusion

With regard to the problems discussed about urban open spaces, some suggestions are offered to improve their quality for leisure time of citizens as follows:

1. Planning, designing and creating open urban spaces which are appropriate in terms of number, area and location and are designed based on population in different regions of the city.
2. Considering open urban spaces as one of the structural elements of urban design in such a way that other urban elements are formed based on urban open spaces in urban designing. Therefore, it should be avoided to allocate waste spaces to urban spaces.

3. Maintaining and improving the status of traditional open spaces in order to preserve the urban identity and coordinate them with modern requirements, so that in addition to solving urban planning problems, the subject of cultural and social sustainability in urban community should be considered important.
4. Promoting the quality of urban open spaces based on design criteria and physical and mental needs of individuals, especially the youth, as well as paying attention to the time of using these spaces which are most often used in summer and in leisure time.
5. Designing urban open spaces based on climatic characteristics of cities and creating climatic comfort in these spaces for users
6. Considering cultural and social conditions of city in creating urban open spaces to create attachment and mental health, especially for women and children.
7. Considering appropriateness and identity in urban open spaces in terms of confidentiality, suitable form, texture and materials, appropriate elements and furniture.

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