

The Influences of Physical Features of Space on Sense of Place

(Case study: Prayer Rooms of Mehrabad International Airport)

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ABSTRACT: Sense of place is the most important features of space for designers in relation between human and environment, although key theories of the mid-twentieth century have shown that some social and psychological factors are more effective than physical characteristics but in this research, the focus is on the physical features of space. Many researchers have been analyzed Physical features and its influence on human life in recent years. The aim of this paper is to focus on perception of users from prayer room. In other word, the objective of this paper is to find most effective features of a space that are key factors regarding physical attributes. The main question here is what are these features? Moreover, how much is their influence on sense of place? Furthermore, the attitudes and opinions of users were surveyed with the help of questionnaire and the result was calculated with SPSS. Finally, the results summarized in a form of tables show that gender and age are not major or effective factors in sense of place in prayer room. Signs, decoration and activities of prayers are among main elements of identity in prayer rooms. Overall, the result shows that physical features of spaces do not have a great influence on sense of place.

Keywords: Physical features, Sense of Place, Prayer room, Signs, Decoration, Activity

INTRODUCTION

References to “sense of place” and “sense of place values” have become common in the literature of many fields, from geography to environmental ethics, from human ecology to sociology, from phenomenology to urban planning, from anthropology to cognitive psychology, and from environmental policy to ecological economics.

Sense of place shows promise to better understanding how environmental problems experience, informally bound, and collectively formulate. (Zia et al., 2014, 283)

Actually, Sense of place is the most important features of space for designers in relation between human and environment. In the field of architecture and interior design, lack of attention in designing of the public religious places is obvious. Although key theories of the mid-twentieth century have shown that, some social factors and psychological ones are more effective than physical characteristics but in this paper, our focus is on the physical features of space due to its importance based on some articles. Wynveen et al. (2012)

found that place meanings not only involved individuals and their social interactions, but also intellectualized interpretations of a setting's physical attributes, such as perceived degree of naturalness. When place meanings are associated with particular physical attributes, a distinctive cognitive form of attachment may be evident, as well as emotional and behavioral responses to place. (Lin et al., 2014, 75; Wynveen et al., 2012, 290)

In fact, it has been said that the quality and characteristics of physical environment can respond to the expectations and needs of people. Along with physical layout of the prayer room, beauty, identity, activities and users satisfaction are known as the formation aspects of creating sense of place. After all, we are going to answer the question that, what are the most effective features of space on sense of place? and how much are they going to influence sense of place?

MATERIALS AND METHODS

Sense of Place and Its Meaning

Physical environments and its impact on everyday life are

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among important issues that many experts analyzed in this field in recent years (Canter, 1977a; Marcus, 1974).

“Place has been used to mean ‘location’ in the sense of exact position, although strictly, location is more specific than place, since “place is made up from a number of things that can be specifically located”. It may argue that only in the third of these senses, there is something distinctive about the idea of place, since in this meaning, place appears to possess some “perceptual unity” that is given to it by our experiences with unique and real places. The meaning and notion of the place resulted to confusion because it is not just a formal concept that define precisely, but is also a naïve and variable expression of geographical experience” (Relph, 1976). Relph also mentioned Lukermann's viewpoint (1964) about place and its analysis. Regarding Lukermann and his six components about place, meaning is the most important factor:

“Places have meaning: they are characterized by the beliefs of men”.

Thus, Lukermann understands places as complex integration of nature and culture have developed and are developing in particular locations. Relph continued: A place is not just the ‘where’ of something: it is the location plus everything that occupies that location seen as an integrated and meaningful phenomenon. (Relph, 1976, 3)

“Each place has its own order, its special ensemble, which distinguishes it from the next place, but obviously each place is not entirely discrete” (Lukermann, 1964). However, it's meaning and recognition is important issue in architecture that scientists in different fields have researched. (Gustafson, 2001; Canter, 1997b)

Tuan, one of the most influential Geographers for the humanistic geography, understands each place with its own spirit and character relates to its specific properties. He describes place as where there is strong ties and effecting issues between human and environment with some elements, which this tie is positive and makes deep relationship between the two items. He has used special word “Topophilia” which means strong link between person and environment in terms of mental, emotional and cognitive matters (Tuan, 1974). As Tuan believes, any place without people is just only a location and somewhere that human exist is meaningful place.

Generally, he defined concept of place in two parts: first symbols that exist in place and the second is people's experiences. In the first definition, the structure of place is determined and the second one influenced by people's daily behaviors (Tuan, 1977). Also in Canter viewpoint: The individual and social values influence on sense of place and mutually, sense of place effects on values, attitudes, specially personal or social behaviors in public places (Canter, 1997).

“Place is a portion of geographical space, Sometimes defined as ‘territories of meaning’.” (Holt-Jensen, 1999). Altman & Low also believe that the factor, which makes difference between space and place, is meaning which appears in place

in form of cultural, individual and social processes. In general, they define “Sense of place” as a factor that converts the space into place with behavioral and emotional characteristics for anyone (Altman & Low, 1992). In fact, people change space to the concept of place based on their social bonds, feeling and emotions (Stedman, 2003). In sum, place formation is something like social process that is derived from interaction between human and nature and activities inside. (Altman & Low, 1992).

Generally place has a physical concept, but at the same time the concept of place is identical for some people and even time can be involved in the perception and sense of place; as if a person has different feelings to a place at different times. As a result, perceptions, memories, experiences and personal moods are effective on sense of place. (Poursoleiman, 2012, 14)

Jackson has mentioned in “A sense of time, A sense of place” about Sense of place regarding linguistic aspects, he described it as an expression that is used chiefly by architects but taken over by urban planners and Interior decorators, he continued: in our time and contemporary condition, it means very little. He wrote, “We now use the current version to describe the atmosphere to a place, the quality of its environment. Nevertheless, we recognize that certain localities have an attraction that gives us a certain indefinable sense of well-being and we want to return to it repeatedly. Therefore, the original notion of ritual, repeated celebration or reverence is still inherent in the phrase. It is not a temporary response, for it persists and brings us back, reminding us of previous visits” (Jackson, 1994).

According to Relph and Canter ideas, when a place has three characteristics, it can be defined beyond any space: physical environment, activities inside it and their meanings (Relph, 1987; Canter, 1977a).

Both of them attempt to identify the basic elements or constituents of place, and doing so, they arrive at theoretical models of place that have in fact important similarities (Sime, 1986; Groat, 1995; Gustafson, 2001). In other model, Carmona in his valuable book “Public places-urban spaces” understood and explained place in a tri-polar triangle as outcome of three factors: Function, form and personal image” (Carmona, 2010) (Fig.1).

Canter (1997) discussed in “The facets of place” about a theory of place. He described his theory regarding the constituents and defined these elements as ‘facets’. He believed this model can be useful for producing a testable theory of place; afterward he explained about subsidiaries of place facets and has seen consistent relationships with each other (Canter, 1997). Then, he listed the facets as functional differentiation, place objectives, scale of interaction, aspects of design and defined each factors with special meaning. Gustafson (2001) regarded Canter and Relph comments in his writings and after comparative comparison, described three-pole triangular model of self-others-environment in which create special meaning in places (Fig.2).

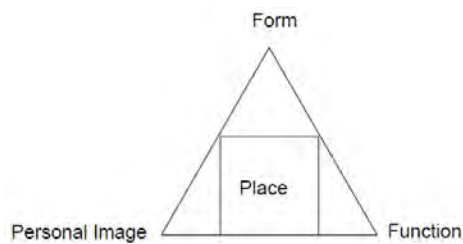


Fig. 1: conceptual model of place and its components
(Canter, 1977a; Carmona, 2010; Marcus, 1974; Relph, 1976)

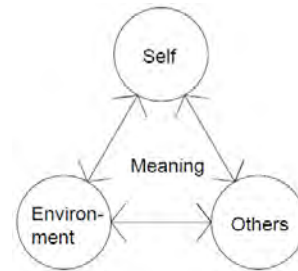


Fig.2: Conceptual model of place and its components
(Gustafson, 2001)

The Factors Contributing to Form the Sense of Place Cognitive Parameters

As discussed before, sense of place is complex combination of concepts, symbols and environmental qualities in which a person or group of persons percept it consciously or unconsciously (Shamai, 1991). Therefore, sense of place has both descriptive and emotional aspects of the environment experiences. It can be derived that the concepts or perceptions in which are decoded by people is one of the factors that creates sense of place. In other words, cognition and understanding a place is among initial conditions for creating sense of place. So, sense of place is not merely a kind of relationship between human and environment but is a kind of system or cognitive structure that individual finds it with topics, objects or concepts of place. In other word, sense is not a feeling before perception but it means affection namely the stage after cognition. Thus, places create different senses among people. The role of personality and experiences are very significant and effective to understand this sense (Falahat, 2006).

Jorgensen (Jorgensen & Stedman, 2001) has studied this issue and during his researches, he has limited any place in three dimension, people's feelings about place are sign of emotional

dimension, their beliefs about place shape the cognitive dimension and the function in a place as a symbol of behavioral dimension (Jorgensen & Stedman, 2001) (Fig.3).

Physical Parameters

This category of parameters is shaped based on theory of place-behavior in environmental psychology. Physical elements with environmental differentiation between outside and inside of spaces have created sense of place. Steele (1981) consider this aspect in his writings, he mentioned physical parameters as Size, Scale, Components, Diversity, Texture, Decoration, Color, Oder, Noise, Temperature. He also has written about some specification such as Identity, Fiction, History, Illusion, Mysterious, Pleasant, Security, Vitality and Memory. As his opinion, these factors have effect on the way people communicate with places (Steele, 1981).

Salvesen (2002) has considered some elements for public spaces which he believes while a place includes these elements, it is readily apparent that a large percentage of them are present in that place which caused to perceived as comfortable, popular, respected and well-used. These ingredients can establish a sense of place from his point of view. That are Ownership- an identifiable group that has a sense of pride and responsibility for definable space, Authenticity- a genuine ethos of historic or contemporary meaning or context is present, and accommodations; amenities are present to meet basic human needs and desires: nature, water, trees, plants and sky are some of his examples, which creates sense of place (Salvesen, 2002). In regard with interior places, spatial characteristics, such as organization and arrangement of internal components have great effect on forming sense of places. On the other hand, physical elements of place create sense of place through accommodation and conformity of human needs (Motalebi, 2006).

Finally, the different approaches mention in the Table 1.

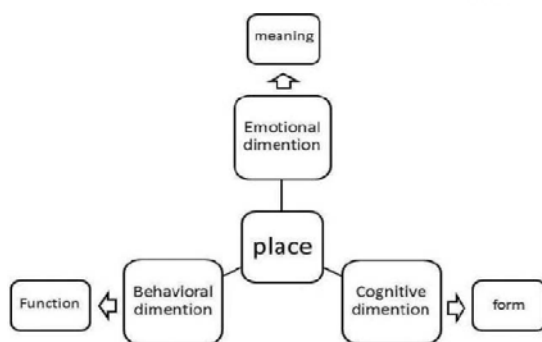


Fig.3: Conceptual model of place and its components
(Gustafson, 2001)

Calculation

According to discussed theoretical frameworks, surveying physical specifications, social interactions and meanings

Table 1: Different aspects of human interaction with the environment and its association with different components of place
(Hashemnezhad et al., 2012)

	Type of relationship	Details of relationship	Place component
Interaction between humans and places	Cognitive	General perception in order to understand the geometry of space and orientation	Form
	Behavioral	Perception of space capabilities to obviate the needs	Function
	Emotional	Perception of satisfaction and attachment to place	Meaning

of place can be useful in perception the sense of place in everywhere. As mentioned before most significant variables of sense of place categorized in two parts of meanings and activities. In prayer rooms of Airports like everywhere else, the form of interior space is very important. In activities category, there is some important consideration about social interaction, social senses, satisfaction and convenience of people. Moreover, the quality of previous experiences and relations are effective in forming the sense of place (Falahat, 2005). Here is a considerable difference between prayer rooms and mosques are worthy to discuss. Because of lack of time for travelers to pray in prayer rooms, may be in some hours the number of people for praying is higher than ordinary condition and in comparison to spatial density in prayer room, the convenience of people matters and compatibility of elements with humans are highlighted among other parameters.

The Mehrabad International Airport is included 6 major terminals which some of them are for domestic flights. According to official documentation of Airport, there are prayer rooms inside some of the terminals. Among these terminals can mention terminal-1, 2, 4 and the terminal of Haj. Terminal-1 and 2 are for arrivals and departures of international flights and terminal-4 is for departure of domestic flights. Passengers, airport staff and anyone who needs for rest and a little relax during the trip, use prayer rooms of these

terminals. In this research, the prayer rooms inside terminal-2 and terminal-4 were selected for this survey. What seems to be true in the observation is that these spaces are not designed at all. However, in the categories of meaning and activities, these spaces have been analyzed considering people responses. (Abbaszadeh, 2013)

Aims

i. The initial aim of the study is to explore the possibility of developing two reliable scales measuring, sense of place which depends on other factors like meanings and activities. At last, it can be examine that, which of considered matters is more important regarding place and its concepts.

ii. The second aim of the study was to investigate the relationships between perceptions of place and gender of people or age of them.

In terms of correlation strategy, survey is one of the most common forms of collecting data in the social fields. Among the methods of sampling, simple random sampling was used. The study examined how much is the amount of sense of place in prayer room inside the terminals. The results reported in the present paper are based on qualitative opinions reflecting a diverse range of viewpoints that converted to quantitative incomes being ready to analyze.

The details of the sample, which was similar at both locations

Table 2: Participants details

Demographic		Frequency	Percent
Age	<= 30	29	20.4
	31 - 40	49	34.5
	41 - 50	41	28.9
	51 - 60	23	16.2
Terminal	2	64	45.1
	4	78	54.9
Gender	Male	113	79.6
	Female	29	20.4
Total		142	100

are presented in Table 2.

In questionnaires which was distributed among users of 2 prayer rooms of Mehrabad Airport, in sum 142 cases were examined by using the SPSS¹. The questionnaire examined a range of questions relevant to sense of place of prayer rooms including environmental meanings until physical items that are very effective in forming this sense. The exact items used in the present study presented in Table 3. The noteworthy point is that the listed questions here is some of important ones, The whole questions were designed which can be easily converted to standard quantitative criteria, for this purpose, a kind of rating scale (Likert scale) should be used for analyzing the data. In this regard, some statements like satisfaction of prayer room, or rate of interest to prayer room was asked from respondent for evaluating other factors. In this questionnaire, five ordered response levels are used.

As mentioned before, some factors have significant influence on the perception of respondents, but in fact, there is more important question to measure the sense of belonging at all. One of these questions measures the interest rate of prayers when they are inside the prayer room. Most respondents give low score on this question because they do not percept the prayer room as a permanent location in their mind and this is mainly because the interior part of prayer room is not designed at all. Another important question that is determinant is about measuring the sense of this religious place is relevant to the

location of prayer room inside terminal and unwillingness of respondent to alter the position. These two questions can specify the amount of belonging people for every place. In the next step, respondents were asked about important physical features of prayer room that in analyzing every place is very impressive. These factors are about the interior shape and size, spatial relationships, and general Layout between interior elements and the last question was about the decoration and texture of interior surfaces of prayer room. In fact, it can be mentioned that these parameters are the main characters in defining a place as prayer room.


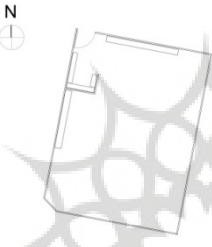



In the questionnaire, satisfaction rate of respondents also be asked to measure the quality of services that are happening at all. There is another set of questions, which is about the characteristics that give special quality to prayer room. In other word, respondents were asked about the sanctity of space that is relevant to symbols and religious signs inside any religious space and they should make some comments. Finally, last part of questionnaire was about the activities which respondents would make opinion of them. Since in every space, the function of that place are important relationship with activities of respondents that depends on behavior of people. Recent issue has important role on perception of whole integration as a place of worship for people.

As it can be found in Table 4, information related to size and location of each prayer room is shown in form of maps.

Table 3: Survey analysis questions for measuring sense of place (SOP)

Please indicate the extent you agree or disagree with each statement:	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree
interior shape and dimension of the prayer room is proper					
the Spatial relationships and general Layout is proper					
the decoration and texture of interior surfaces is proper					
Evaluating the sense of place inside the prayer room					
There is high social activities					
I'm Interested in this prayer room at all					
It's better to change the location of it inside the terminal					
I am satisfied with the whole condition of prayer room					
Which of the followings has given the main identity to the prayer room?					
Symbols and decoration (sanctuary, pulpit, inscription)					
Architectural Design (lighting, ventilation, circulation)					
Activities that occur inside the place (prayer, speech)					

Table 4: Maps and characteristics of each terminal and prayer room of it

Characteristics of terminal2	Frequency	Characteristics of terminal4
<p>As can be seen in the Fig.1, the prayer room is placed so well inside the hall and It can be easily seen, also it has good access to washrooms. There are positive points of the location, which can be effective on respondent's view.</p>	 <p>Fig.3. plan and the location of prayer room</p>	<p>The location of prayer room in the terminal is not suitable and it needs signposts for directing prayers into the place. Indeed, for those who enter the terminal for the first time, it is necessary to ask the exact location of this hidden prayer room.</p>
<p>Characteristics of prayer room</p> <p>As it can be seen in the Fig.3. The proportion of this prayer room is so reasonable. It is 7m * 9.5m. Prayer room of terminal-2 is divided from lounge with aluminum partition with height of 2.5m. In general, it can be noted among negative properties that there is no natural light inside the prayer room.</p>	 <p>Fig.5. Plan/men's prayer room</p>	<p>Characteristics of prayer room</p> <p>The proportion of the whole plan is very similar to an elongated rectangular, its dimension is close to 3.9m * 28m. This item is negative in Perception the whole area in an integrated unit. Floor is covered with carpet and the walls are made of white plaster.</p>
<p>Characteristics of prayer room</p> <p>This place is very similar to men's prayer room. It is very simple, aluminum partition without any decoration. Size is about 4m * 9.5m. Height of this place is the same with terminal and it is Approximately 5m.</p>	 <p>Fig.6. men's prayer room</p>	<p>Characteristics of prayer room</p> <p>Women prayer room has reasonable proportion but the columns that are located in the center of place are destructive in perception. This prayer room is very similar to men's with some decoration on walls.</p>
	 <p>Fig.7. Plan / women's prayer room</p>	 <p>Fig.7. Plan / women's prayer room</p>

RESULTS AND DISCUSSION

According to Table5, most significant factor that is main character of a prayer room in people's viewpoints is decoration and texture of interior surfaces with the mean of (3.42). This is very interesting point, specially, for designers of religious places which aesthetics is more effective than general layout or relationships between elements inside. Another interesting point is about the interior shape and size of prayer room in terminal-4 that is very low (2.87) according to respondent's idea. It seemed that it would be happen because its plan is very elongated and this is negative effect on perception whole

complex, But in decoration and texture of interior surfaces prayer room of terminal-2 has lower position (3.31) compared to prayer room of terminal-4 (3.54) and this shows also some kind of justification inside it. In this case, it can be noted to aluminum partitions between the prayer room and main hall, since this material has no decoration on it, it has no texture and is very simple.

In both prayer rooms, there is a kind of relationship between interest to prayer room and physical features of it. However, under the physical features, interior shape and size does not matter as much as other parameters. Overall, Table 6 shows that

Table 5: Analyzing main characters of prayer rooms

Prayer room in terminal		Interior shape and size	Spatial relationships and general Layout	decoration and texture of interior surfaces
T - 2	N - Valid	64	63	62
	Mean	3.23	2.92	3.31
T - 4	N - Valid	77	78	78
	Mean	2.87	3.42	3.54
Mean	N - Valid	141	141	140
	Mean	3.05	3.17	3.42

everyone who has chosen each variable of physical features as key indicator has great interest rate to prayer room and this is very important in terms of cultural issues. Actually, interest rate and physical features of prayer room has significant correlation with each other.

About identity and its scope in a religious place, respondents were asked this way: "on your opinion, which of the followings has given the main identity to the prayer room?" they should give score to three cases that listed in table below. As it can be seen in Table 7, respondents answer carefully about these items and they have chosen signs and decoration as a main element which give identity to the whole prayer room and this item is

higher for terminal-4 (3.62), As its walls are more traditional signs or Islamic patterns on it. In contrast, under the activities item, terminal-2 has better status (3.35 VS 2.92).

As previously examined, it was found that the signs are the most important factor in viewpoints of people and it is main element of identity in both of prayer rooms which have been tested, so in this section, the correlation between the signs and other two factors have been evaluated. Under this analysis, it was found that there is significant correlation between signs and architectural design and in terminal-4, there is such correlation between signs and activities of people (Table 8). Thus, it can infer that the most significant element among other physical

Table 6: Analysis of correlation coefficient between interest to prayer room and physical features

Prayer room in terminal			Interior shape and size	Spatial relationships and general Layout	decoration and texture of interior surfaces
T - 2	Interest to prayer room	Pearson Correlation	.129	.375**	.393**
		Sig. (2-tailed)	.309	.002	.002
		N	64	63	62
T - 4	Interest to prayer room	Pearson Correlation	.297	.576**	.428**
		Sig. (2-tailed)	.010	.000	.000
		N	75	76	76

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7: Main elements of Identity in a prayer room

Prayer room in terminal		Signs inside the prayer room	Architectural Design	Activities of people
T - 2	N - Valid	59	57	48
	Mean	3.58	2.93	3.35
T - 4	N - Valid	73	74	59
	Mean	3.62	3.05	2.92
Mean	N - Valid	132	131	107
	Mean	3.60	2.99	3.13

Table 8: Analysis of correlation coefficient between Signs inside the prayer room and elements of identity

Prayer room in terminal		Architectural Design	Activities of people
T - 2	Pearson Correlation	.657**	.216
	Sig. (2-tailed)	.000	.140
	N	57	48
T - 4	Pearson Correlation	.537**	.379**
	Sig. (2-tailed)	.000	.003
	N	73	59

** . Correlation is significant at the 0.01 level (2-tailed).

Table 9: Analysis of correlation coefficient between interest rate and main elements of identity

Prayer room in terminal	Signs inside the prayer room	Architectural Design	Activities of people
T - 2	Pearson Correlation	.027	.186
	Sig. (2-tailed)	.839	.165
	N	59	57
T - 4	Pearson Correlation	.194	.400**
	Sig. (2-tailed)	.102	.000
	N	72	73

** . Correlation is significant at the 0.01 level (2-tailed).

features in every prayer room is signs or decorations, which on the one hand, with making relationship with architectural design and in another hand with activities, can create a kind of mental illustration of people from religious place.

According to the Table 9, to be Interested to prayer room has significant correlation with horizontal factors shown in the first raw of table. As in prayer room of terminal-2, space is not designed in a way of traditional approach, activities of people is in higher status comparing other factors but in terminal-4. Interest of respondents has significant correlation with architectural design of prayer room not activities inside. Table 9 shows that activities of people inside an elongated plan

are not matter at all and this result is relatively rational.

As in Table 10, the most general conclusion - the interest rate and subsequently the amount of sense of place - or attachment to place is more in prayer room of terminal-2. In an overall assessment, we can conclude that efficiency of such religious places - prayer room in an international airport - is so little (3.14 out of 5). A well-designed prayer room would be appropriate in a way that people who used to praise it but prayers do not satisfy these requirements fundamentally.

Finally, as it was expected, after all analysis, it is found that there is no correlation coefficient between age ($p=0.17>0.05$) or gender ($p=0.15>0.05$) with sense of place in prayer room at all.

Table 10: Analyzing sense of place in prayer rooms of terminals

Prayer room in terminal	Interest to prayer room	Unwillingness to replace the location	Sense of place	
T - 2	N - Valid Mean	64 3.39	57 3.00	64 3.25
T - 4	N - Valid Mean	76 3.14	73 3.00	78 3.03
Mean	N - Valid Mean	140 3.26	130 3.00	142 3.14

CONCLUSION

This paper addresses the relation between physical features of space as one of the key factor regarding the SOP (sense of place) and the man as a main user of space. There are some parameters of SOP in relation with human and environment that would be the key factors for designers. Among these parameters, this paper focuses on three factors: interior shape and size, spatial relationships and general layout, decoration and texture of interior surfaces.

It can be inferred that the most significant element among physical features in every prayer room is signs or decorations. In this regard, there is significant correlation between signs and architectural design. In other word, there is undeniable relationship between designing signs in every religious space and people's viewpoint about the whole space.

Results show that signs and decoration is among main elements that give identity to the whole space. Interest rate as a general indicator and physical features of prayer room has significant correlation with each other, But under the physical features, interior shape and size does not matter as much as other parameters. Most significant factor, which is main character of a prayer room in people's viewpoints, is decoration and texture of interior surface.

Finally, as it was expected, it is found that there is no correlation coefficient between age ($p=0.17>0.05$) or gender ($p=0.15>0.05$) with sense of place in prayer room. In other word, gender and age are not major or effective factors in sense of place in these spaces. Signs, decoration and activities of prayers are among main elements of identity in prayer rooms. Overall, the result shows that physical features of spaces do not have a great influence on sense of place.

ENDNOTES

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