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An Analysis of the Behaviour of Citizens in People-oriented Suburban Spaces By using Pearson Correlation Coefficient; (Case study: the Centre of Sultan Mir Ahmad Neighbourhood, Kashan)

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Abstract
Studies conducted in the field of behaviour show that the necessity of noticing and determining urban space behaviour in field studies as well as surveys on dynamic small spaces is undeniable. Small urban spaces, including people-oriented spaces, involve social interactions. This study aims to consider the effect of small urban spaces on the volume of people's social interactions and participations. The sample group consists of 184 residents and passers-by in the centre of the Sultan Mir Ahmad neighbourhood on different days of the week and at different times of the day. Information on variables was obtained through the behavioural questionnaire together with the related theoretical analysis. The Pearson correlation coefficient was used to determine the relationship between behavioural indicators and people's turnout, while the regression model was used to determine the weight of each index. According to the studies, components such as awareness, people, purpose, etc. can be impactful from different perspectives in the incidence of behaviour in urban spaces. It can also identify features of behaviour in urban spaces, which can overall be considered in studies on urban space and behaviourism. The results show that there is a significant relationship between the neighbourhood centres considered in the study; five indicators show the correlation to preferential behaviour ranging from 39% (highest) to 19% (lowest).

Keywords: *Suburban space, Neighbourhood centres, Space users, Behaviourism, People-oriented urban space*

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Introduction

In recent decades, people's presence in urban spaces has been the main concerns of urban designers, planners, and landscape architects. Many studies have focused on the concept of behaviourism and people-oriented spaces. The physical environment and everyday life are issues that are crucial in the success of an urban space. Such matter is of utmost importance for urban design due to its closeness to the environmental design and in particular because of the very close relationship with research scholars in this profession. The increasing number of assessment methods in this field shows the importance of both the quality of the human environment and the urban behaviour. Since the 1960s, the importance of identifying the meaning of the built environment and urban spaces for residents or users of space has caused the emergence of intellectual reflections, including projects and studies in the field of urban space (Hall, 1966); (Relph, 1976); (Whyte, 1968); (Lang, 1987); (Theil, 1961); (Barker, 1968). The concept of social petal space was first used by Osmond in a research in the field of patients' social relations in different spaces of a hospital in 1959 (Osmond, 1959). John Lang also conducted some studies about behaviour environment. In his view, people-oriented spaces provide the possibility of participation of citizens in urban space and lead to pause, stoppage, and encouragement in the creation of social interaction. (Lang, 1987)

In this study, after taking into account the general concepts associated with behaviours that occur in urban spaces, behavioural characteristics of thinkers and theorists were scrutinized in order to categorize the types of behaviours formed in the urban space.

Different physical, semantic, and practical aspects in urban space can be expected to meet the needs of space users for an ideal environment for activities and events. Understanding the types of behaviour can provide a useful way to have a closer look at the behaviour of urban space. Such recognition will help the scientists to choose the appropriate method to assess behaviour in urban space. According to research conducted in this matter, sociability, volunteering, and relationship with the environment are characteristics of user behaviour in urban spaces. (Cohen, 1998). Therefore, this study aims to evaluate the relationship in terms of its applicability between the civilian's behaviour and the urban space.

Materials and Method

The aim of this study is explanation behaviours of human in urban spaces by survey methods and recognizing the effective as well as their relationships (table 1) by analytical approach in suggested. The research is based on quantitative and qualitative research methods. Also centre of Sultan Mir-Ahmad of neighbourhood is used as a case study which is unique example of Iranian traditional and historical architecture. This study sought to explain the relationship between a complex set of criteria for determining real-life events in user behavior space. The criteria range from environmental characteristics of the different behaviors that are formed. According to the findings of the content analysis and literature, variables were calculated using the correlation variables of interest (the incidence of behavior) is measured and the relationship between them is examined.Taking into consideration the text analysis method and the objectives, an appropriate questionnaire has been prepared. After determining the sample size, questionnaires were distributed among 184 passers-by and residents of the Sultan Mir Ahmad neighbourhood.The questions were developed based on the types of conduct derived from the literature. To evaluate the results of the questionnaire per behavior were measured. Due to the characteristics of the questionnaire, the Pearson correlation coefficient was used to analyze the data.Following the literature, five issues—preferential treatment, discovery, knowledge, number of people, and the purpose of behaviour—were evaluated. These were scored using the ESA whole five-point Likert scale and were con-

ducted in urban spaces given 0.87 validity by the experts. The reliability of the questionnaire was found to be high and acceptable for the assessment of the research component. To determine the relationship between the obtained indicators, the regression model was used. In this study, given that both variables are studied in relative scale and distance, Pearson correlation method is used. After calculating the total score of the 15 micro-scale behaviours, the score of space users was calculated. Test reliability, using Cronbach's alpha, was found to be 0.81 for the whole test and 0.76–0.89 for each of the micro ones.

Behaviour

Human behaviour is an outcome of motivation, individual needs, the environment, and a person's mental image of the outside world due to the perception and sense this provides to him (Lang, 1987). It is not the physical environment that determines a person's behaviour. Although the environment provides the possibility of the occurrence or aggravation of behaviour, the ultimate determinant of behaviour is the individual and the society. In other words, for people who live with different cultures, space is not Euclidean. Things that are considered terrible or are respected in one society are not necessarily deemed the same way in other communities (Stoetzel, 1995). An individual and/or a community are shaped by interactions with others as well as by the environment. Strong interaction with others can provide a sense of belonging to the place.

Behaviour, as a symbolic act, is only understood in context. Human behaviour is determined by the situation and is formed in the physical, social, cultural, and intellectual context. Lawson believes that people settle where they can enact laws for the location. While some of these rules are subject to social and cultural conventions that are locally present, a lot of them express deep psychological and humanitarian needs (Lawson, 2001). In other words, our relationship with the outside world is not direct; we use a filter between our environment and the outside world. This filter is called mental space. Mental space consists of different layers of norms, values, experiences, and the situation at that moment (light, temperature, etc.). This space is part of the environment that surrounds us and is with us. These concepts were presented by Kurt Lewin (in his field hypothesis. He believes that behaviour depends on the existing field. Lewin(is the founder of topological psychology and is one of the main theorists in the field of human behaviour and its relation with the environment. A perception about each environment plays a major role in behavioural patterns. In analysing human behaviour, Kaplan suggests four steps: first, understanding the environment as well as reflection upon where they are; second, a person's prediction about the environment; third, the goodness or badness of events; and fourth, the degree of natural compatibility behaviour. (Kaplan,2000)

Behaviourism

In the late 1960s, a behavioural movement that grew popular involved an emphasis on human values space—the direct opposite of those who reduce the city space to abstract geometry. Having recognized the behaviour and its driving factors in urban spaces, it has been attempted to provide a proper environment matching the users' needs; i.e. tallying the place and the behaviour.

It seems that the rise of the behaviourism movement is rooted in a critique of modernity. At a time when the ideas and works of modernists were criticized by various groups, some behavioural scientists such as Guttmann and Ganz also criticized the movement. Such criticism was presented in three stages. In the first phase—the 1940s and 1950s—members of 'Team Ten' criticized the modernists. The second phase was in the 1950s. As a result of people's expectations, construction of housing on a large scale as well as the town centre improvement projects.

At this time, people like Jane Jacobs gave even stronger criticism in relation to the effect of

human behaviour and how modernists worked in their field. The third stage, as the result of the emergence of behavioural science, involves identification of humanitarian needs that were previously ignored by the client and designer, also issues related to the design process (Lang, 1987:112). Examples of these criticisms include behavioural studies by Hall or Newman noted as an architect. In the late 1960s, a small change in the form of a movement emerged, which was opposed to quantitative methods and had much more individual orientation to urban studies (Madanipur 1996).

Behaviourism, as a system, is composed of four main groups from the viewpoint of behavioural semantics—social system, individual system, biological system, and cultural system. All these compose the behavioural systems of human beings; therefore, not even one can be omitted or merged into another one. Also, none of these can alone shape human behaviour. It should be mentioned that signs and values play an important role in the emergence, survival, and formation of the nature of the sub-systems and consequently human behaviour as a whole (Bahrainy, 2008). Therefore, it may be that human behaviour has been shaped environmental design. In this issue, one of the basic concepts that must be understood is behavioural setting, which refers to place and behaviour.

Behavioural Setting

From the perspective of John Lang, behavioural setting can be seen as a unit for environmental analysis and design. One of the most important developments in behavioural science, which had a great impact on the design profession, was the creation of a course called ecological psychology by Roger Barker. (Lang, 1987). Space is an important part of behavioural setting, in which we act. Barker explained how our behaviour is either affected or limited by places. He described behavioural setting for the first time and noted that places are connected with the behaviour of the physical environment as well as social contexts. The Dutch architect Aldo Von Eyck has described this nicely with this famous description of place: whatever space and time mean, place and occasion mean more. For space in the image of man place, and time in the image of man occasion. (Lawson, 2001)

Behavioural setting is the proper feature of a human being (Madanipur, 1996). Territory creates a situation and identity that is considered as a unique, patented situation— in either the individual or the social dimensions (Lawson, 2001). Behavioural setting, as the smallest component of life, is defined in the physical environment by three components—physical (design), social (user), and cultural (normative). Based on this, the urban open space, as a part of the physical environment, can be considered as any one setting, depending on the activities that take place within it and the users who occupy it Hence, behaviour can be considered from different aspects that show affecting characteristics in the process of behaviour studies. Based on this, a different approach arises.

Types of behaviour

Various sciences have already considered and examined behaviour bearing a meaning to the outer emergence of activities. Such behaviour has also been classified into different categories for further clarification. Generally, there are many controversial ways to classify human behaviour. The two main perspectives about the extent of environmental impacts on human behaviour are as follows: 1) Environmental possiblism—which means the people's choice from diverse available opportunities 2) Environmental probablism— which means creating further possibilities of choices in a physical environment. The second perspective has been illustrated by Bell through a simple example with a comparison between a seminar and a talk show, where the seating arrangement depends on how the discussion is to proceed among participants. In other words, the behaviour changes by changing the environment and the occurrence of the results seems implicit and unavoidable (Carmona, 2003). Outdoor

activities that depend on the quality of outer environment include selected activities, recreational activities, as well as a considerable part of social activities (Gehl, 1987). Indeed, there is a close relationship between peoples' diagnosis and understanding of an environment and their behaviour in the environment. Meanwhile, what seems clear and certain is the effect of the difference in people's knowledge and insight on the ability to express their preferences about different aspects. This issue—called exploratory behaviour—can be distinguished from people's purposeful behaviour (Zacharias, 2001).

Recognizing the two important dimensions of behaviour can be useful. Sometimes we have vast knowledge about our behaviour while at other times we may be completely unaware of our behaviours. In some situations, but not always, we have full control over our behaviour. On the other hand, conscious behaviours are those behaviours influenced by our experiences, knowledge, skills, and information obtained from and appearing in our surroundings. These behaviours include many of the behaviours in our daily routine. We do the daily routine and know how to acquire them; we also know which factors influence our behaviour. What motivates this type of behaviour is a conscious force (Norberg-Sculz, 2008). Since these two dimensions of awareness and control are independent, we can look at human behaviour through four main sections. Unconscious and uncontrollable behaviour is called 'intuition'. Behaviour that is both conscious and controllable is called 'cognition', including rational thinking and problem-solving. Conscious and uncontrollable behaviour is called 'deed', which includes feelings and emotions. Controllable unconscious behaviour may initially seem contradictory and impossible, but it is not. This type of behaviour includes mental skills on which we rely in our daily lives, such as walking, swimming, or even driving a vehicle (Lawson, 2001)

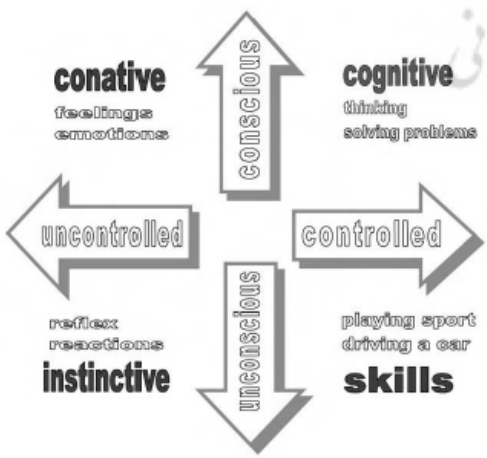

Figure2- simple and useful model about categories of human behaviour (Lawson, 2001)

Classification of human behaviour, based on the participating people, includes individual behaviour and social behaviour. Individual behaviour includes behaviour that is done individually and alone. Such behaviours may occur in public or in private. Individual behaviour is better understood through six separate levels— vegetative, reflex, reactive, motivated, reasoned, and conscious (Baerends, 1976; McFarlannd, 1981; Gerhenson, 2001) (Cited in Centre for Advanced Spatial Analysis quotes [CASA], http://www.casa.ucl.ac.uk/)

Social activities include all types of communication among people in urban spaces and need the presence and participation of people. If there is life and activity in urban spaces, there will be plenty of social interaction. If urban spaces are abandoned, lonely, and without activity, nothing will occur. Social activities include a broad range of diverse activities. There is a lot of of audio-visual passive connection, such as watching people and events. This simple and modest type of interaction forms the most extensive part of social activities in a city. There are also more active connections. People greet and talk to their relatives and friends. In shopping centres, on seating areas, or anywhere people are waiting, some short and accidental conversations would occur. People ask for addresses and exchange brief information about the climate or the arrival time of the next bus. These short communications may result in

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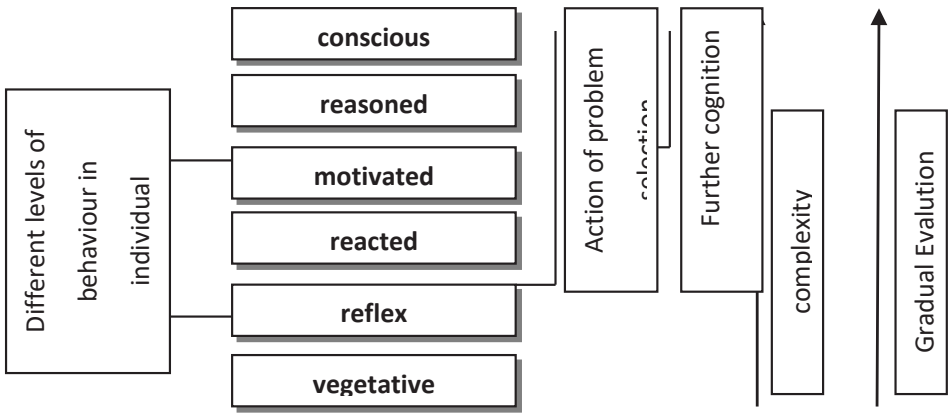

Figure3.hierarchy of individual behaviour (Baerends, 1976; McFarlannd, 1981; Gerhenson, 2001)

broader communications. People may share and discuss new issues and common interests; sometimes, even an acquaintance may be developed. As mentioned previously, auditory and visual activity can be considered to be the most extensive category of social connections. These groups of activities are directly affected by urban planning. It is the extent of the attraction of the environment (atmosphere) of an urban space that makes it so alive and active and gives people the possibility of meeting each other (Gehl, 2004).

Thus there are different behavioural categories from different perspectives. It is necessary to classify these types comprehensively in order to clarify the issue addressed in this paper. Despite the apparent differences in the categories of behaviour, the foundation of each one refers to an individual or an environment. So, for the integration of these behaviours, they can be classified from the perspective of the individual or the environment (Table number 1).

Therefore, different behaviours in urban areas originate from behavioural approaches. Methods that can contribute to the investigation order are further used from reciprocal interactions with environment on the behaviour environment for the development of experience-centred findings and results.

Case Study

The case study lies in the historical context of Kashan and the centre of Sultan Mir Ahmad neighbourhood. The old structure of the historical context has a specific order. The range and borders of the city have been limited by walls and towers to provide security and also limit its development. The local areas were gradually developed. These areas, with respect to some physical properties as well as specific properties of native habitants (religious affiliation, ethnicity, kinship, often the same profession), were specific spatial units that were homogenous and affiliated with the entire of the city, though they were independent. In the past, passages within the context were organized based on the neighbourhood unit and had their own hierarchy; in the structure of contemporary context, passages connect the city regardless of their passive elements. In the present paper, the centre of Mir Ahmad SOLTAN neighbourhood was selected as the sample. The mentioned neighbourhood can be very close to the study objectives in physical dimensions and spatial organization, because it is still associated with the lifestyle and connected texture of the past. Furthermore, there are relationships and connections with tourists here (Figure 1)

Based on the conceptual model of assumptions test, field surveys of the concerned neighbourhood would begin. One of the most important criteria in selecting this place has been the presence of life (Being dynamic). In this regard, 184 questionnaires were distributed

Types of behaviour		Behavioural aspects	The influence (impact)
Preferential behaviour	(Positive)	Cause forming (if not), cause survival (if any)	Environment-Individual
	(Negative)	Leading to loss (if any), preventing occurrence (if not)	Environment – Individual
Exploratory behaviour	Purposeless (untargeted)	Low perception	Individual
	Purposeful (targeted)	High perception	Individual
Behaviour and awareness	Conscious and controllable behaviour (cognition)	Thinking of problem-solving	Individual
	Conscious and uncontrollable behaviour (deeds)	Feelings and emotions	Individual
	Unconscious and controllable behaviour (skills)	Playing games, driving	Individual - Environment
	Unconscious and uncontrollable behaviour (Instinct)	Reflection, reaction	Individual
Behaviour and Goal	Purposeful behaviour	Clear intention and specific purpose	Individual
	Aimless (purposeless) behaviour	Intangible intention and non-specific goal	Individual - Environment
Behaviour and the number of people	Individual behaviour	Done alone	Individual
	Social behaviour	Done with at least two people	Individual - environment

Table 1—Categories of behaviour

among statistical population on working days and holidays and in the morning and afternoon and the obtained results were analysed.

Discussions and Results

The data analysis shows that the population was of different age groups. The highest percentage (number of people) average of ages was between 15 and 40 years old. Tables 2 and 3 show descriptive statistics related to the values of each variable.

Data analysis shows that, in a comparison between the average of urban areas and the behaviour of the user-environment component, average variables for males and females with T-test, i.e. differences between the genders, are not statistically significant. According to a research included in the literature review, the question arises as to whether there is a significant relationship between user behaviour and urban areas. Pearson correlation coefficient was used to determine the relationship. The results indicated that there is a significant correlation between urban areas and user-environment behaviour (r =0.44%) (Table 4).

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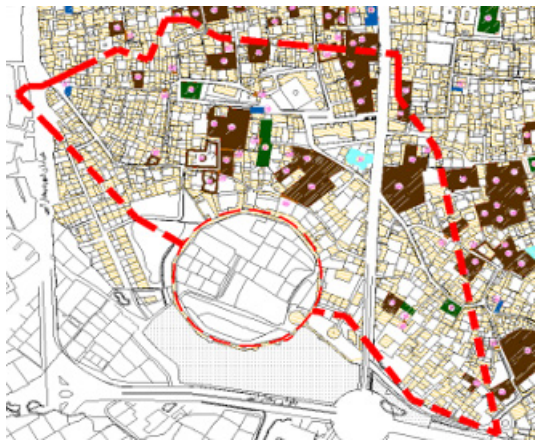

Figure 4. Sultan Mir Ahmad neighbourhood, source: Kashan Municipality, historical context organization

The following question then arises: what characteristics do the established correlations have with regard to the components derived from types of behaviours of user-environment and urban areas? Table 5 shows the correlation coefficient and indicates that correlation coefficient among the components of preferential, exploratory, awareness and components of urban space were in the range of 0.18 to 0.40 for urban users' behaviour, which is significant and positive at 0.05.

Conclusion

The present study aims to investigate the relationship between urban space and users' behaviour in the centre of the Sultan Mir Ahmad neighbourhood. Results showed that there is a significant relationship between the components of urban spaces to the occurrence of behaviour and therefore to the dynamics of the urban environment. Although this relationship is not strong enough in some aspects, the components of preferential behaviour of space (environment) and conscious behaviours occur more often in people-oriented urban spaces. The correlation coefficient of 43/0 implies that the occurrence of behaviour in space can be increased by increasing the sense of dependence to the place and citizen participation and also providing appropriate opportunities for participation in the urban space, resulting in the manifestation of a dynamic urban environment. The present study shows that urban space can be extended because of the relationship between factors affecting urban areas and some user-space component behaviours. The regression analysis between the components of exploratory and preferential behaviour suggests that urban space can provide a necessary condition for citizenship components; however, in order to improve the quality, the user-space participation (engagement) needs confounding variables.

Based on the results of this study, it can be suggested that the appropriate and desirable design of urban space should the priority from urban planners. According to the effective role of such areas in civic engagement, these areas can enrich the urban environment, particularly in the historical context of the centre of the neighbourhood.

Acknowledgment:

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Note:

1. Ecological psychology research has made major changes in traditional approaches. This approach is concerned with the super personal behavior in everyday life rather than a laboratory study of individual's behavior.

Pic. 1 & 2: Sultan Mir-Ahmad neighborhood-newcomers & users

Pic. 3 & 4: Sultan Mir-Ahmad neighborhood- students

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Variables of urban spaces	Frequency		Average		Standard deviation	
	Female	Male	Female	Male	Female	Male
Occurrence of social behaviour	92	53	29.82	30.82	4.82	4.42
Sense of dependence to the place	86	62	25.53	26.53	3.29	3.39
Increase in interactions among people	92	53	20.83	28.23	4.12	4.47
P </ 45 t = / 126						

Table 2—Descriptive statistics of the variables urban areas and occurrence of environment users' behaviour

Variables of user behaviours with environment	Frequency		Average		Standard deviation	
	Female	Male	Female	Male	Female	Male
Preferential treatment	92	53	22:25	23:22	5.98	5.99
Exploratory behaviour	86	62	32.63	25.63	3.23	3.28
Behaviour and awareness	92	53	33.26	24.72	3.25	3.25
Behaviour & Goal(purpose)	86	62	23:22	23:28	4.47	5.28
Behaviour & Number	92	53	23:17	28.18	3.59	3.21
P </ 81 t = / 758						

Table 3—Descriptive statistics on variables of user behaviours with environment

the relationship	urban space	User behaviour
Urban space	1	0.44
users of environment	0.44	1
p> 0.05		

Table 4—correlation coefficient between components

Urban Spaces\ User behaviour component	Occurrence of social behaviour	Sense of dependence to the place	Increased interaction among people
Behaviour Preferential	0.39	0.34	0.34
Behaviour Exploratory	0.32	0.32	0.36
Behaviour & awareness	0.38	0.33	0.31
Behaviour & Goal	0.18	0.13	0.14
Behaviour & Number	0.19	0.18	0.31
P <0.05			

Table 5—Coefficient of correlation in terms of the components of urban space

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