Study of the Impact of Isfahan Jame (Atiq) Mosque's Milieu on Users' Behavior by Psychological Methods

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Abstract

This research has endeavored to investigate popular locations in Isfahan's Jame mosque(Atiq) for different groups of users and the means that they receive, by using a reverse process. The main research question to be answered by this study was 'how the dominant physical and spatial features of the Jame (Atiq) Mosque impact the behavior of its users?' The methodologies utilized in this study were library research and the psychological field studies. Data were collected through observation by technique of 'Behavioral Map and List' to study the users' behaviors. Questionnaires were also distributed by employing two techniques, namely 'differentiation meaning' and 'grasping the mental map' which are used to study the meaning of the mosque from the viewpoints of its users. By employing the SPSS21 software, the results of the gathered data from the questionnaires were separately analyzed for different groups of users which were divided by "age", "gender" and the "aim of being in mosque". The results demonstrated that a relationship existed between the architectural features of Jame (Atiq) Mosque and the behavior of its users. In other words, the architectural features of this mosque created different perceptions in the users and thus led to the different behavior in them. Findings indicated that women and men selected different parts to stop in the yard. In spite of the tourists who paid attention to all parts of the mosque, the prayers paid attention to the 'Kiblah' direction and the southern veranda.

Keywords: Psychological Study, Isfahan Jame (Atiq) Mosque, Users' Behaviors, Behavioral Plan, meaning differentiation.

Introduction

Jame (Atiq) Mosque is located in Dardasht Area in Isfahan, Iran which have lots of visitors from the past up to the present. According to the bulk of researches in the literature, contemporary mosques have not been able to attract people as much as traditional ones. Therefore, attempting to understand factors which are influential on attraction of users to the historical mosques can be a useful method to creating principles for designing modern mosques.

This study has been carried out within general approved assumptions of environmental psychology and using its principles. Environmental psychology is the study of social behaviors of people in everyday physical environment (Craik, 1970)

One of the most important factors that has been noticed in this study is the impact of environment on the perception and, as a result, the meaning that users received. The importance of that is doubled when perception can lead to different behaviors in users (Rapoport, 1977). Edward Relph has mentioned 3 factors of place which make the core identity of any place include: 'physical setting of a place', 'activities' and 'perceptions' (Relph, 1976). On the other hand, different attitudes and mental values can have influential effects on the perception of quality of an environment (Van

Kamp & at all, 2003). Lang mentioned some personality factors which can have impact on perceptions obtained from an architecture like that introverts prefer lower levels of motivation unlike the extroverts (Lang, 1987). In the case of gender Forgas (1985) states that women are better in sending and receiving emotional notifications than men, though they are less thrill-seeking (Schultz & Schultz, 2015). In addition to the above items, factors like duration of residence, demographic characteristics like age, social status, education, mobility, the size of the community, the power of neighborly relations and environmental characteristics of man-made and natural characteristics of a location can be effective in humans' attachment to a place (Lewicka, 2011).

Since every year, a great number of people go to Isfahan Jame (Atiq) Mosque, one effective factor to influence their privacy could be attempting to achieve a desirable privacy for them. 'Privacy' is the process of setting boundaries between people and determining how to interact with others (Altman, 1975). Hall (1982) believes that distance from others can be dependent on various factors such as emotional states, cultural conditions, etc. Regarding 'Balance Intimacy Theory', Argyle and Dean (1965) mention that when signs of intimacy increase in one aspect, people decrease intimacy in another aspect, like decreasing eye contact, so as to compensate against it. Maintaining a balance between privacy and social interaction is possible by both physical and socio-cultural meanings which create psychological aspects (Eini Far, 2000; p. 112). The relationship between the above factors and architectural physical characteristics could be remarkable.

This study has tried to investigate architectural factors effecting a place and users who get together within. People get together in places with different purposes such as social interactions, enjoying good quality, and seeking privacy. Two qualities for every place are 'sociopetal' and 'sociofugal' (Osmond, 1966). The importance of the sociopetaloid is such an extent that many theorists emphasize the effect of this quality on place attachment which strengthened by physical aspects of place and the quality of social interaction is effective on it (Poll, 2002). The physical space is the result and reflection of the structure and social interactions (Hiller, 1999).

Image 1. The west veranda (right) and south veranda(left) of Isfahan Jame(Atiq)Mosque (Authors, 2014)

Table 1. The separation of the time of attending in the mosque for tourists and worshippers(Authors,2014)

The period' name in the research	The users	The time of fieldwork(3 days of winter 2014)
Before congregational praying (preparing the behavioral map and list)	tourist	9 to 11:30
	Tourist and worshiper	11:30 to 13
After congregational praying(preparing the behavioral map and list of worshipers)	worshiper	13:00 to 14:00

Since this study has been carried on architecture, aim has been to examine physical factors in sociopetaloid of space and so the study reviews the effect of social factors by dividing users into different groups (in terms of age, gender and aim). Gans (1968) contends how one uses an architectural space is dependent on number and quality of 'opportunities'.

In designing efficient environments, Bentley et al. (1985) name different aspects of designing an environment which can influence the type and power of people's 'decision-making'. These aspects include 'permeability', 'legibility', 'flexibility', 'visual appropriateness' and 'richness'. Shaftoe mentioned some factors which could make an environment friendly such as 'having plenty of places for sitting' and 'being adaptable' (Shaftoe, 2008). Behavior setting which Barker (1968) took account of that including 'a standing pattern of behavior', 'milieu', and 'synomorphy' that is the result of coexistence of the two previous items. Considering the personality characteristics of users, this study reviewed elements which might lead to the formation of territorial behavior, privacy-seeking and social interactions in Isfahan Jame (Atiq) Mosque.

Besides many valuable investigations have been carried out on the studying and evaluating an architectural building the literature lacks such an investigation on a religious monument in Iran by employing mixed-method psychological designs.
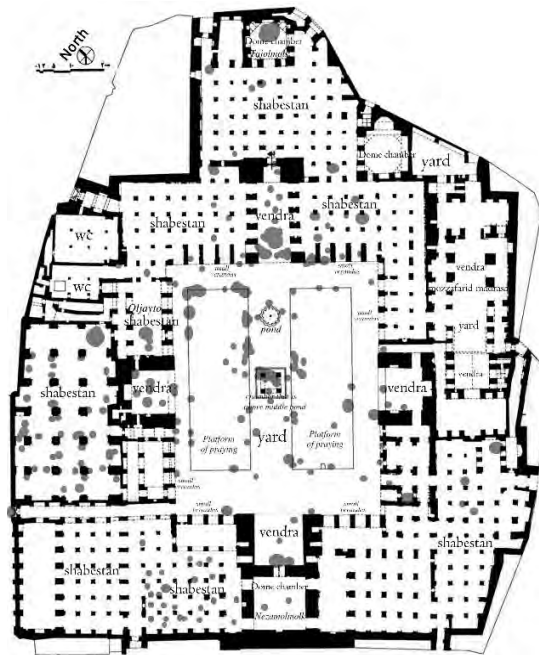
Figure 1. The map of population density of population of Isfahan Jame (Atiq) Mosque in different places of that (Administration of cultural heritage and tourism of Isfahan 2014, the population density by Authors, 2014). The black stains represent the places of stops and intractive behaviors of users.

Materials and methods

To investigate the reasons and sorts of user's behaviors in Isfahan Jame (Atiq) Mosque, psychological fieldwork by the tools of 'observation' and 'questionnaire' have were employed. Observation included two techniques of 'Behavioral listing' and 'Behavioral mapping' and the questionnaire was divided into two techniques of 'meaning differentiation' and 'mental map' to obtain users' perceptions. Mediating variables included three main factors: the 'age', 'gender' and

'purpose of being in the mosque'. According to the categorization of behavior, the mental maps were classified the relationship between the classes were evaluated. According to 'list of behavior', maps of behavior were prepared according to 'age' (children, youths, middle-aged and elderlies), 'gender' (women and men) and by the 'purpose of being in the mosque' (tourists and worshipers). Given that each point in the behavioral map represented the behavior of one or more than one user(s), a general map was prepared which illustrated the sample while distinguishing each category. Therefore, size of each area was proportionate with number of people who represented them (Figure 1).

Image 2. The east veranda (right) and north(left) of Isfahan Jame (Atiq)Mosque(Authors, 2014)

To differentiate behavioral maps of worshipers and tourists, a 'behavioral map' was prepared by division of time periods. In one period, i.e. congregational praying, both tourists and worshipers were presented and in the second time period which was after the congregational praying, mostly worshipers could be seen. Table 1 shows this separation. Figure 1 was prepared according to the method proposed for the behavioral map. It shows the density and the place of the users' gathering. Table 2 shows the behavioral map and list of users' gathering in different places of the mosque briefly

Table 2. The Behavioral List of The Place Of Pause And The Population Density Of Behaviors In The Mosque According To 'Aim Of Being In The Mosque', 'Age' And 'Gender of Users (Authors, 2014).

The place of pauses with low population density	The place of pauses with average population density	The place of pauses with high population density	Mosque's spaces	The group of users
The south veranda	The east and west veranda	The north veranda and small verandas of north of yard	verandas	**All of the users**
The south veranda	The north dome	-	domes	
The small verandas of east, west and south of yard	The proximity to the pond	The proximity to the chamber above middle pond, the edge of platforms toward the walls	yard	

The place of pauses with low population density	The place of pauses with average population density	The place of pauses with high population density	Mosque's spaces	The group of users	
East veranda	South, north and west veranda	-	verandas	**tourists**	By the separation of the 'aim of being in the yard'
South veranda	North dome	-	domes		
All of parts	The proximity to the chamber above the middle pond,	-	yard		
The south, east and west verandas.	-	North veranda	verandas	**Worshipers**	
The north and south veranda.	-	-	domes		
The middle of yard.	-	The edge of praying platforms toward the wall in west-north of the yard	yard		
All of verandas	-	-	verandas	**children**	By the separation of the "age"
Both of domes	-	-	domes		
-	Proximity to the pond	The chamber above middle pond,	yard		
-	The east, west and south veranda	North veranda	verandas	**youths**	
-	The south dome	North dome	domes		
-	The edge of praying platforms	The proximity to the chamber above middle pond	Yard		
The east, west, north and south veranda	-	-	verandas	**Middle ages**	
The north and south veranda	-	-	domes		
-	The edge of praying platforms	-	yard		
The east, west, north and south veranda	-	-	verandas	**Olds**	
The north and south veranda	-	-	domes		
-	The edge of praying platforms	-	yard		

The place of pauses with low population density	The place of pauses with average population density	The place of pauses with high population density	Mosque's spaces	The group of users	
The east, west, north and south veranda	North veranda	-	verandas	**women**	By the separation of 'gender'
South dome	North dome	-	domes		
The middle parts of the yard	The proximity to the chamber above middle pond	the edge of praying platforms toward the walls in north-west veranda	yard		
Southern and eastern veranda	-	Northern and western veranda	veranda	**men**	
-	Southern dome	Northern dome	domes		
Southern dome	Northern dome	-	yard		

In the next step, the technique of users' meaning differentiation was used to mark the perceptions of mosque as bipolar traits in one of the five spectra in the questionnaire. In the meaning differentiation process, users' understanding and recognitions were worked out. In this separation, the responder was asked to represent his or her perceptions and feelings by the several bipolar adjectives and it is possible to find the interior relationships and meanings. In so doing, the correlation between the perceptions could be identified (Osgood, 1957).

In the following, the results of all of the tables are mentioned briefly in Table 3; this is because the table for each group of users (worshipers and different groups by the age and gender) lengthened the essay.

Table 3. The meaning of Isfahan Jame (Atiq) Mosque from the perspective of all of groups of users by the technique of 'differential meaning' (Authors, 2014)

The low number of choose (under 40%)	The average number of choose (40% to 70%)	High number of choose (70% to 100%)	The groups of users	
Crowded, dynamic, warm, bright	Familiar, complicated, organized, consistent, memorable	High, intimate, the feeling of being inside, old, extensive, interesting, peace, bright	**All of users**	
Bright	Crowded, high, dynamic, complicated, organized, shiny, warm, peace	Familiar, intimate, pleasant, the feeling of being inside, old, extensive, memorable, interesting, bright	**Worship ers**	By the 'purpose of being in the mosque'
Crowded, dynamic, familiar, organized, consistent, shiny, warm, bright, memorable, peace	Intimate, complicated	High, pleasant, the feeling of being inside, old, extensive, interesting, bright	**tourists**	

The low number of choose (under 40%)	The average number of choose (40% to 70%)	High number of choose (70% to 100%)	The groups of users	
Crowded, dynamic, familiar, organized, consistent, shiny, warm, bright , memorable, peace	Intimate, complicated	High, pleasant, the feeling of being inside, old, extensive, interesting, bright	**Child ren** (asked from older people to mark children's opinion)	**By the age**
Dynamic, bright	Crowded, high, familiar, complicated, consistent	Intimate, organized, the feeling of being inside, shiny, warm, old, extensive, memorable, interesting, peace, bright	**youth**	
bright	Crowded, dynamic, familiar, warm	High, intimate, complicated, organized, consistent, pleasant, the feeling of being inside, shiny, old, extensive, memorable, interesting, peace, bright	**Middle aged**	
Crowded, dynamic, warm, bright	High, complicated, the feeling of being inside	Familiar, intimate, organized, consistent, pleasant, shiny, old, extensive, memorable, interesting, peace, bright	**Elder lies**	
Crowded, dynamic, familiar, bright	Intimate, complicated, organized, consistent, the feeling of being inside, warm, extensive, memorable	High, pleasant, shiny, old, interesting, peace, bright	**women**	**By the gender**
Dynamic, bright	Crowded, high, intimate, organized, consistent, shiny, warm, memorable	Familiar, complicated, pleasant, the feeling of being inside, old, extensive, interesting, peace, bright	**men**	

In order to come to a better analysis of the results of 'meaning differentiation', the SPSS 21 was used and correlation coefficient between adjectives was run on the data by using the Spearman correlation coefficient. If the level of significance was less than the correlation coefficient, the correlation was reported to be significant which in this test were considered with the %5 error. For summarizing the results obtained from SPSS21, some adjectives which seemed to be positive, including 'interesting', 'peace', 'intimate', 'familiar' and 'pleasant' were considered as constant variables. In addition, those variables which had meaningful relationships were mentioned as the

factors which were created in users. The table5 show the constant adjectives and adjectives which have a meaningful relationship with them briefly. In what follows the research technique which was used to getting the users' mental maps, tried to recognize the places which were more notable from the users' point of view(table 4).

Table 4. Checking the correlations between constant bipolar adjectives and inferential adjectives (have a meaningful relationship with fixed adjectives) in all of groups of users of Isfahan Jame (Atiq) Mosque (authors, 2014)
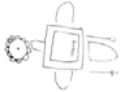
By the aim of gender		By the aim of age				By the aim of being in the mosque		All of users	Positive adjectives
men	**women**	**olds**	**Middle age**	**youth**	**children**	**Tourists**	**worshipers**		
High, chaotic	-	-	-	-	-	High, static	-	Distant, chaotic	**interesting**
memorable	high	-	-	extensive	-	High, static, complicated, the feeling of being inside	-	pleasant	**peace**
Short, familiar, memorable	memorable	-	-	-	Crowded, simple, warm, heavy, memorable	Organized, consistent	-	Short, familiar, memorable, boring	**Intimate**
-	memorable	-	-	-	-	-	-	Dynamic, intimate	**Familiar**
static	Shiny, extensive, bright, high	-	-	extensive	Chaotic, inconsistent, shiny	High, extensive	Shiny, memorable	shiny	**pleasant**

Analyzing the influence of 'age' on effectiveness of mosque architecture

Analyzing 'population density' maps, it was revealed youths were more often seen mostly in the main verandas and domes which are soaring. Middle-aged people and elderlies were rarely seen in these areas probably because they were less thrill-seeking (Schultz & Schultz, 2015). Additionally, the mental maps indicated that youths paid attention to transcendental elements emphasizing that they preferred to be in transcendental spaces (Table 5). According to behavioral maps, youths' presence can be seen in all parts from the entrance to the kiblah wall. However, aged people could not be seen around the entrance. This might have its roots in Iranian culture which recognizes altitude places as those which are farther from the entrance (Mortazavi, 1988). Accordingly, old people preferred to stay in places far from the entrance.

Table 5. Notable Architectural Elements in Isfahan Jame (Atiq) Mosque Which Are in Mental Maps Obtained from Different Groups of Users (Authors, 2014)

Sample of sketches	The notable elements in mosque's architecture	The notable approach in mental maps	Group of users	
	Yard, the middle brick platform(yard is the most important element which sketch)	Plan approach	**All the users**	
	Verandas, domes and scalloped pond, the latticed walls of the yard, the tile designs in the verandas, the southern and western mogharnas, the pergola above west veranda, the arches of the yard in two rows and minarets (the most important sketched elements are first south veranda and west veranda)	Perspective approach		
	Praying lines	Functional approach		
	The southern veranda(the most sketched element), the praying lines(just one)	All tree approaches have seen equally	**Worshipers**	**By the aim of being in the mosque**
	All of yard sides and also the whole of mosque	All tree approaches have seen equally	**tourists**	
	The high elements such as domes and minarets	All tree approaches have seen equally	**children**	**By the age**
	Domes and verandas	All tree approaches have seen equally	**youth**	
	Sanctuary, pond	All tree approaches have seen equally	**Middle aged**	
	The scalloped pond in the middle of yard	All tree approaches have seen equally	**Elderlies**	
	Lack of plan, Drawing a corner of the yard(Lack of attention to the whole of the mosque and paying attention to details)	All tree approaches have seen equally	**women**	**By the gender**
	Drawing the whole of mosque in the plan	Plan approach	**Men**	

Regarding 'age' in the meaning differentiation questionnaire, it was revealed that children perceived mosque 'high', which could be because of either their inadequate exposure to high buildings and or their small bodies. This perception was emphasized in the mental maps, too. This could be because of the notions that children pictured transcendental elements of the mosque more and therefore they paid more attention. Besides, children did not picture the mosque to be 'shiny' enough and reported it darker than other age groups did. This could be because of their interest in shiny spaces because it was observed that there was a meaningful relationship between the adjectives of 'pleasant' and 'shiny' for children (Table 4). Youths believed that the mosque was more 'boring' probably because they were more trill-seeking (Schultz & Schultz, 2015). Youth usually are not capable of perceiving the meaning of mosque as being 'inactive' and see it as 'active'. The same was not true for elderlies probably because they needed more peace and quietness.

Analyzing the impact of 'aim of being in the mosque' on effectiveness of mosque architecture

The research showed that there was a significant difference between the behavior of tourist and worshiper in different places of the mosque. The tourists pretended to go all the parts of mosque probably because of being inquisitive. While worshippers are more in northern veranda. It can be because of that the kiblah direction was not so important for tourists while worshipers paid attention to kiblah direction a lot. So, the worshipers did not attend the southern veranda where kiblah direction could be seen, which was noteworthy. The mental maps support this idea too because the worshipers mostly concerned the southern veranda which is in kiblah direction, while the tourists mentioned different places of the mosque (table 5). After the congregational praying, however, when more worshippers can be seen, population of worshippers collected in the north-western platforms of the yard. The reason for this could be that eye contact is restricted due to the walls and they had more privacy (Argyle and Dean, 1965), especially for praying. It happens in shabestans too where the columns also restrict the vision to the surrounded area and this makes more privacy.
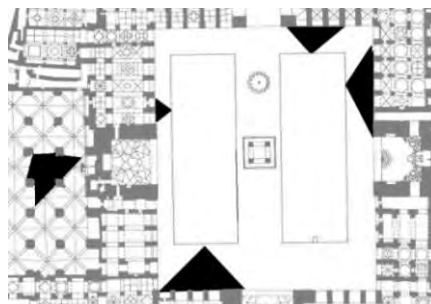
Figure 2 The restricted vision in some parts of mosque (Authors, 2014)

Analyzing the impact of 'gender' on effectiveness of mosque architecture

Analyzing the behavioral maps in terms of 'gender' showed that women were rarely in the verandas and the middle parts of the yard. Often, they sat or stopped in the corners of yard and on the edges of praying platforms where they could be facing the wall and their visions would be more restricted and the privacy increased. This is maybe related to cultural issues which invited women to be far from the focus of center. In the. Another reason can be that women are less trill-seeking (Schultz & Schultz, 2015) which bring them to corners of the yard where they could be far from attention. In addition, each one of the small verandas caused gathering women together in it by providing users with more privacy and more solitude (Image 3). The results of 'meaning

differentiation' questionnaires show that the women saw the mosque smaller than women probably because they had a restricted vision in places they chose to sit.

Image 3. Small verandas of north wall of yard which makes a territory for people in it (Authors, 2013)

Image 4. The winter shabestan (Beytoshata) of Isfahan Jame (Atiq) Mosque (authors, 2014)

Also the same result by the gender show that men did not see the mosque high enough probably because they were more trill-seeking. In addition, their more pauses in the crowded places which are observed in the behavioral maps caused them perceive the mosque more dynamic. Since women noted details more than men, they considered the mosque less complicated than men; It was observed in the mental maps that women paid attention to the components of mosque such as verandas while men drew the totality of the mosque in the plan.

Conclusion

The research showed that the milieu of the Atiq (Jame) Mosque of Isfahan affected it users' behaviors by impacting on the meaning they received. The confounding variables such as 'age', 'gender' and 'aim of being in the mosque' influenced user's perceptions and, as a result, they had effects on their behavior, too. The study showed that the places which were in the center of focus had less population density and that there were less stop in them. As compared to children, women and elderlies, youth and men had more presence in transcendental spaces, like verandas and domes. Tourists present in all parts unlike worshippers who avoid being in kiblah direction.

Some parts of the mosque architecture caused less eye contact and more privacy. As a result, more people collected in them. Parts such as the middle platforms of the yard which were facing the walls and columns of Shabestan. Some elements caused defining a behavioral territory and forming a territorial behavior which welcomed groups with a few members. The small verandas in the yard, especially the northern verandas, and wide columns of the Beytoshata Shabestan (winter Shabestan) were example of these elements. Culture can also be an effective element to use the building. In this regard, old people stopped in some parts of Shabestan where they could be far from the entrance.

This might be a result of the traditions that in Iranian culture there are more dignity for areas of the interior spaces which are far from the entrance.

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