

Enhancing Social Interaction in Residential Complexes

Case Study: Esfahan

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Abstract

Considering vicinity as a mere prerequisite but not an ample cause needed for creation of a relationship, the paper investigates the interfering factors playing a significant role in social life of residential complexes habitats. Data for survey were collected through dividing the residential complexes in two groups of homogeneous and heterogeneous. In this way, we selected four residential complex in Esfahan, using a site-based questionnaire originated from the literature reviewed. As a result, social interaction among residents was measured and significant factors influencing this quality were studied and evaluated. Before which an open interview was conducted with residents and scholars in order to specify the hypothesis of the survey. The results of this study led to the following conclusions. Existence of a base for triple activities supports and facilitates social interaction among residents the most. Prompting a sense of place attachment, privacy and safety consequently correlate with social interaction as an independent factor. After all, social homogeneity has been recognized an influential ground factor.

Keywords: Social Interaction, Residential Complex, Privacy, Safety, Place Attachment.

1. Introduction

Human being is psychologically a social creature who cannot live in loneliness and is always in demand of socializing which is an internal need. Such dimension of human characteristic makes it essential for him to have different spaces ranging from absolutely private in their mind, home as a private territory and public spaces such as neighborhood area (Madanipour, 2008). The only way for the human being to continue his life is to make close relationships with others; which has been the main aim of civilizations and town creations. Town is a place for individuals' socializing and its qualitative divergence from countryside is originated from its quantitative characteristic (Rahimzadeh, 2004). In order to enhance life quality, what is essential to take into consideration is the quality of citizens' relationships. Culture and social norms define the level and the way people tend to interact with each other, while stability of a relationship is undoubtedly the main prerequisite of its quality. A stable relation is tantamount to an unbreakable tie. It creates an actual proportion between two creatures and common characteristics are the key elements which connect them. Through increasing the quality and quantity of the points in common, there would be an increasingly stronger relationship. Public space being the best place for social interaction and communication. It is responsible for development of social capital in communities can only be successful in flourishing personal and social identity in the context of positive interactions and exchanges (Ghazizadeh, 2011). Attractive and desirable atmosphere invites and embraces people. In a case of ignoring citizens standards of a desirable space, the main mission of the space which is emanated from individuals'

presence in it would be eliminated. William White has demonstrated in his studies that the presence of people in space can absorb others in. Jan Gehl proposes that the space prosperity depends on the level of users' interactions. Pakzad quotes from Micherlich that social interaction is one of the essential needs of human beings (Pakzad, 2007). Habermas states that public zone is an inseparable element of a healthy society. Therefore, immersive presence of all habitants should be considered in design of public spaces. Most existing public spaces (which have been the gathering center of the neighbors and also a cause of promotion of an area into a neighborhood) have demoted to a level as low as bypass. Thus, social life has disappeared from and the first sign of which phenomenon is the absence of children and elderly in neighborhoods (Ghasemi, 2005). Nowadays, residential complexes which have the potential of semi-private and semi-public spaces can play the role of local mediator in order to improve social interaction. Given the social interaction is one of the main factors affecting issues such as social sustainability and resident satisfaction, so it can make a significant indirect influence on the regulation of other health related issues, which means that the more social interaction people have with each other, the more satisfaction they would have from living in their housing estate. This would culminate in a sense of place attachment and as a result participate in maintenance and improvement of their residential environment. All of which would lead to a social cohesion and subsequently a much healthier society. On the other hand, with regard to the increase of useful life of buildings, this approach can have a higher economic outcome.

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2. Research Questions

What is the role of environmental factors in improving the quality of residents' social interaction in housing estates?

In this survey, assuming the existence of a correlation between environmental factors and social interaction, the role of environmental factors has been studied from two points of view. The first one of which is not facilitating the conditions for the occurrence of negative interactions and the other one is promoting positive interactions. Generally speaking, the absence of malignant interactions is considered as a prerequisite for formation of benign interactions. Considering a condition proper for tensions and negative attitudes, it would be undesirable for people to interact with each other even if the occasional visits and group activities are supported by architectural design. It seems that the people have no desire to communicate and such unwanted and accidental visits can disturb their psychological comfort. Therefore, what is important to note is to spirit the soul of friendship and camaraderie in housing estates not only urge individual to meet accidentally and expect them to make positive interaction as a result.

Based on studies, usual tensions among residents can be a violation to visual, auditory and olfactory privacy of individuals (Stokoe, 2006). Study of Mariana towers in Chicago showed that sound transition to adjoining apartment units, following with a sense of violation to family spatial territory can make an interruption in residents' social interaction ratified this survey (Newman, 1972). Provided that the context is ready for occurrence of triple activities, named essential, selective and social activities which originated from Gehl pattern, the enhancement of positive interactions can be expected. Meeting the physical and psychological security in a residential environment is another important factor which encourages residents to be active in shared outdoor spaces. On the other hand, considering the fact that social interaction is one of the measures of place attachment, it can be concluded that people tend to be attached to the places where they know others and have connection and relations with (Ghazizadeh, 2011).

3. Literature Review

The main approach of this study is environmental psychology, the context being surveyed is collective dwelling zone and the behavior under study is that of social issues being interpersonal informal relationships. In social science, in a case that one individual's action is followed by another's reaction, such two-way relation is called social interaction. In this case, a social relationship is established between two persons. Moreover, it should be noted that in order for a social interaction to happen, the mere presence of individuals is not sufficient. Take for example two children

playing independently but in a particular place at the same time who cannot be considered as having social relationship. On the other hand, in order to interact with others one should take their expectations into consideration (Giddens, 1994).

Josef Forgas indicates in his social researches that the architectural space is a significant factor affecting individuals' interactions. It means that human being is flexible enough to change his behavior based on the architectural features of the space he lives in (Forgas, 2000). The social distance defined in this survey is that of Edward T.Hall mentioned in his theory of "proxemics". Altman states that the amount of positive social interaction among people varies in different situations and even in different periods of the day and it is to achieve a desirable level of privacy (Altman, 2003: 138). "Creating harmony between privacy and social interaction can be obtained through both physical and cultural concepts" (Einifar, 2000: 109). Moreover, Serge Chermayeff and Christopher Alexander confirm the close relation between "privacy and social interaction" (Alexander&others, 1371).

On the other hand, Torsten Hagerstrand has presented a method for analyzing activities in the contexts of time and place which is well-known as "geography of time". This method investigates the way physical environment influence the individuals' and groups' activities (Giddens, 1994: 142). It is believed that "proximity", "congruence", "density", "location" and the "aim" of the initial factors are the primary cause of the interaction among people and can be culminated in cooperation and competition. John Lang argues that different architectural spaces can be "preventive" or "facilitator" of the individuals' behaviors but is by no means a "determinant" for behaviors. Therefore, the final outcome of the interaction between man and architectural space is not possible just through "adaptation" of the behavior with space. The coexistence between behavior and the environment is the result of "conditional correlation" between these two through the man final decision according to his physical and intellectual abilities, needs and social norms and cultural intermediaries (Lange, 2004: 54).

Tony Cassidy claims that "in a condition of being homogenous in public spaces, people have more opportunity to interact and in the contrary heterogeneity increases the probability of interaction." Herbert Gans believes that "a potential architectural space provides a wide range of opportunities to meet the personal needs, however it is the effectiveness of the spaces that can be served as a determining factor." Therefore, the way of using an architectural space highly depends on the number of "opportunities" and "quality" of them (Rappaport, 2009:86). As mentioned before, a number of similar studies have been conducted in other countries but considering the point that

social interaction is influenced by cultural features of the context and local elements, so the necessity of surveying this issue in Iran was tangible.

Zarghamie (2010) showed -in a poll with professionals of Iranian architecture around the determinant factors of social sustainability in residential complexes- that the less the social interaction, the less the safety of these buildings would be and vice versa, evaluates safety and social interaction as the parameters of social sustainability. In an article entitled "The effective environmental factors in designing the residential complexes", Einifar (2000) defines the effective factors on formation of residential complexes in three major scales. Among which, the second scale relates to the establishment of a balance between privacy and social interaction, sense of safety, navigation, pedestrian access and car access in housing estates. Talebie (2004) has studied the social relations in an urban scale in a research conducted in building and housing research center. In this research, he proves that gathering of the people is the prerequisite of all the events, however the activities that have the potential of being developed is more important, take for example social and recreational activities. In this regard, the quality of different parts of the outdoor spaces is of high importance. In a case of being attractive for activities like juggling, standing and sitting, there would be a good base for formation of other activities including social ones. Moreover, it turns the flexible boundaries into the zones that are not absolutely private or public, having the role of a connector which facilitates the activities of the individuals physically and mentally.

4. Surveying effective environmental factors and determining the research hypothesis

Privacy achievement: In housing design, privacy and social interaction are two concepts that should be in balance with each other. Overemphasis on privacy would result in isolation and out of control interaction would lead to a loss of private life (Einifar, 2000:109). As there is evidence showing that the more there is overcrowding in high density residential environments, the less the neighbors have positive social interaction with each other (Altman, 1975) (Forrest, et al., 2002) (Ginsberg, et al., 1985).

In the scale of residential complexes, there is another way of controlling the privacy which is establishing a defined hierarchy of open spaces as "public", "semi-public", "semi-private" and "private" (Einifar, 2000:109). Territory is another mechanism for managing the space between ourselves and others which is achievable through personalization and ownership.

Triple activities: Whatever man does is in response to one of his needs and that is called activity. Activities are categorized in three groups in terms of being compulsory or optional:

1. Essential activities: which are almost compulsory including the daily activities of people like going to work or school or shopping.
2. Selective activities: which are not vital and would be done in appropriate situations. Otherwise, people feel no need for accomplishing them like recreational activities.
3. Social activities: which depend on the presence of other people and are almost impossible to be accomplished in a non-collective basis.

Place is the main element for an activity to be accomplished. For essential activities as being compulsory, this factor does not play a significant role. However, selective activities basically depend on good environmental and physical conditions otherwise they will be ignored. It is the space and its quality which are effective on social activities but as the presence of other people is the main prerequisite for this kind of activity, physical environment's role is less highlighted. In the case of this kind of activity, the place acts as an absorption element which provides a good context for new activities to be started.

Integrating the activities: Space can provide the possibility of interacting the activities and individuals with each other. In this way, the people who are engaged in an activity could simultaneously be engaged in other activities as well.

Safety: Psychological aspects of security in residential areas should be properly studied and understood in every culture and context. These aspects are influenced by a number of factors such as social and cultural features of the residents, physical access for potential intruders, protecting the territory and caring for the access routes and possible interruptions. However, it is noticeable that architectural design cannot establish safety in residential environments by itself and it is the community participation and management that can make a good architecture more successful in this ground.

Social spectating is a very valuable element in development and continuity of social life. It is why lots of violations and crimes occur in hidden angles of social relationships which are not observed (Tuan, 1977). "The more highlighted the presence of people, the less possible the occurrence of crime" (John Lang, 1383: 96) and this is the matter of a wide range of actions and behaviors including individuals' wearing to crime. Therefore, the most determining factor for establishing safety in a place is the presence of people and it is achievable through designing defensible spaces in residential complexes and increasing residents natural spectating. On the other hand, given the inevitable role of children as a connector between their parents to have social relationship, it is essential that the open space and playing area of residential complexes be safe enough in order to make parents confident to let them play with each other. Car access is an element that can have a negative impact on this issue, so it should be noticed that separating the vehicle

access from walking path and children playing ground can play a significant role in providing the sense of safety.

Sense of place attachment: Sense of belonging is developed in engagements of individuals' activities and their environment (Altman, et al., 1992), (Relph, 1976). Engaging with physical and social environment would result in the formation of an emotional, behavioral and cognitive connection which is the outcome of individuals' attachment to their environment (Bonaiuto, et al., 1999), (Green, 1999). Such emotional connection is influential on users' behaviors and activities. Regardless of environmental and spatial features, one of the aspects of the sense of attachment is derived from the social ties and human interactions in such space. In this case, place would have be of unique qualities for different individuals and through his social interaction he would be attached in the place (Ghazizadeh., 2011: 109).

Social homogeneity: Another ground factor which forms social interaction and residents' satisfaction is similarities in terms of age, occupation, family statue and the size of the family (Jephcott, et al., 1971). In fact, neighbors' relations correlate with their mutuality in life style, ageing group, ownership type, race and religion (Ginsberg, et al., 1985). Therefore, five independent factors correlating with social interaction as dependent factor shaped the hypothesis of this research as follows:

First hypothesis: There is correlation between residents' privacy and their social interaction in residential complexes of the city of Esfahan.

Second hypothesis: There is correlation between the existence of a base for triple activities and residents' social interaction in residential complexes of the city of Esfahan.

Third hypothesis: There is correlation between residents' safety and their social interaction in residential complexes of the city of Esfahan.

Forth hypothesis: There is correlation between residents' sense of attachment and their social interaction in residential complexes of the city of Esfahan.

Fifth hypothesis: Homogeneity of the residents in residential complexes plays a ground role in determining their social interactions.

5. Research Methodology

In this research, both quantitative and qualitative methods were used in order to gather data. In the first step, features of the residential complexes were defined as independent factor and residents' social interaction as a dependent factor. Afterward, for deriving the effective features of residential

complexes on social relationships in the residents' point of view, some open interviews were conducted. The base of sampling was on theoretical saturation. These interviews were recorded and heard by researchers in order to derive the research codes. Then content analysis was conducted and in this way some themes in interviewees were converted into codes and classified in four general categories. In this regard, literature review was implemented in order to make sure that categorizing the data is correct and to increase the validity of the research.

In the next step, with reference to the research literature each of the four issues were studied and their operational definition were determined in order to be used as measurement indicators for questioner. Moreover, for examining the fifth hypothesis, two homogeneous and two heterogeneous residential complexes were selected in the city of Esfahan.

Each factor depending on its importance and range consists of some independent variables. By means of load factor method, effective measures on independent and dependent variables were specified and the amount of their contribution in defining the hidden variable was specified.

5.1. Target population and sample size

The target society of this study was selected with regard to the definition of residential complexes. As the word of residential complex includes a wide range of buildings, so in order to have a more precise research study just residential buildings with the area of 10000 to 35000 square meters being between 2 and 6 levels were chosen as the target population. Therefore, Bagh Sarv and Moshtagh residential complexes among the homogeneous ones and Zeitoun and Malekshahr among the heterogeneous ones were selected. The number of these four residential complexes was 2865 as a whole.

The sample size was specified through using Cochran formula. After replacing the undesired probability (q), desired sample probability (p), the number of target population (N), confidence level (t) and confidence interval (d) in the estimating sample size formula, the sample size was specified. It should be noted that the amount of probability (p) and improbability (q) were defined as 0.5 and 0.5 which indicates the maximum possible heterogeneity in the target population in social science studies. Moreover, the probable precise amount is considered to be 0.05 which is the critical point in social science studies and more than this value is not accepted as error rate.

Table 1
Cochrane formula and the imputed

Number of target population	Possible accepted Error rate	Desired sample probability	Undesired probability	Confidence region
2865	05/0	5/0	5/0	96/1

$$n = \frac{\frac{t^2 pq}{d^2}}{1 + \frac{1}{N} \cdot (\frac{t^2 pq}{d^2} - 1)} = 340$$

$$n = \frac{\frac{1/96^2 \times 0/5 \times 0/5}{0/05^2}}{1 + \frac{1}{2865} \times (\frac{1/96^2 \times 0/5 \times 0/5}{0/05^2} - 1)}$$

Therefore, a sample size of 340 individuals was selected but with considering the possibility of unanswered questioners 352 questionnaires were provided and in each of four residential buildings 84 questioners were distributed and all 344 ones were answered.

5.2. Validity of the questionnaire

In this survey, the validity of the content was examined in three steps:

1. Reviewing the theoretical and empirical literature of each hidden variable and specifying the dimensions of the concept.
2. Designing the questions to assess the dimensions of the concept and selecting proper questions among them (sample validation).
3. Approving the questions by some sociologist and experts (formal validation) (figure 1).

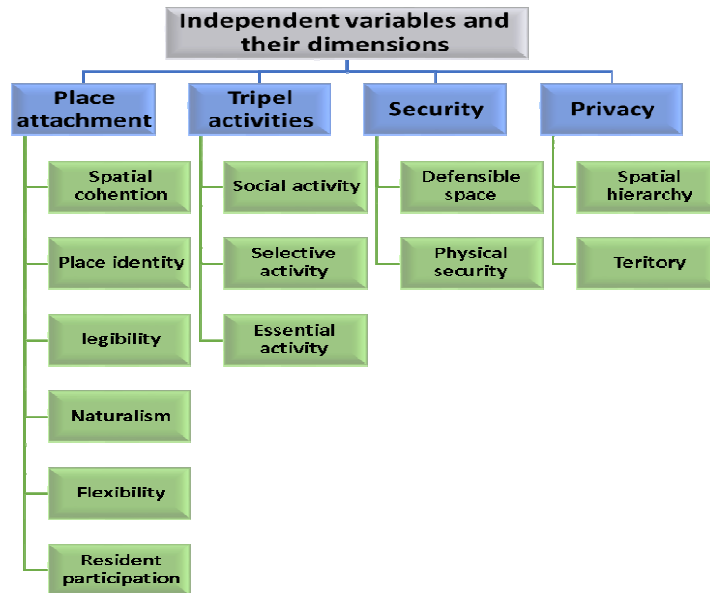


Fig. 1. Independent variables and their dimensions

Moreover, construct validity through Amos software was implemented for social interaction and other independent variables separately. Variables' and their dimensions' reliability were measured by Cronbach's

alpha coefficient and the minimum value for confirming the reliability of variables was considered to be 0.7.

Table 2
Validity of reliability of dependent and independent variables measuring scales

Measures	Social interaction	Privacy	Security	Triple activities	Place Attachment
CMIN/DF	2.03	2	2.04	3.01	1.08
CFI	94.	91.	95.	89.	97.
RMSEA	05/0	03/0	05/0	07/0	02/0
Cronbach's alpha	69/0	71/0	70/0	73/0	88/0

6. Findings of Research

Descriptive statistics: In the studied sample, 48% of the participants were male individuals and the rest were female ones. 1.01 % of the participants had Doctorate degree, 5% had Master’s degree, 43% Bachelor degree, 30% High school diploma and 20% of the participants did not have High school diploma. In terms of social level self-assessment, 19.1% of the

participants assessed their own social level as the highest, 30.6% average, 31.2% low average and 19.1% thought of themselves as being the lowest level.

Analytical statistics: In this survey, the Pearson correlation coefficient and regression models were used to examine the relationship between the independent variables and dependent variable.

Table 3
Correlation between independent variables and dependent variable (social interaction)

Place attachment	Security	Triple activities	Privacy		
50/0	271/0	49/0	35/0	Pearson correlation coefficient	
000/0	000/0	000/0	004/0	Significance level (sig)	Social interaction
344	344	344	344	Number of participants	

As shown in table 3, Pearson correlation coefficient in relation to each of the independent variables with dependent variable is greater than zero and Significance level is fewer than 0.05. Therefore, there is a significant relation between all independent variables and dependent variable (social interaction) and as a result, research hypothesis are confirmed.

Multiple regression coefficients: It is a method for studying the contribution of one or more independent variables in predicting the dependent variable.

The results of the multivariable regression analysis for determining social interaction indicates that for the variables in theoretical model of the research, all four factors have a significant effect on this

dependent variable, so they remained in the equation. The explanation coefficient shows that in this model, the factors in the equation explain almost 48% of social interaction variance and the rest of it is explained by external and unpredicted factors. Obviously enough, social interaction of the residents is affected mostly by “activity” and “place attachment”, “privacy” and “security” consequently.

In regression models, the best measure for approve or reject of the model is explanation coefficient (Ghasemie, 2010). The explanation coefficient of this model is 0.48 and the result of regression model can be seen in tables 4 and 5.

Table 4
Significance level of independent variables on dependent variable

Model	Standardized Coefficients		t	Sig.
	Beta			
Privacy	0.354		2.448	0.036
Triple activities	0.404		4.055	0.000
Security	0.277		1.790	0.04
Place attachment	0.385		3.423	0.001

Table 5
Multiple regression analysis of social interaction

Model	Regression coefficient	Explanation coefficient	Adjusted R Square	Std. Error of the Estimate
1	0.695 ^a	0.48	0.43	4.58856

The fifth hypothesis investigating the homogeneity of the residents as a ground factor which could affect all other factors is shown in figure 2 indicating how it

can be influential on social interaction of the residents.

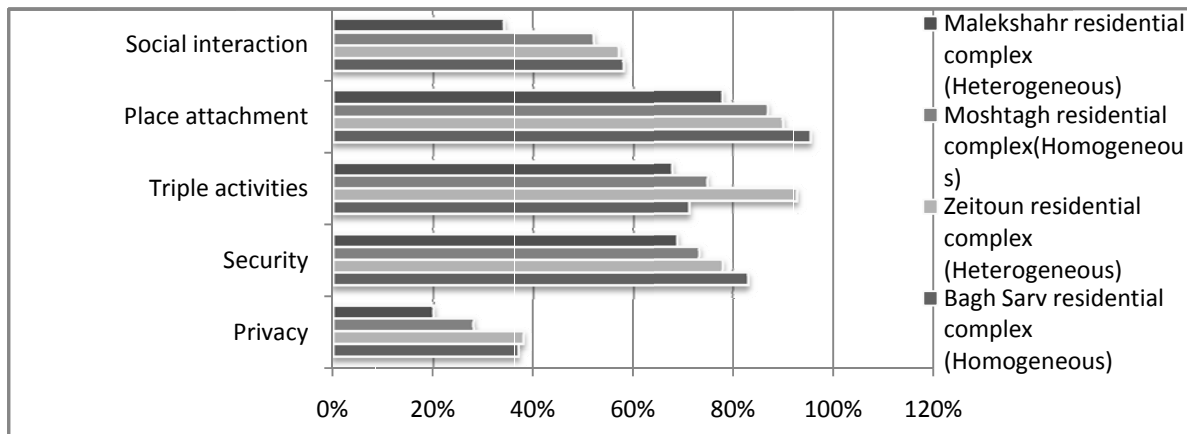


Fig.2 . Comparison of the results in four residential complexes

As indicated above, social interaction of the Bagh Sarv residential complex is more than three other ones, while according to the results of regression analysis, triple activities variable as the main influential factor is in its highest rate in Zeitoun residential complex and it is expected that the social interaction in Zeitoun would be the of the best quality in this complex and more than Bagh Sarv. Therefore, the fifth hypothesis is proved since homogeneity and occupational resemblance of the residents has changed the predicted results in these four residential complexes.

7. Conclusion

According to the results of the survey, absence of negative interaction is the prerequisite of formation of positive interaction in residential complexes. After regulating which, it would be possible to enhance social interaction in housing estates. Resident's social interaction in such environments is affected firstly by the existence of an appropriate place for the activities which Gehl has named necessary, selective and collective ones. It is said that a well-organized condition for conducting the activities and mixing them with each other will culminated in a face to face relationship among individuals that would result in more rooted friendships and at the end to a social cohesion. Outdoor spaces of residential complexes can be the context of Gehl triple activities more than any other space; functional distance which is the shortest distance between the entrance of residential units and essential activities places. Shopping center, mosque, parking lot and the main entrance of the estate is the most potential place for face to face relationships. On the other hand, it would be complementary if selective activities are organized in

this path which is to get to essential and collective activities. Furthermore, considering different age group's needs, this road would be more active.

Second influential factor is sense of place attachment. It can be enhanced through its dimensions which are identity, naturalness, flexibility, spatial integrity and community attendance.

The third important factor for residents' social interaction is the level of privacy they experience in their home, which is one of the factors whose absence in habitation estates can lead to negative interactions among residents. The reason is that the individuals feel disable of controlling the situation and this may result in not tending to have positive interaction with each other. In this regard it is recommended for property's boundaries to be defined obviously and it requires a spatial hierarchy which is attainable in existence of a zone as semi-private between private and public zone.

Safety is the fourth factor who encourages residents to spend their spare time in public spaces of their residential complex. On the other hand, evidence shows that parents have a tendency for getting acquaintance with the parents of their children's friends on a condition that the outdoor of complex will be safe enough which will be obtained through separating walking and driving paths and also enhancing the possibility of indirect supervision on them through architectural design.

After all, social homogeneity was studied as an influential factor which can catalyze the interaction among residents and can compensate for other four mentioned factors. It would be recommended to consider social background of the residents in housing planning, in order to put individuals with similar religious, cultural and occupational features in separate groups.

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