Spatial-Social Place Attachment:
Impact of Spatial-Social Co-existence on Place Attachment in Sociable Places of Architectural Schools Setting;
Case Studies: Art University and Azad University of Architecture, Tabriz, Iran

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Abstract

The present study is focused on place attachment from environmental designers' point of view. The study's aim is to offer a helpful and practical model of place attachment for its audience; this is done using the Spatial-Social Place attachment (SSPa) model. Based on this model's hypothesis, place attachment has two aspects: spatial and social; a purposeful and methodical (systematic) study of these two aspects produces reliable and practical results on the subject of place attachment for architects and environmental designers. To study and complete the proposed model, the writers selected architecture schools located in Tabriz as their behavioral settings. Based on the SSPa model, visual base systematic field studies, mental mappings, behavioral mappings, deep interviews, and direct observation of case studies were conducted. Ultimately, designing recommendations in the form of factors influencing place attachment in the faculty's gathering places are as follows: 1) physical form; 2) activities; 3) climate; 4) views and landscapes; 5) privacy; 6) elements and furniture; 7) places in the vicinity of a gathering place. By specifying the factors influencing place attachment in behavioral-social settings, the practical outputs of this study intended for designers and architects proved the validity and efficiency of the SSPa model.

Keywords: Place attachment, Spatial-Social place attachment, Architecture schools, Sociable places, Iran.

1. Introduction

1.1. SSPa, an appropriate model for environmental designers

Attachment to a behavior setting has received considerable attention in the environmental design and environmental psychology. On one hand, place attachment is regarded as an important issue in environmental psychology (Raymond, Brown & Weber, 2010) and some researchers have tried to expand the multi-faceted and non-designing-related aspects of this issue by offering models designed based on mostly quantitative methodologies (Hamzeieha & Tabibian, 2018; ABU-GHAZZEH, 1999; TVERSKY, 2003; Hipp et al., 2015; Moos, 1978). On the other hand, according to Lang (1987), designers have complete freedom to develop pseudo-scientific theories and models with better prediction abilities in the realm of environmental design by making use of paradigmatic theoretical principles. By considering these issues, in the present study, attempt has been made to propose a comprehensive model in which two seemingly different approaches to place attachment are inclusively merged. Thus, beyond their own paradigmatic theoretical principles, designers take both social and spatial aspect into consideration in order to boost place attachment in users. Regarding these two approaches, one is related to sociologists and psychologists and another is concerned with environmental designers and architects (Whyte, 1980;

Lynch,1960; Hidalgo & Hernandez, 2001; Hummon, 1992; Moore & Graefe, 1994), are: 1. place attachment influenced by people's social relationships, personal relationships, behavior patterns, mentalities, mentions, and beliefs; all of these factors can be considered as one approach called "Social Place Attachment"; and 2. place attachment influenced by physical architectural elements, spatial configuration, form, and geometry; all of these factors can be categorized under one approach called "Spatial Place Attachment" (McMillan & Chavis, 1986, p. 9; Mannarini et al., 2006; Francis et al., 2012; Mehta & Bosson, 2010). Therefore, in order to develop the SSPa (Spatial-Social Place attachment) model, both phenomenological and scientific paradigms have been used, i.e., comprehensive field studies based on observation and collection, and graphical and statistical analysis methods.

The main purpose of the current study is to offer a model with which designers could identify the spatial and social factors influencing place attachment and use them in designing public space. The goals of the current paper are as follows:

1. Offering a spatial-social place attachment model
2. Offering and explaining multiple methodologies for studying this model and arriving at practical results for users
3. Finally, in addition to confirming the efficiency of the proposed model for designers, a list of

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recommendations for managing people's attachment to behavioral-social settings will be presented.

1.2. Sociable places, an appropriate case study to be analyzed using SSPa model

A group of studies has shown that the concept of place attachment is closely related to place identity (Proshansky, Fabian, & Kaminoff, 1983, p. 59). Place identity is a cognitive structure which contributes to the social identity process (Pretty, Chipuer, & Bramston, 2003). Therefore, place attachment is realized in accordance with the definition of place identity in sociable places (Hay,1998; Uzzell, Pol, & Badenas, 2002; Hernandez et al., 2010); and this is one of the reasons why sociable places were chosen to study place attachment in public spaces.

Generally, sociable places have the main characteristics of a behavioral setting. (Fig. 1) There are four reasons for this (Carmona et al, 2010; Gehl, 2010; Madanipour, 1996; Whyte, 1980; Lynch, 1960): first, these places are behavior-bound; that is, they provide appropriate contexts for the right social behaviors and relations to occur between people. Second, their configuration indicates the spatial and formal features of the place. Third, they are time-bound; that is, they provide a context for various behaviors and events in different time periods (Spartz & Shaw, 2011). Fourth, these places are effective in shaping the users' mental images (Shamsuddin & Ujang, 2008; Schulz, 1991); therefore, in these places, both the spatial and social aspects can attach people to a place.
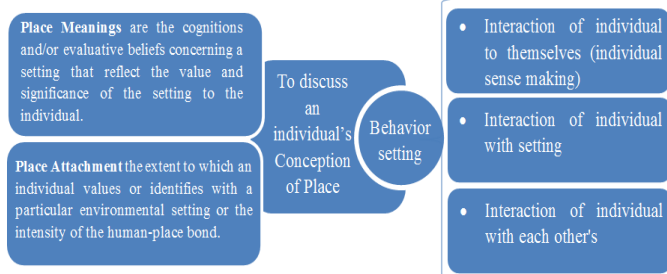

Fig. 1. Analyzing the meaning of place, place attachment, and behavioral setting using the literature review.

On the other hand, sociable places are suitable behavioral settings in educational environments. Therefore, developing clearer architectural methods for designers can contribute to the socializing of students, their cognitive development, and fulfilling their individual and collective needs (Kasalı & Doğan, 2010). On a macro scale of public spaces, considering the writers' life experiences, sociable spaces in faculties of architecture have been selected.

In addition to attending classes, college students and users of educational places spend most of their time in outdoor and collective places. Quality and the amount of time spent in these places are not only influenced by social and physical reasons but also the meaningful relationship with several place attachment elements such as understanding, becoming bond of, and mental-

behavioral factors (Lee & Shen, 2013), or several aspects of place attachment (such as place identity and place dependence) (Kyle, Jun, & Absher, 2014; Anton & Lawrence, 2014). These places provide an opportunity for spending free time, entertainment, being close to nature, and so on. These places play an important role in bonding people to the premises especially in educational environments (Abu-Obeid & Al-Homoud, 2011).

1.3. Literature review

The ways in which people interact with each other and places are important for both environmental designing and behavioral sciences (Rollero & Piccoli, 2010). Experiencing the place has been studied from different aspects such as a sense of place (Husserl, 1954; Jorgensen & Stedman, 2001), place dependence (Stokols & Shumaker, 1981), community sentiment (Hummon, 1992), sense of community (McMillan & Chavis, 1986), and community identity (Puddifoot, 1994). Among all these aspects, the idea of place attachment is a shared concept (Altman & Low, 1992; Brown, Perkins, & Brown, 2003; Giuliani, 2003; Herna, SalazarLaplace, & Hess, 2007; Hidalgo & Hernandez, 2001; Knez, 2005; Lewicka, 2005; Manzo, 2003).

1.3.1. Place attachment

Place attachment is a process (SUGIHARA & EVANS, 2000) and a multi-faceted and the complicated phenomenon which includes several aspects of people-place bonding and also deals with mutual effect and emotions, knowledge, beliefs, and behavior in reference to experiencing a place (Altman & Low, 1992; Chow, 2008); this phenomenon has been studied by many researchers (such as Billig & Zorkraut, in press; Giuliani & Feldman, 1993; Low, 1992; Mesch & Manor, 1998). Place attachment is an emotional bond between the individual and the environment (Sattarzadeh, 2018; Fried, 2000; Hidalgo & Herna´ndez, 2001; Altman & Low, 1992; Relph, 1976; Schumaker & Taylor, 1983; Tuan, 1974; Tuan, 1977; Qian, Zhu & Liu, 2011). This environment includes the constructed and the social place as well.

1.3.2. Social attachment to a place

Some mentioned studies formulate a place attachment as a social phenomenon following the same rules as place identity (Tajfel, 1981; Tajfel & Turner, 1979; Twigger-Ross & Uzzell, 1996). Also, some researchers stress the fact that behavioral aspects such as social participation and activity remarkably influence the development of place attachment (BILLIG, 2006). According to these studies, social attachment to a place is a fundamental aspect of place attachment.

1.3.3. Spatial attachment to a place

Place attachment can strengthen the relationship between an individual and a behavioral setting (Hidalgo &

Hernandez, 2001; Hummon, 1992; Moore & Graefe, 1994); this issue has often been overlooked by researchers of social sciences (Creswell, 2003) and this makes it necessary to study spatial attachment to place. In fact, a user is attached to a behavioral setting when his functional needs are met (Williams et al., 1995; Korpela, 1989, Korpela et al., 2009) and that place incorporates the triple elements of cognitive, affective, and conative types simultaneously, which is undoubtedly a result of spatial qualities and formal characteristics in that place (Jorgensen & Stedman, 2001; Low & Altman, 1992; Scannell & Gifford, 2010; Kyle, Jun & Absher, 2014).

Place is made up of three broad and interrelated parts: first: form and spatial configuration or physical settings; second: meanings, attitudes, and beliefs influenced by the individual's internal psychological and social processes; and third: behaviors and activities carried out in the place (Canter, 1977; Relph, 1976; Canter, 1997, Smaldone, Harris, & Sanyal, 2005; Stedman, 2003; Stokols & Shumaker, 1981). (Fig. 2)
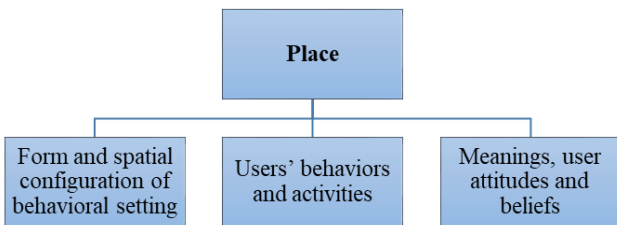

Fig. 2. Theoretical conceptualizations of place (Relph, 1976; STEDMAN, 2002); the triple general model for place: 1. form and spatial configuration of behavioral setting; 2. users' behaviors and activities; 3. meanings, user attitudes and beliefs.

1.3.4. The base model

In the current study, Scannell and Gifford's model (2010) has been used as the theoretical framework (Fig. 3) and the SSPa model has been developed based on this model and also the field findings of this research.
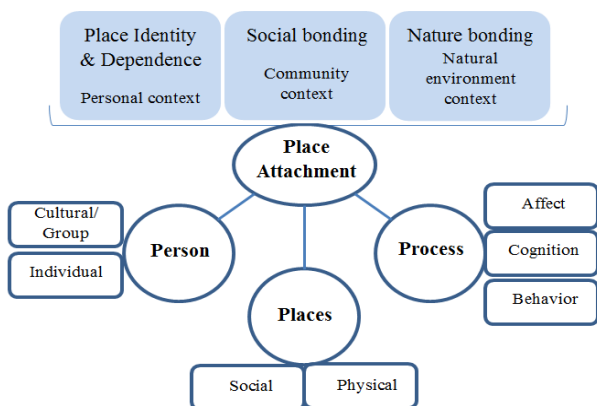

Fig. 3. The tripartite model of place attachment and community context model of place bonding.

The triple aspects of this model contribute to a general understanding and classification of the topic. Such models

are familiar for environmental psychologists; however, using them seems to be difficult but necessary by the environmental designers and architectures for the following reasons:

- Due to the education they receive in college, designers and especially architects are naturally closer to artistic creation and phenomenological analytic-descriptive discussions.
- On the other hand, although designers' general community rarely make use of research and analysis techniques due to their lack of familiarity with statistical tests, environmental designers today need to utilize scientific methods to develop behavioral-environmental models with better prediction abilities. Therefore, it seems necessary to develop innovative models using research methods and visual base, a familiar tool for designers, which leads findings in environmental psychology to clear design recommendations.

2. Materials and Method

2.1. Case studies

Gathering places have been analyzed in two architecture faculties: Tabriz Islamic Art University located in downtown Tabriz, and Islamic Azad University of Tabriz located 12 kilometers east of Tabriz. These two faculties have been chosen for the following reasons: 1. considering the group and workshop activities, there is an intimate social relationship between students in architecture faculties. Therefore, these places are good cases for the SSPa model; 2. One of the study methods in the present paper is mental mapping; because of their familiarity with sketching and graphic presentation and expression, architecture students can offer better and more practical drawings. Since both colleges are based in Tabriz and students in both faculties have the same major, our study's variety in terms of culture and also educational degree and major was reduced and this will help homogenize the cases as much as possible. Another important parameter is the different architectural style of these two colleges; the building of Tabriz Islamic Art University's faculty of architecture is a classic collection of ancient houses dating back to more than 150 years ago which have been rehabilitated for current use. The presence of central courtyards inside this building has caused most of the gatherings to occur in the spaces related to them. In comparison, Islamic Azad University's faculty of architecture has a modern building aging around 15 years and most of its gatherings are held in indoor spaces. This variety of spatial makes the results of our research more comprehensive and valid. (Fig. 4)
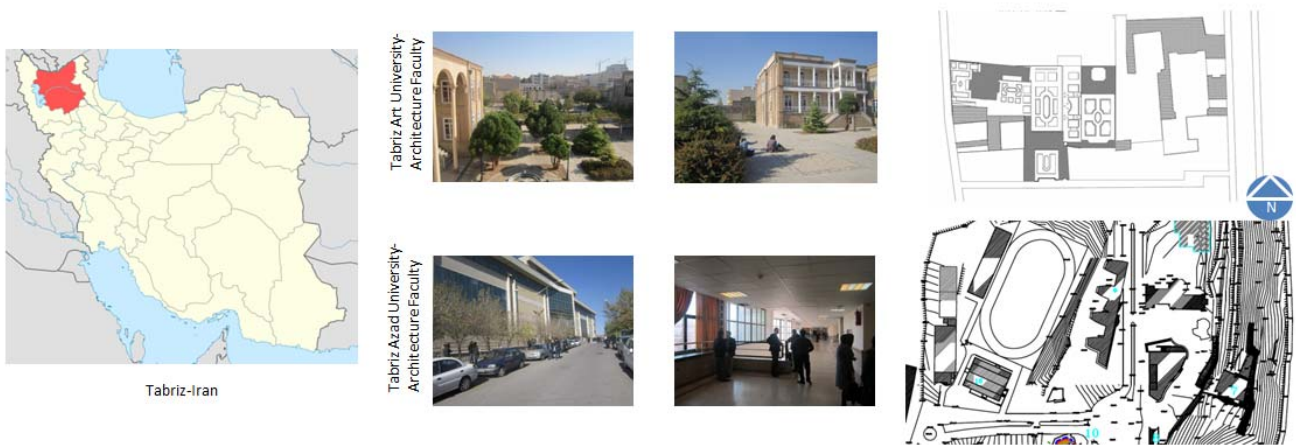
Fig. 4. The location of two architecture faculties studied here: Tabriz Islamic Art University and Islamic Azad University of Tabriz, Iran; Tabriz Islamic Art University is located downtown, and Islamic Azad University of Tabriz is located in the eastern suburbs.

These data were collected between February 2014 and January 2015. The approximate number of students in Tabriz Islamic Art University was 285 and in Islamic Azad University of Tabriz 365 and in total, 650 based on year-student. Gender distribution, which follows the rules and regulations of the Iranian system for university student admission, was %51 male – %49 female (due to an equal university student admission system for both genders in two semesters) for Tabriz Islamic Art University and %57.5 female – %42.5 male for the Islamic Azad University of Tabriz. The students' ages range from 18 to 34. According to statistics provided by the faculties, %85 of students in the Islamic Azad University of Tabriz and %65 of students in Tabriz Islamic Art University was natives to East Azerbaijan province, and %25 of them were from neighboring provinces with very similar cultures and backgrounds; therefore, a large part of the cultural variables of the study can be excluded.

2.2. Methodology in general

In the SSPa model (section 1-1), methods for case studies are chosen in a way that both spatial and social aspects are included. Therefore, studies are done in the following two scopes:

1. Study of observable cases:
   a. Physical form of behavioral settings;
2. Behavior and activities of users. Field observation methods, mapping, pictures, and 3-D models, daily note taking and behavior mappings (BM) for recording users' behaviors and the relationships between these behaviors and the physical form of behavioral settings are recommended.
3. Study of non-observable cases:
   a. Ideas and thoughts;
4. Satisfaction level and opinions about the current status. Methods such as deep interview with close-ended questionnaires and mental mappings for users' mental and cognitive studies are recommended. (Fig. 5)

2.3. Methodology for observable case studies

2.3.1. Observation

In the study of sociable places, due to having both behavioral and cognitive approaches (Gehl, 2013), it is necessary to carry out planned and systematic field observations before starting to design (COSCO, MOORE & ISLAM, 2010). To do so and to create a comprehensive list of users' activities, certain site zones are monitored. (Fig. 6) The monitoring is repeated until no new behavior or activity occurs in the spaces (in the case of this paper, it took three months). The recorded behaviors are necessary for encoding and qualitatively analyzing mental mappings. (Table 1)

2.3.2. Behavior mapping

Behavior mapping is an unobtrusive, direct observational method for recording the location of subjects and measuring their activity levels simultaneously (COSCO, MOORE & ISLAM, 2010). Results help researchers understand the behavioral dynamics of the built environment (Bjorklid, 1982; Kinoshita, 2007; Moore, 1978; Moore, 1986; Moore, 1997).
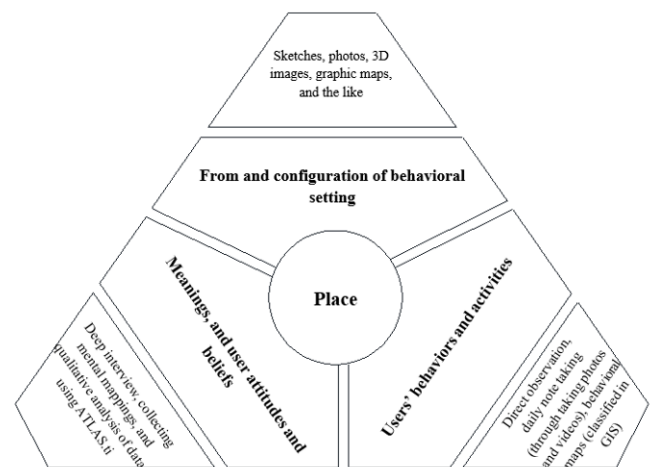

Fig. 5. The methodical approach and data collection tools used in the triple general model for place.

Fig. 6. An example of behavioral observations provided by an observer during an afternoon at Art University; such Crookie and sketches by marking persons with symbols on site plane sheet, give us some important information about environment and behavior.

Behavior mapping now provides environment–behavior researchers with an efficient method for gathering, processing, analyzing, and representing data. The methods merged behavior observations with GIS mapping (Golicnik & Thompson, 2010) in order to create databases of an empirical environment-behavior interactions that were directly connected with spatial patterns.

Behavior mapping is based on the concepts of behavior setting (Barker, 1976; Heft, 1998) and affordance (Gibson & Pick, 2000; Gibson, 1986). Behavior settings are composed of people, physical components, and behavior. Linking setting type and level of physical activity is essential for understanding the impact of design (Trost, Ward & Senso, 2010).

Behavioral mappings were collected in two faculties over the course of one year. Considering the students' lesson plans and their presence hours in the faculty and their free time, behavior collection timetable was carefully set. Collections were done in all four seasons on 9-15 April 2014, 23-29 June 2014, 17-23 October 2014, and 13-19 December 2014. All collections were done three days a week from morning until evening with an emphasis on busy hours in the faculty. All the information was both recorded on base maps and behavioral tables.

Table 1
Table show the activities carried out by individuals at faculties under study: Preliminary field observations completed the list of activities.

Activity	Male	Female	Activity	Male	Female
Slow walking	○→	●→	Group game	○↝	●↝
Fast moving	○⇒	z	Feeding a cat	○∞	●∞
cycling	⚟↗	⚟↗	Dancing	⚡	⚡
Sitting on the floor	◯	●	Sitting under a tree	⚡	⚡
Sitting on the podium	◯	●	Doing homework	⊼	⊼
Sitting on the bench	◠	◠	Snowball fighting	○↝	●↝
Sitting at the edge of the pond	⚇	⚉	Water playing	○↝	●↝
Standing	○	●	Singing/ Listening to music	♫	♫
Speaking	○≺	●≺	Exhibition	⚑	⚑
Smoking	♂	♂	Class outdoor	⚛	⚛
Reading	○	●	Sitting on stairs	⚡	⚡
Writing	○	●	Sitting in front of a window	▫	▪
Sketching	◠	●	Working with laptop/cell phone	○↝	●↝
Taking photos	▫	▫	Eating fruit	⚡	⚡
Eating/Drinking	▯⚡	▮⚡	Walking together	⇄ ⇄	⇄
Talking on the phone	▯	▮	Sitting together	○─○ ○─●	●─●
Making models	✂	✂	Lying	─╀─	═╀═
Inspecting	◁	◀	Lying on the bench	═╪═	═╪═

2.4. Methodology for non-observable case studies
2.4.1. Mental mapping

Mental mapping is one of the most valuable tools for studying mental models (Hannes, Janssens & Wets, 2009). The relation between cognitive factors and mental map properties is widely recognized in agent-based modeling literature (Arentze & Timmermans, 2000). These models make it possible to predict potential dangers beforehand, to foresee what might happen in future (Kaplan & Kaplan, 2009; Kaplan & Kaplan, 2005).

Since place users in our case studies are architecture students, all mental mappings are neat sketches and handwritten directions with valuable information about form, climate, neighborhood, and the like. (Table 2)

Due to participation restrictions in the mental mapping method and the number of students in the faculties, a total of 120 mental mappings were collected (approximately 20% of students in the two faculties for each year-student). 70 of these students were from Tabriz Islamic Art University (60% female and 40% male; 10 freshman students, 20 sophomore students, 30 junior and senior students, and 10 M.A. students) and 50 of them were from Islamic Azad University of Tabriz (52% female and 48% male; 5 freshman students, 15 sophomore students, 20 junior and senior students, and 10 M.A. students).

At this stage, people were asked to sketch a sociable place in their faculty to which they felt the most attached. They were totally free in choosing their presentation method, but because of their education in architecture, they were asked to present their information in the form of plans, façades, section, perspectives, diagrams, and other sketch-related concepts. This helped the sketches become relatively uniform and ultimately made it easier to analyze and document them.

2.4.2. Deep interview and questionnaire:

Through conducting deep interviews and qualitative analyses on mental mappings, invaluable results can be acquired in the field of cognitive studies (Boğaç, 2009). A total of 100 people were deep interviewed (60 students from Islamic Art University and 40 from Azad University) and all of the participants had sketched their mental mappings before. All the deep interviews were recorded and analyzed along with their mental mappings using the ATLAS.ti application. In these types of research methods, people's unwillingness to do deep and long interviews affects the number of participants. These restrictions help us understand why so few people participated. All the deep interviews were conducted after the sketches were completed and they were recorded with the participants' permission. The focus of these conversations, within the framework of deep interview, was based on the literature, field observations, and pre-determined BM and was also about an individual's sketch. The topics covered in deep interviews are faculty's behavioral-sociable settings, individual's satisfaction with and attachment to faculty, architectural physical form, climate conditions, view and perspective, activities and behavior, privacy, furniture, and functions in the vicinity of the settings. For instance, part of a deep interview with a student and his sketch (Fig. 7) are provided:

- Question: What do you think of faculty's gathering places?
- Answer: This faculty, with its traditional architecture and good interaction with its green spaces, has great potential for student gatherings … I daresay that one of the most important factors that makes students attached to a faculty is its abundant collective spaces.
- Question: So you define gathering places as directly related to place attachment?
- Answer: Yes, that's definitely the case.
- Question: What changes do you think are necessary to be made in the faculty environment?
- Answer: Changes in the form of walls for increasing privacy and green spaces and the like.

In addition to the deep interview, 200 questionnaires with close-ended questions were filled out by students to increase the accuracy of the SPSS statistical quantities analyses. 120 of the students were from the Islamic Art University and 80 of them from Azad University. It was attempted to include an equal number of students from all majors as much as possible. These questionnaires consisted of three parts: a. information about users' satisfaction with their faculty environment; b. form preferences for sociable places; and c. users' expectations and cognitive experiences from the environment.

3. Material's Analysis

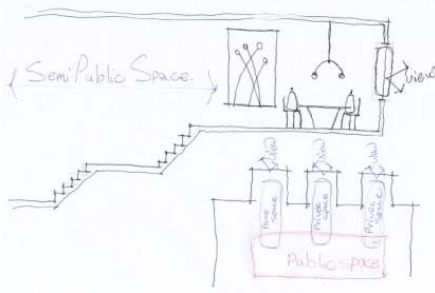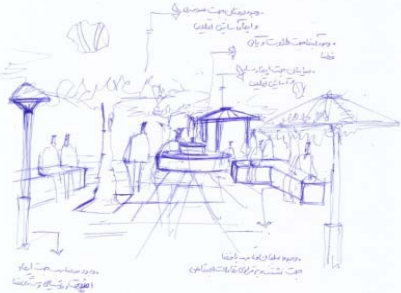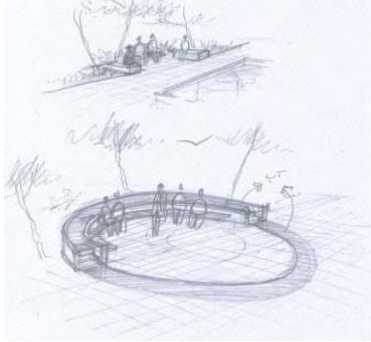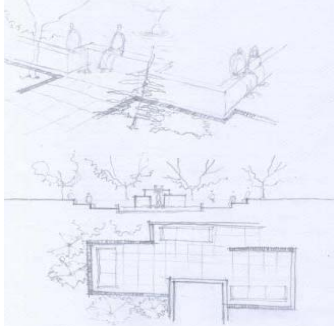The material is analyzed under the following three categories:
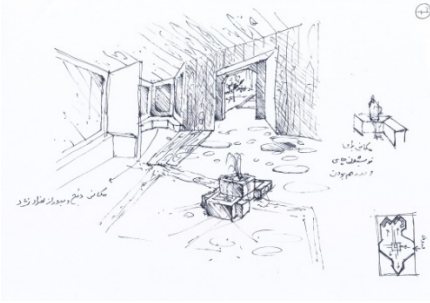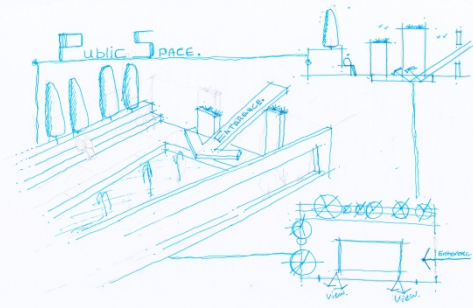
1. *Analyzing the material resulting from field observations*; the results were used to study the relationship between people and the environment. Classifying data in GIS made a considerable part of field information available for analysis. These data eventually formed the codes and keywords in mental mapping and questionnaires.

2. *Qualitative analysis of mental mapping*; qualitative analysis of sketches and questionnaires was done by ATLAS.ti. The codes extracted from mental mappings using software features were assigned to the elements discussed in the sketches. Finally, factors for design recommendations were extracted using the relationships defined between the elements.
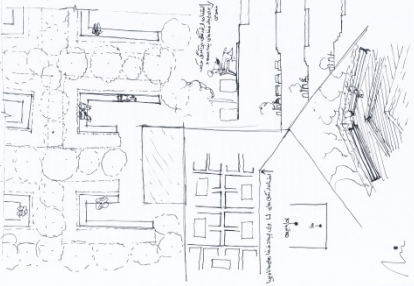
3. *Analyzing deep interviews and questionnaires*; similar to the qualitative analysis of mental mappings, deep interviews were analyzed and acted as a complementary database alongside mental scaling to complete the list of factors affecting sociability. Questionnaires with close-ended questions were analyzed using quantitative analysis, frequency, and degree of importance of factors. Finally, the SSPa model and the important factors were discussed and confirmed.

Table 2
Examples of mental mappings and sketches drawn by students answering the question of features of an ideal sociable place in a university.

Mental mapping sketch	Participant information	Mental mapping sketch	Participant information
	Male, 8 semester architecture student, Azad University		Female, 6 semester architecture student, Art University
	Female, 4 semester architecture student, Azad University		Male, 5 semester architecture student, Art University
	Female, 6 semester urban design student, Azad University		Male, 4 semester architecture student, Art University
	Male, 5 semester architecture student, Azad University		Female, 2 semester architecture senior student, Art University
	Female, 2 semester architecture student, Azad University		Male, 8 semester architecture student, Art University
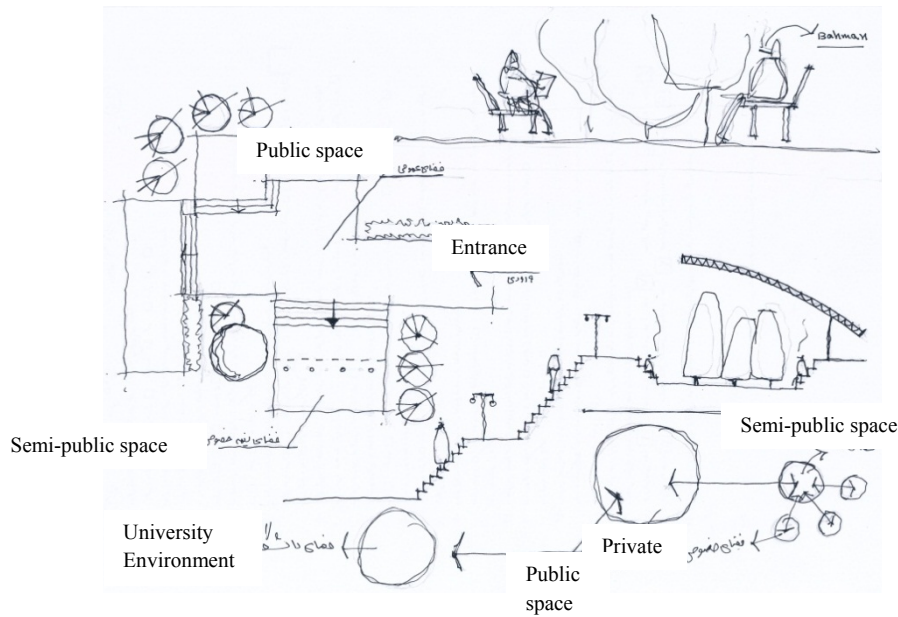
Fig. 7. An example of a sketch whose deep interview was presented above. In this sketch, many points are mentioned. All these concepts have been used as input in ATLAS.ti application after being coded
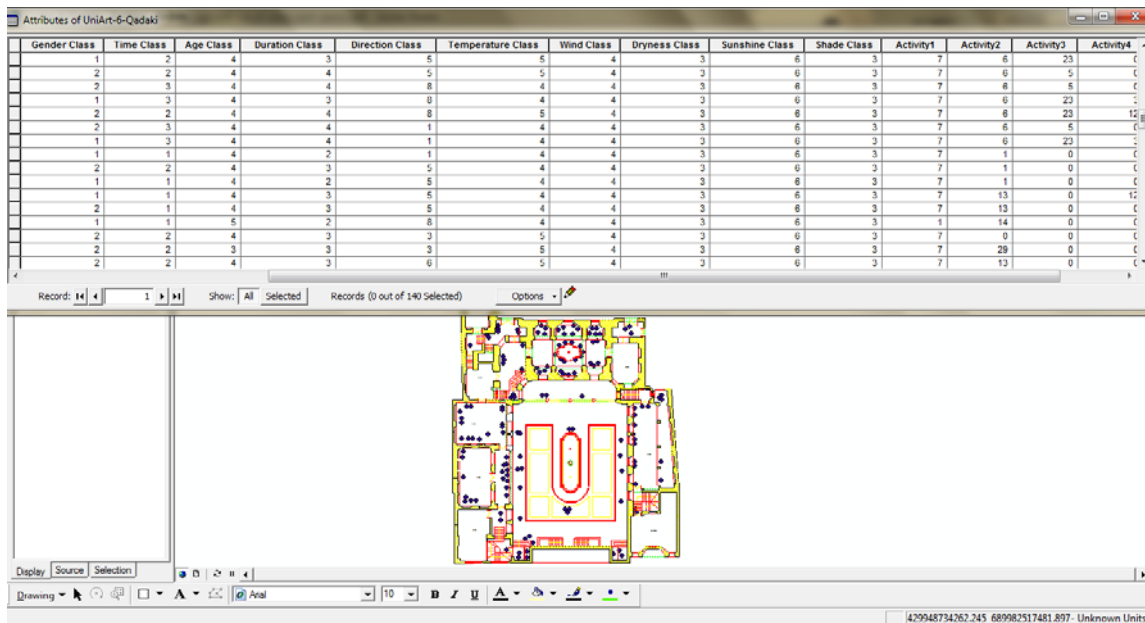
Fig. 8. A table showing some records of a daily observation in Qadaki House, in Architecture Faculty of Tabriz Art University and the example of a map of layers of daily records for three different days.

3.1. BM analysis and field observations

Data resulted from observations and behavioral collections were layered through GIS for ease of analysis. (Fig. 8) Using GIS causes the observations to be classified under several layers such as gender, time, age, time spent at a behavioral setting, movement direction, temperature, wind, dryness, sunshine, and shade. People's activities are analyzed based on these factors. Then, based on frequency of behaviors (Table 3) and using appropriate analytically GIS-dependent queries, qualitative, environmental and behavioral analyses were conducted. Here, queries refer to conditional and logical sentences such as: specify (in a behavior mapping) the people who are sitting on the bench under the trees' shade near the pool.

Table 3
Sum of number of people involved in activities in three broad period of observation for all two observed architectural faculty in Tabriz.

No. of people involved in activity in three broad perid of observation	Tabriz Art University				Tabriz Azad University			
	Male	Female	All	%	Male	Female	All	%
Slow walking	42	28	70	5.1	74	53	127	14.4
Fast moving	24	18	42	3.1	31	38	69	7.8
cycling	8	2	10	.7				
Sitting on the floor	16	15	31	2.2	5	3	8	.9
Sitting on the podium	44	38	82	6	21	14	35	3.9
Sitting on the bench	43	51	94	6.9	38	24	72	8.2
Sitting at the edge of the pond	25	17	42	3.1				
Standing/ Speaking	47	52	99	7.3	55	37	92	10.4
Smoking	25	4	29	2.1	18	2	20	2.2
Reading	16	24	40	2.9	12	20	32	3.6
Writing	11	18	29	2.1	8	24	32	3.6
Sketching	14	24	38	2.8	9	15	24	2.7
Taking photos	10	10	20	1.4	2	1	3	.3
Eating/Drinking	35	38	73	5.4	12	28	40	4.5
Talking on the phone	32	40	72	5.3	21	48	69	7.8
Making models	10	11	21	1.5	5	8	13	1.4
Inspecting	10	7	17	1.2				
Group game	18	8	36	2.6	2	2	4	.4
Feeding a cat	3	8	11	.8				
Dancing	3		3	.2				
Sitting under a tree	18	15	33	2.44	10	8	18	2
Doing homework	28	32	60	4.4	20	42	62	7
Snowball fighting	24	12	36	2.6				
Water playing	12		12	.8				
Singing/ Listening to music	14	8	22	1.6	8	12	20	2.2
Exhibition	48	50	98	7.2	14	28	42	4.7
Class outdoor	22	25	47	3.4				
Sitting on stairs	33	12	45	3.3	12	5	17	1.9
Sitting in front of a window	14	14	28	2	15	12	27	3
Working with laptop/cell phone	21	15	36	2.6	13	10	23	2.6
Eating fruit	14	23	37	2.7				
Walking together			14	1			18	2
Sitting together			18	1.3			9	1
Lying on the bench	4		4	.2	1		1	.1
			1349	100			877	100
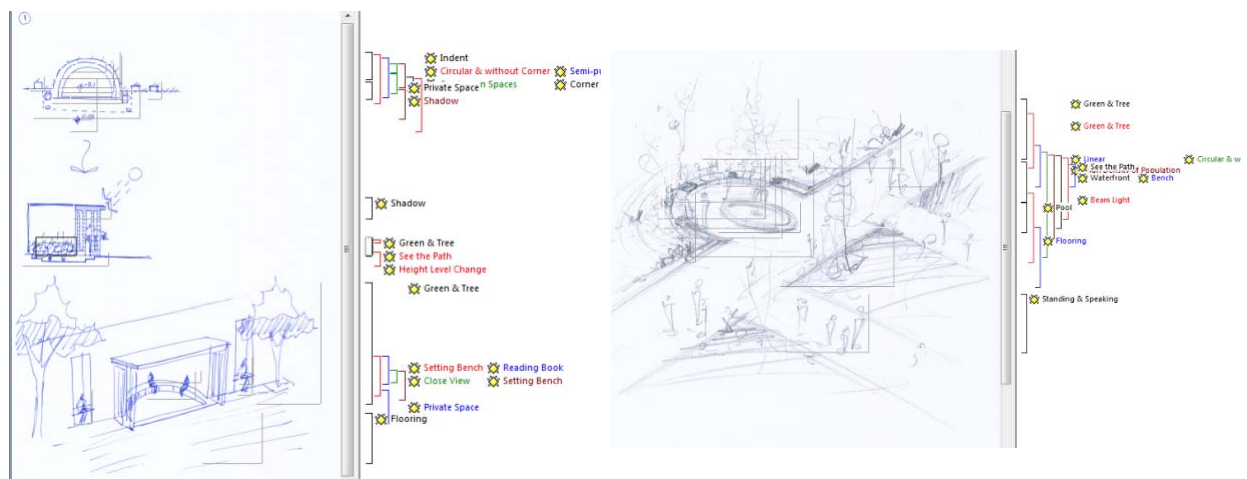
Fig. 9. An example of coded mental mappings analyzed in the ATLAS.ti application.

3.2. Mental mapping analysis

ATLAS.ti is the tool used for qualitative analyses in this paper. The procedure is as follows: 1. First, sketches were inputted as graphical data called "primary documents" into ATLAS.ti (Hannes, Janssens & Wets, 2009); 2. Then, all the elements in the sketches, whether directly related such as furniture and green spaces or indirectly related such as the premises and so on, were coded based on the codes and keywords resulting from field observations (section 1-3). These codes are referred to as Codes and Quotations inside the application. (Fig. 9); 3. In the coding stage, writers' comments based on field observations, implied relationships (links) between codes,

and each element's belonging to main categories (family; for instance, different types of physical forms for behavioral settings in sketches were categorized under the physical form family) were attached to each code. This helped us to create links and hyperlinks between the elements of sketches. It should also be noted that these links ultimately helped us define the relations between important factors, categorize them and provide a list of design recommendations for gathering places.

Because of the importance of mental mapping (MM) qualitative analysis, more explanation is necessary. A total of 41 codes were used in mental mappings.; these codes (Fig. 10) are the results of matching the concepts extracted from field observations and mental mappings with graphical concepts expressed in the sketches. It should be remembered that in analyzing these documents a code might have been used differently by people; for instance, a space with corners in the physical form might be represented differently in plans, views or cuts of a sketch. Then, based on the frequency of codes, the bar chart in Fig. 10 was created.
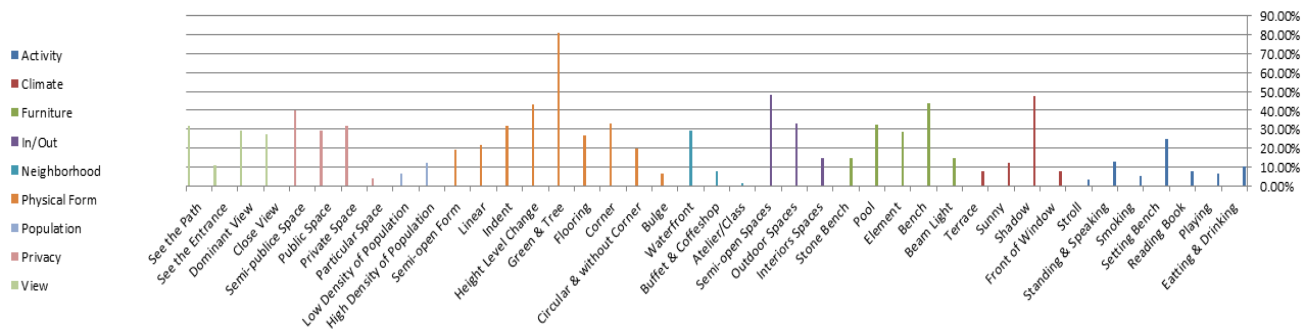

Fig. 10. In this chart, in which the importance of several factors is extracted and analyzed in the form of percentages using code repetitions in mental mappings, frequency graphs and relations between factors led to the completion of the SSPa model.

This chart indicates that %80.83 of students interviewed using mental mapping method believe it is necessary to have green spaces and trees in the gathering places of the faculty. Semi-open spaces (%48.3) and shaded spots (%47.5) were also among the important items for students in their mental mappings. Having comfortable chairs for sitting, semi-public space, changing the height of a gathering place to make it noticeable, and creating a good view (listed from the most to the least important respectively) were among the other important items in mental mappings. Having a view of busy paths (%32.3), private spaces (%31.66), corners and recesses (each about %32), and being close to aquatic elements such as pools (%32.5) were among the items pointed out in the sketches. After analyzing the frequency, the results of defining logical relations between concepts and codes led to link and hyper link outputs. These output links are very helpful since they are comprehensive and reveal the hidden relations between the concepts. (Fig. 11)
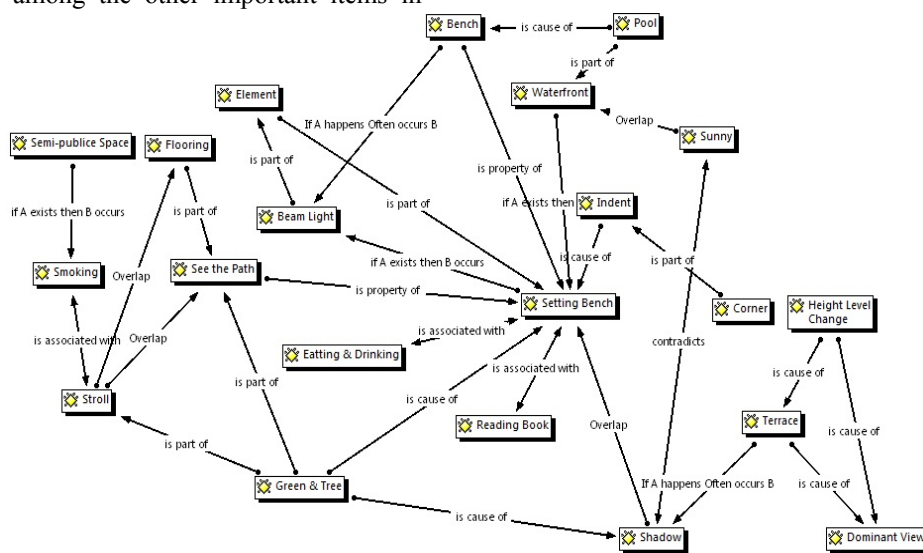
Fig. 11. Based on the analyses done mental mappings, deep interviews, and questionnaires with close-ended questions, the relations between factors were defined as links. These links were ultimately analyzed by the ATLAS.ti application and outputs such as the one above were produced. These outputs, which reveal the obvious and hidden relations between codes and factors and are very practical analyses of the model, are called hyperlinks.

For instance, in their mental mappings, %25 of students connected the activity of "sitting on a bench" directly to faculty gathering places. Most of the time, recesses are in the vicinity of trees and green spaces or have a beautiful landscape such as a water fountain; it is obvious that the right choice for this place would be benched. Such a place

will often be in shade and also close to functional elements such as lamp posts. Considering the analyses conducted and the logical output hyperlinks, all the analyzed parameters can be categorized under 9 groups (each group consisted of similar concepts) called Code Families. (Fig. 12) Based on this; the architectural physical form was the most important factor in creating an ideal gathering place with %91.66. Comfortable chairs (%55), an acceptable level of privacy (%31.66), appropriate activities and behaviors for forming a gathering place (%28.20), a good view of the surroundings and also being indoors/outdoors (%26.66), climate and peace conditions (%26), pleasant surroundings and being close to people-friendly places (%25), and population density with %10 were the important factors for the students interviewed using the mental mapping method. (Fig. 12) All the information about subsets of each of these code families and also the importance and priority of each code can be seen in Figure 11.
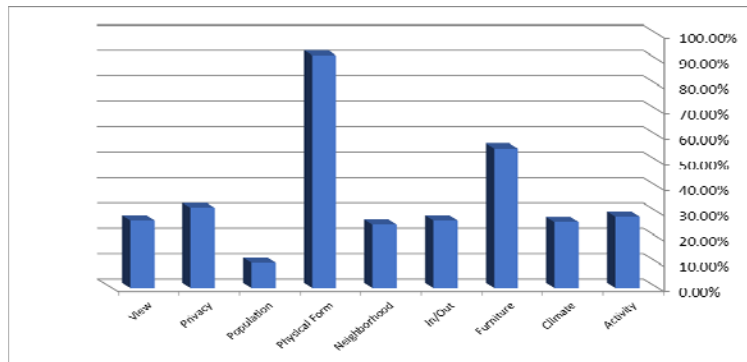

Fig. 12. Considering the analyses and hyperlinks, the codes can be categorized under 8 groups called code families. Analysis and frequency of these code families are based on quotes.

3.3. Analysis of deep interviews and questionnaires

In the analysis of deep interviews, MM analysis procedure was repeated with the only difference that input data (primary documents) were audio files of participants being interviewed. Outputs from these analyses along with outputs from previous parts increased the accuracy and value of the analyses and reduced the possible data and analysis deficiencies of the sketches. These deficiencies might be a result of people's inability to properly express their thoughts graphically or even their unfamiliarity with some of the concepts which were discussed and extracted during the deep interviews. By combining these two methods for identifying cognitive data, users' thoughts and expectations from a faculty's behavioral settings connected with the place attachment was extracted.

The questionnaires with short and closed answers were analyzed using SPSS. A total of 200 questionnaires were filled out and 120 of them participated in the sketches and the rest were people who either were not interested in sketching or being interviewed. Frequency analysis based on categories of questions in the questionnaires can be seen in Table 4. Based on this table, the importance of each subset of effective factors, such as architectural physical form which has 5 subsets of recesses, ridges, linear and corner-shaped, corner-shaped with semi-open form, and circular without a corner, is expressed in the form of percentages. In the bellow of Table 4, the degree of importance of all the 7 factors influencing ideal sociable places are listed. The 7 degrees of importance shown based on a student's faculty are very many, many, many-average, average, average-little, little, and very little. As can be seen, factors related to views and landscapes are of the highest importance to most users;

having benches for sitting or key environmental elements such as green spaces, and after that, architectural physical form of the studied behavioral setting, come next in the order of importance for users. According to the results of a quantitative analysis of the questionnaires, %36.8 of Tabriz Islamic Art University students consider their faculty's gathering places **acceptable** while %46.1 of Islamic Azad University students have an **average** level of satisfaction with their faculty's gathering places; these statistics of students' satisfaction indicate that sociable places in Islamic Art University are two times more popular than Islamic Azad University. With an analysis of questions, it becomes clear that interest in gathering places and, as a result, reinforcement of place bonding or attachment because of these behavioral settings, is %32.7 in Tabriz Islamic Art University (with an average of %83.7 and more in total) while it is %10 in Azad University (with an average of %75 and more in total); these statistics, in addition to proving students' satisfaction with and having a high place attachment in the sociable settings of Tabriz Islamic Art University, indicate that place attachment, as mentioned earlier in the literature review section, is directly related to community context settings and people tend to be in busier places which is a sign of success for their community factors. Cognitively and semantically speaking, increasing a behavioral setting's population, in addition to attracting more people, will increase place attachment in university environment as well; of course, there is a small percentage of students who prefer less crowded places. In sum, two essential conclusions that can be drawn here are: 1. a behavioral setting's success in attracting crowds is directly related to people's attachment to that place; and 2. most people tend to be in or join busier behavioral settings (in both public and semi-public places).

Table 4
Quantitative analysis of information extracted from 200 questionnaires which were filled out by
students from Tabriz Islamic Art University and Islamic Azad University of Tabriz.

Sociability Factors	Factors Classification	Art University %	Azad University %
Architectural Physical Form	Recess	25.6	37.5
	Ridge	2.7	2.5
	Linear/corner-shaped	5.1	10
	Semi-open/corner	20.5	17.5
	Circular/non corner	46.1	32.5
Activities influencing on Sociable Place	Walking/talking/Standing	5.2	15.3
	Sitting bench, …	44.7	٤٨.٧
	Eating/drinking/ smoking	21.3	20.5
	Reading, writing, sketching	5.2	13
	Tech tools/multi player	23.6	2.5
Climate-related Facilities	Shadow	32.4	25
	Sunny		2.5
	Indoor		17.5
	Semi-open/window	8.2	20
	Semi-open/balcony	59.4	35
Views and Landscapes	View of the surroundings	12.1	8.9
	Good view	60.9	58.6
	View of busy paths	14.6	15.2
	View of entrance	4.8	10.8
	Non view of the surroundings	7.6	6.5

Sociability Factors	Factors Classification	Art University %	Azad University %
Privacy of a Sociable Place	Public	13.4	10
	Private	7.8	10
	Semi-public	52.6	55
	Out of access	5.2	10
	Exclusive place	21	15
Elements, Features, Furniture, Facilities	Bench/platform/pond	8.5	2.7
	Lamp posts		2.7
	Trees/green spaces		11.1
	Flooring		5.5
	Bench+green space	88.8	69.4
	Light+Flooring	2.7	8.6
Places in the Vicinity of the Sociable setting	Buffets/coffee		17.5
	Fountains/W. c	5	7.5
	Tree/green space	37.5	10
	Class/Atelier	10	40
	Entrance/elements	47.5	25

Sociability Factors	Factors Classification	Very many	Many	Many-average	Average	Average-little	Little	Very little
Seven Factors affecting the success of a Sociable Place	Architectural Physical Form	15.5	18.3	18.	13	13	15.5	6.4
	Activities	14.2	10.9	12.9	22	10.3	15.5	14.2
	Climate-related Facilities	١٣.٦	12.8	16.3	7.1	18.7	7.5	24
	Views and Landscapes	24.6	23.3	12.9	15.5	7.7	10.9	5.1
	Privacy of a Sociable Setting	14.8	14.8	6.6	22.2	5.4	10.9	25.2
	Elements, Features, Furniture	9.6	12.2	17.4	9.3	21.6	20.3	9.6
	Neighborhood and Places in the Vicinity	7.7	7.7	15.5	10.9	23.3	19.4	15.5

4. Results and Discussion

Based on the analyses of this paper, the elements affecting the place attachment in the behavioral settings of architecture faculties were evaluated. These factors can have different effects on people's gatherings when they are grouped together **collectively** (i.e. all the factors being involved simultaneously). For instance, a part of the results of this study are as follows: spaces with a semi-open form with shade and in the vicinity of green spaces and trees will have the highest degree of sociability. After sociability spectrum, having a view of busy paths, spaces having more privacy and corners and recesses, and also being close to water fountains and pools are the most important factors in making a place more sociable. Also, in studying the factors **separately**, it was revealed that physical architecture form has the highest effect on sociability and after physical form, furniture, a decent level of privacy, ability to satisfy users' functional and behavioral needs, having a good view of the surroundings, and peaceful climate conditions are the most important factors.

In this part, when the SSPa empirical model is used, these factors can be categorized under two groups of spatial factors affecting place attachment and social parameters resulted by behaviors and beliefs affecting place attachment. (Fig. 13) Based on this, factors such as physical form, good climate conditions, view and perspective are categorized under spatial place attachment, and concepts such as privacy and activities in the behavioral settings are categorized under behaviors and beliefs related to users' social attachment to a place. Also, suitable furniture and surroundings affect users' behaviors, activities, and mental-cognitive beliefs. Based on the following figure which is a schematic conclusion of results, these factors are interacting with and dependent on both spatial and social aspects of place attachment and

in most cases, it is not possible to draw boundaries between them. They are interrelated and define place attachment together and this makes it necessary to consider the SSPa model.

By expanding the results of this paper's case studies, the general parameters affecting sociability of a behavioral setting, as an important factor for place attachment, can be provided. It should also be noted that recommendations are merely used for the sake of categorizing factors not prioritizing them; it is obvious that the importance and effect of these factors can differ in other case studies. The general factors are as follows:

1) The physical form of a behavioral setting directly affects the frequency of people's gatherings. Different types of physical form in the present study are: a. physical form having a recess in the main wall; b. physical form having a ridge in the main wall; c. having a linear and long physical form (these three have corner-shaped spaces often with semi-open forms); d. circular forms, without corners and an almost identical place value for the whole gathering space; e. surfaces with different heights. 2) Users' activities can increase or decrease their willingness to gather round. Such prominent observed activities are: a. standing, walking, and talking; b. sitting on the ground, platforms, or benches; c. eating, drinking, and smoking; d. reading, writing, sketching, and other activities related to university assignments; e. using technological tools such as cellphones, and laptops, and playing multi-player games. 3) Climate conditions can also affect a behavioral setting's spectrum of sociability. Climate conditions for indoor and outdoor environments are as follows: a. indoor place without access to the outside (with fixed and controllable climate); b. semi-open space (such as a window front or a balcony which can be both sunny and shady but having access to outdoor climate is important

for users); c. outdoor place with a sunny or shady part. 4) View and perspective of a sociable behavioral setting (from inside or vice versa) can affect a sociable setting's level of sociability. Some of the views and perspectives considered by the writers of this paper are a. having a good and complete view of the surroundings; b. not having a complete view from inside when looking outside or vice versa; c. having a view of busy paths and entrances. 5) The amount of privacy in sociable places is a response to the users' cognitive, mental and behavioral needs and is an attempt to satisfy these needs. Categorization of observations regarding the levels of privacy are: a. public space; b. private space (which can be out of reach as well); c. semi-public space; d. an exclusive space (e.g. a specific group of classmates, certain gender, etc.). 6) Elements, features, furniture, and facilities inside a sociable place are important because they satisfy mostly functional needs. It is possible that a place has the factors necessary for gatherings but if that place cannot satisfy users' functional needs, such as not having appropriate furniture, it will have a lower level of sociability. Some of the most important forms of furniture are as follows: a. a place for sitting (bench, platform, cement blocks, stairs, around a fountain, and the like); b. natural elements such as trees, plants, and water; c. functional or noticeable elements (such as lamp posts, floorings, etc.). 7) Proximity to other places and users, referred to as the proximities and premises of a gathering place, can affect the level of sociability in that place: a. proximity to places selling food or drinks (buffets, coffee shops, water fountains); b. proximity to indoor and educational spaces (such as classrooms and ateliers); c. proximity to natural or artificial entertainment areas such as green spaces, fountain, etc.
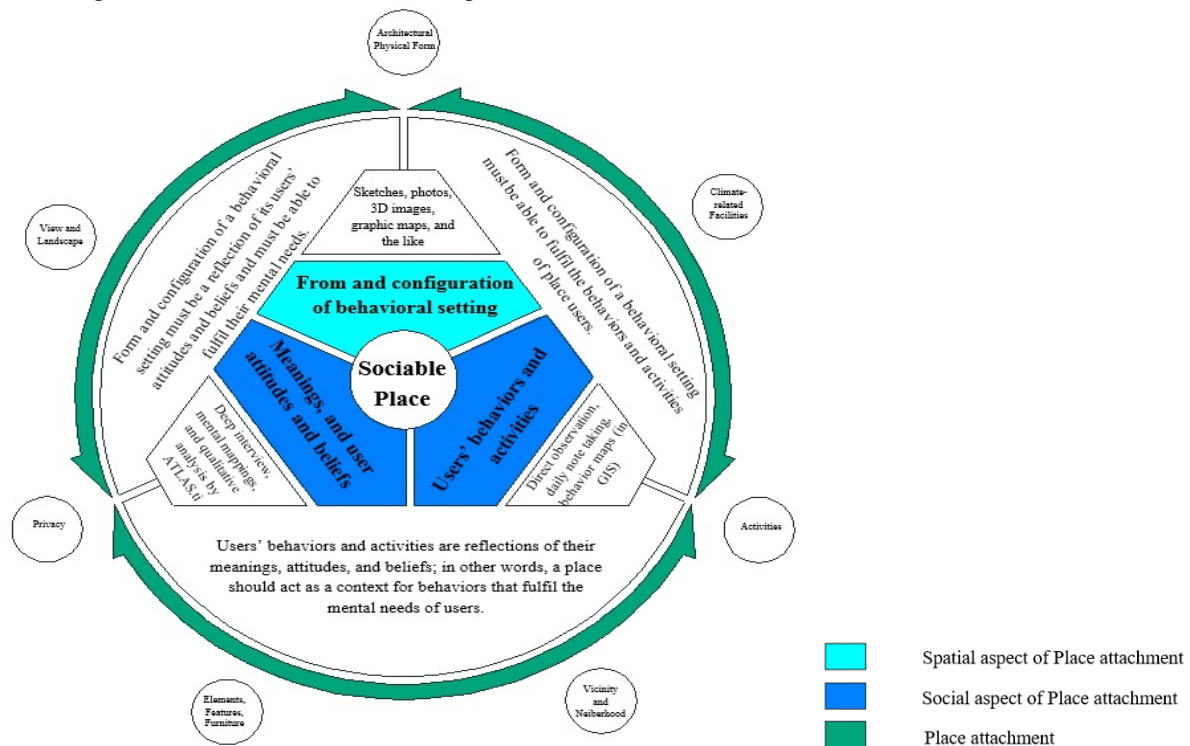

Fig. 13. The complete SSPa model with its 7 peripheral factors.

Based on the ideas offered in literature review, this conclusion can be completed as follows:

when a behavioral setting has an appropriate architectural physical form (considering each study's unique case(s)), it will create spatial place attachment (based on behavioral mapping); on the other hand, the more a group of people frequent a place and, as a result, increase the chances of having relations with one another, the more they become social place attachment to that place (according to the information provided by questionnaires and observations). Based on the information provided by mental mappings and also the way sociable places are formed and the way people use them, it could be inferred that place attachment is in fact a set of spatial and social attachments for people and all these interrelated attachments together create a Social-Spatial Place attachment (SSPa).

In other words, based on the SSPa model, a behavioral-sociable setting can be explained using the factors offered in this model so that by changing these factors, the spectrum of sociability in a place changes as well; for instance, it changes from a very sociable place to a less sociable one; and since this behavioral setting has become an inseparable part of place and place attachment, it will influence place quality, sense of place, and the degree of attachment to place; these are a set of spatial and social factors influencing place attachment which were explained under a more comprehensive model called *Spatial-Social Place attachment (SSPa).*

5. Conclusions

The present article was an analysis of an important topic in studies of environmental psychology called place attachment, and its aim was to present and discuss a model called *Spatial-Social Place attachment (SSPa).* Decades of studies in environmental psychology have produced various theories and theoretical models with notable implications for psychology and sociology; however, since one of the main audiences for these results are architects and environmental designers, there is a need for models which are more palpable for architects. Criticisms offered by architects regarding most of current models are either content- or method-related. In terms of content, the results of most models are filled with so many different theoretical aspects, conceptual complexities, and abstract ideas that translating them into architectural jargon, which is a jargon of form and body, is very difficult and time-consuming, with mostly unacceptable results. In order to resolve this issue, we need a model which can express theoretical and cognitive results of environmental psychology accurately and can reflect the research contents in architectural form and other architecture-related aspects. The next dominant problem is the methods offered for studies. Most analyses are done quantitatively using quantitative analysis tools such as SPSS. But because of the nature of these studies, quantitative analyses work best when they are conducted together with qualitative analyses, various surveying methods, and field studies in direct contact with users. Therefore, the approach presented in this paper, with an eye on place attachment model, has practical and palpable results for architects and is systematic and visual base

methods, as well. Based on this, systematic studies of place attachment, places, and sociable places were conducted. Using the visual base systematic approach and also the framework theoretical model, place (because of its body- and form-related features and also because if reflects meaning, attitude, and behavior) was studied as the most effective factor in creating place attachment. Based on this, place attachment has two aspects: spatial and social; therefore, the best case studies for evaluating SSPa's accuracy are behavioral-sociable settings in faculties of architecture. Using the proposed model, the writers started to study place attachment in their case studies with a systematic methodology hoping to produce architectural output. According to many references and statistical studies of faculty users, there is a direct relation between place attachment and sociability. The writers collected and studied behaviors, attitudes, meaning, form, and other factors influencing place attachment using the methods discussed in this article. Ultimately, using the SSPa model, which is based on merging place attachment spatially and socially with the configuration of sociable places, design recommendations were developed in the form of factors affecting place attachment in gathering places of a faculty. (Fig. 13) The final 7 factors, which are in turn made up of different subsets, are: 1) architectural physical form of a behavioral setting; 2) activities influencing the formation of a sociable place; 3) climate-related facilities; 4) views and landscapes; 5) privacy of a sociable setting; 6) elements, features, furniture, and facilities of a gathering place; 7) places in the vicinity of a gathering place.

Refrences

1. ABU-GHAZZEH, T. M. (1999) 'Communicating Behavioral Research To Campus Design Factors Affecting the Perception and Use of Outdoor Spaces at the University of Jordan', Environment And Behavior, 31: 764-804.
2. Abu-Obeid, N., & Al-Homoud, M. (2011) 'Sense of Privacy and Territoriality as a Function of Spatial Layout in University Public Spaces', Architectural Science Review, 43: 211-219.
3. Altman, I., & Low, S. M. (1992) Place attachment. A conceptual inquiry. New York: Plenum Press.
4. Anton,C. E., Lawrence, C. (2014) 'Home is where the heart is: The effect of place of residence on place attachment and community participation', Journal of Environmental Psychology, 40: 451-461.
5. Arentze, T. A., & Timmermans, H. J. P. (2000) Albatross: A learning-based transportation oriented simulation system. Eindhoven, The Netherlands: European Institute of Retailing and Services Studies.
6. ATLAS.ti: The Qualitative Data Analysis & Research Software. Software available in: http://atlasti.com/product/features/2016.
7. Barker, R. (1976) On the nature of the environment. In: Proshansky, H., Ittelson, W., Rivlin, L., editors. Environmental Psychology: People and Their Physical Settings. New York (NY): Holt, Rinehart & Winston.

8. BILLIG, M. (2006) 'IS MY HOME MY CASTLE? Place Attachment, Risk Perception, and Religious Faith', Environment And Behavior, 38: 248-265.

9. Billig, M., & Zorkraut, S. (in press) 'To hold on to the land: Ideology, place attachment and risk perception in Samaria (in Hebrew)', Megamot Behavioral Sciences Quarterly.

10. Bjorklid, P. (1982) Children's Outdoor Environment. A Study of Children's Outdoor Activities in Two Housing Estates from the Perspective of Environmental and Developmental Psychology. Stockholm (Sweden): Stockholm Institute of Education.

11. Boğaç, C. (2009) 'Place attachment in a foreign settlement', Journal of Environmental Psychology, 29, 267–278.

12. Brown, B., Perkins, D., & Brown, G. (2003) 'Place attachment in a revitalizing neighborhood: individual and block levels of analysis', Journal of Environmental Psychology, 23: 259–271.

13. Canter, D. (1977) 'Book review of E. Relph, `Place and placelessness'', Environment and Planning, 4: 118-120.

14. Canter, D. (1997) The facets of place. In G. T. Moore & R. W. Marans, (Eds.), Advances in Environment, Behavior, and Design,Vol. 4: Toward the Integration of Theory, Methods, Research, and Utilization. New York: Plenum, 109-147.

15. Carmona, M., Heath, T., Oc, T. & Tiesdell, S. (2010) Public Places Urban Spaces. Routledge; 2 edition.

16. Chow, K., & Healey, M. (2008) 'Place attachment and place identity: first-year undergraduates making the transition from home to university', Journal of Environmental Psychology, 28: 362–372.

17. COSCO, N. G., MOORE, R. C., & ISLAM, M. Z. (2010) 'Behavior Mapping: A Method for Linking Preschool Physical Activity and Outdoor Design', MEDICINE & SCIENCE IN SPORTS & EXERCISE, Applied Sciences, 513-519. DOI: 10.1249/MSS.0b013e3181cea27a

18. Francis, J., Giles-Corti, B., Wood, L., & Knuiman, M. (2012) 'Creating sense of community: The role of public space', Journal of Environmental Psychology, 32: 401-409.

19. Fried, M. (2000) 'Continuities and discontinuities of place', Journal of Environmental Psychology, 20: 193–205.

20. Gehl, J. (2013) Cities for People. 1st Edition (2010).

21. Gibson, E., & Pick, A. (2000) An Ecological Approach to Perceptual Learning and Development. New York (NY): Oxford University Press.

22. Gibson, J. (1986) The Ecological Approach to Visual Perception. Hillsdale (NJ): Erlbaum.

23. Giuliani, M.V.,& Feldman, R. (1993) 'Place attachment in a developmental and cultural context', Journal of Environmental Psychology, 13: 267-274.

24. Giuliani, M. V. (2003) Theory of attachment and place attachment. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), Psychological theories for environmental issues (pp. 137–170). Aldershot: Ashgate.

25. Golicnik, B., & Thompson, C. W. (2010) 'Emerging relationships between design and use of urban park spaces', Landscape and Urban Planning, 94: 38–53.

26. GUSTAFSON, P. (2001) 'MEANINGS OF PLACE: EVERYDAY EXPERIENCE AND THEORETICAL CONCEPTUALIZATIONS', Journal of Environmental Psychology, 21: 5-16.

27. Hamzeieha, S., Tabibian, M. (2018) "Redesigning Urban Spaces with an Emphasis on the Relationship Between the Physical Environment of the City and the Behavior of Citizens (Case Study: Adl Street in Qazvin)", Space Ontology International Journal, 7 (2), 1-14.

28. Hannes, E., Janssens, D., & Wets, G. (2009) 'Does Space Matter? Travel Mode Scripts in Daily Activity Travel', Environment and Behavior, 41, 75-100.

29. Hay, R. (1998) 'A rooted sense of place in cross-cultural perspective', Canadian Geographer, 42: 245-266.

30. Hay, R. (1998) 'Sense of place in developmental context', Journal of Environmental Psychology, 18: 5–29.

31. Heft, H. (1998) Towards a functional ecology of behavior and development: the legacy of Joachim F. Wohlwill. In: Gorlitz, D., Harloff, H.J., Mey, G., Valsiner, J., editors. Children, Cities, and Psychological Theories: Developing Relationships. Berlin (Germany): Walter De Gruyter.

32. Hernandez, B., Hidalgo, M. C., Salazar-Laplace, M. E., & Hess, S. (2007) 'Place attachment and place identity in natives and non-natives', Journal of Environmental Psychology, 27: 310–319.

33. Hernandez, B., Martın, A. M., Ruiz, C., & Hidalgo, M. D. C. (2010) 'The role of place identity and place attachment in breaking environmental protection laws', Journal of Environmental Psychology, 30: 281–288.

34. Hidalgo, M. C., & Hernandez, B. (2001) 'Place attachment: conceptual and empirical questions', Journal of Environmental Psychology, 21: 273–281.

35. Hipp, J. A., Gulwadi, G. B., Alves, S., & Sequeira, S. (2015) 'The Relationship between Perceived Greenness and Perceived Restorativeness of University Campuses and Student-Reported Quality of Life', Environment and Behavior, online available, 1–17. DOI: 10.1177/0013916515598200

36. Hummon, D. M. (1992) Community attachment: local sentiment and sense of place. In L. Altman, & S. M. Low (Eds.), Place attachment (pp. 253–278). New York: Plenum.

37. Husserl, E. (1954) Die krisis der europaischen wissenschaften und die transzendentale phanomenologie: Eine einleitung in die phanomenologische philosophie. Den Haag: Nijhoff.

38. Jorgensen, B. S., & Stedman, R. C. (2001) 'Sense of place as an attitude: lakeshore owners' attitudes toward their properties', Journal of Environmental Psychology, 21: 233–248.

39. Kaplan, R., & Kaplan, S. (2005) Preference, restoration, and meaningful action in the context of nearby nature. In P. F. Barlett (Ed.), urban place:

Reconnecting with the natural world (pp. 271–298). Cambridge, MA: MIT Press.

40. Kaplan, S., & Kaplan, R. (2009) 'Creating a larger role for environmental psychology: The Reasonable Person Model as an integrative framework', Journal of Environmental Psychology, 29: 329–339.

41. Kasalı, A., & Doğan, F. (2010) 'Fifth-, sixth-, and seventh- grade students' use of non-classroom spaces during recess: The case of three private schools in Izmir, Turkey', Journal of Environmental Psychology, 30: 518-532.

42. Kasarda, J., & Janowitz, M. (1974) 'Community attachment in mass society', American Sociological Review, 39: 328-339.

43. Kinoshita, I. (2007) 'Children's participation in Japan: an overview of municipal strategies and citizen movements', CYE [Internet], 17, 269–86. Available from: http://www.colorado.edu/journals/cye/17_1/17_1_16_MunicipalStrategies.pdf.

44. Knez, I. (2005) 'Attachment and identity as related to a place and its perceived climate', Journal of Environmental Psychology, 25: 207–218.

45. Korpela, K. M. (1989) 'Place-identity as a product of environmental self-regulation', Journal of Environmental Psychology, 9: 241–256.

46. Korpela, K., Ylen, M., Tyrvainen, L., & Silvennoinen, H. (2009) 'Stability of selfreported favourite places and place attachment over a 10-month period', Journal of Environmental Psychology, 29: 95–1000.

47. Kyle, G. T., Jun, J., & Absher, J. D. (2014) 'Bonding Repositioning Identity in Conceptualizations of Human-Place', Environment and Behavior, 46: 1018–1043.

48. Lang, J. (1987) Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design. Van Nostrand Reinhold.

49. Lee, T. H., & Shen, Y. L. (2013) 'The influence of leisure involvement and place attachment on destination loyalty: Evidence from recreationists walking their dogs in urban parks', Journal of Environmental Psychology, 33: 76-85.

50. Lewicka, M. (2005) 'Ways to make people active: the role of place attachment, cultural capital, and neighbourhood ties', Journal of Environmental Psychology, 25: 381–395.

51. Low, S. M. (1992) Symbolic ties that bind. In I. Altman & Y. S. Low (Eds.), Place attachment, human behavior and environment (pp. 165-185). New York: Plenum.

52. Low, S. M., & Altman, I. (1992) Place attachment: A conceptual inquiry. In I. Altman & S. M. Low (Eds.), Place attachment: Human behavior and environment (pp. 165-185). New York, NY: Plenum.

53. Lynch, K. (1960) The Image of the City. Harvard-MIT Joint Center for Urban Studies Series, 1st Edition.

54. Madanipour, A. (1996) Design of Urban Space: An Inquiry into a Socio-Spatial. Tehran University: Process 1st Edition.

55. Mannarini, T., Tartaglia, S., Fedi,A., & Greganti, K. (2006) 'Image of neighborhood, selfimage and sense of community', Journal of Environmental Psychology, 26: 202-214.

56. Manzo, L. C. (2003) 'Beyond house and haven: toward a revisioning of emotional relationships with place', Journal of Environmental Psychology, 23: 47–61.

57. McMillan, D. W., & Chavis, D. M. (1986) 'Sense of community: A definition and theory', Journal of Community Psychology, 14: 6-23.

58. Mehta, V., & Bosson, J. K. (2010) 'Third Places and the Social Life of Streets', Environment and Behavior, 42: 779–805.

59. Mesch, G. S., & Manor, G. (1998) 'Social ties, environmental perception, and local attachment', Environment and Behavior, 30: 504-519.

60. Milligan, M. J. (1998) 'Interactional past and potential: The social construction of place attachment', Symbolic Interactionism, 21, 1-33.

61. Moore, R. (1978) Meanings and measures of child/environment quality: some findings from the environmental yard. In: Rogers W, Ittelson W, editors. New Directions in Environmental Design Research. Washington (DC): EDRA; pp. 287–306.

62. Moore, R. (1986) 'The power of nature: orientations of girls and boys toward biotic and abiotic settings on a reconstructed schoolyard', Child Environ Q., 3: 52–69.

63. Moore, R. L., & Graefe, A. R. (1994) 'Attachments to recreation settings: The case of rail-trail users', Leisure Sciences: 16, 17–31.

64. Moore, R., & Wong, H. (1997) Natural Learning: Creating Environments for Rediscovering Nature's Way of Teaching. Berkeley (CA): MIG Communications.

65. Moos, R. H. (1978) 'Social Environments of University Students Living Groups Architectural and Organizational Correlates', Environment and Behavior, 10: 109-127.

66. Perkins, D. D., & Long, A. D. (2002) Neighborhood sense of community and social capital: A multi-level analysis. In A. Fisher, C. Sonn, & B. Bishop (Eds.), Psychological sense of community: Research, applications and implications (pp. 291-318). New York: Plenum Press.

67. Pretty, G., Chipuer, H., & Bramston, P. (2003) 'Sense of place amongst adolescents and adults in two rural Australian towns: the discriminating features of place attachment, sense of community and place dependence in relation to place identity', Journal of Environmental Psychology, 23: 273–287.

68. Proshansky, H. M., Fabian, A., & Kaminoff, R. (1983) 'Place identity: physical world and socialization of the self', Journal of Environmental Psychology, 3: 57–83.

69. Puddifoot, J. E. (1994) 'Community identity and sense of belonging in a northeastern English town', Journal of Social Psychology, 34: 601–608.

70. Qian, J., Zhu, H., & Liu, Y. (2011) 'Investigating urban migrants' sense of place through a multi-scalar perspective', Journal of Environmental Psychology, 31: 170-183.

71. Raymond, C. M., Brown, G., & Weber, D. (2010) 'The measurement of place attachment: Personal, community, and environmental Connections', Journal of Environmental Psychology, 30: 422-434.

72. Relph, E. (1976) Place and placelessness. London: Pion Limited.

73. Rollero, C., & Piccoli, N. D. (2010) 'Place attachment, identification and environment perception: An empirical study', Journal of Environmental Psychology, 30: 198–205.

74. Sattarzadeh, D. (2018) "The Effect of Designing Urban Public Spaces on Place Attachment (Case study: Tabriz, Iran)", Space Ontology International Journal, 7 (4), 53-64.

75. Scannell, L., & Gifford, R. (2010). 'Defining place attachment: A tripartite organizing framework', Journal of Environmental Psychology, 30: 1-10.

76. Schultz, C. N. (1991) Genius Loci: Towards a Phenomenology of Architecture. Paperback – June 15.

77. Schumaker, S. A., & Taylor, R. B. (1983) Towards a clarification of people-place relationship: A model of attachment to place. In N. R. Feimer, & E. S. Geller (Eds.), Environmental psychology: Directions and perspectives. New York, NY: Praeger.

78. Shamsuddin, S., & Ujang, N. (2008) 'Making places: The role of attachment in creating the sense of place for traditional streets in Malaysia', Habitat International, 32: 399–409.

79. Smaldone, D., Harris, C., & Sanyal, N. (2005) 'An exploration of place as a process: The case of Jackson Hole, WY', Journal of Environmental Psychology, 25: 397–414.

80. Spartz, J. T., & Shaw, B. R. (2011) 'Place meanings surrounding an urban natural area: A qualitative inquiry', Journal of Environmental Psychology, 31: 344-352.

81. STEDMAN, R. C. (2002) 'TOWARD A SOCIAL PSYCHOLOGY OF PLACE Predicting Behavior From Place-Based Cognitions, Attitude, and Identity', ENVIRONMENT AND BEHAVIOR, 34: 561-581.

82. Stedman, R. C. (2003) 'Is it really just a social construction? The contribution of the physical environment to sense of place', Society & Natural Resources, 16: 671–685.

83. Stokols, D., & Shumaker, S. A. (1981) People in places: A transactional view of settings. In J. H. Harvey (Ed.), Cognition, social behavior and the environment (pp. 441–488). Hillsdale, NJ: Lawrence Erlbaum Associates.

84. SUGIHARA, S., & EVANS, G. W. (2000) 'PLACE ATTACHMENT AND SOCIAL SUPPORT AT CONTINUING CARE RETIREMENT COMMUNITIES', ENVIRONMENT AND BEHAVIOR, 32: 400-409.

85. Tajfel, H., & Turner, J. C. (1979) An integrative theory of social conflict. In W. E. Austin, & S. Worchel (Eds.), The social psychology of intergroup relations. Chicago: Nelson Hall.

86. Tajfel, H. (1981) Human groups and social categories: Studies in social psychology. Cambridge: Cambridge University Press.

87. Trost, S., Ward, D., & Senso, M. (2010) 'Effects of child care policy and environment on physical activity', Med Sci Sports Exerc., 42: 520–525.

88. TVERSKY, B. (2003) 'STRUCTURES OF MENTAL SPACES How People Think About Space', ENVIRONMENT AND BEHAVIOR, 35: 66-80.

89. Tuan, Y. F. (1974) Topophilia: A study of environmental perception. Englewood Cliffs, NJ: Prentice-Hall.

90. Tuan, Y. F. (1977) Space and Place: The perspective of experience. Minneapolis, MN: Minnesota University Press.

91. Tuan, Y. F. (1980) 'Rootedness versus sense of place', Landscape, 24: 3-8.

92. Twigger-Ross, C. L., & Uzzell, D. L. (1996) 'Place and identity process', Journal of Enviromental Psychology, 16: 205–220.

93. Ujang, N., & Zakariya, K. (2015) 'The Notion of Place, Place Meaning and Identity in Urban Regeneration', Procedia - Social and Behavioral Sciences, 170: 709 – 717.

94. Uzzell, D., Pol, E., & Badenas, D. (2002) 'Place identification, social cohesion and environmental sustainability', Environment and Behavior, 34: 26–53.

95. Whyte, H. W. (1980) The Social Life of Small Urban Spaces. Paperback – March 1, 2001 by William H. Whyte.