

The Role of Climate and Culture on the Formation of Courtyards in Mosques

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Abstract

The process regarding the formation of different mosque gardens and the elements that contribute to the respective process is the from the foci point of this paper. The significance of the topic lies in the fact that certain scholars have associated the courtyard in mosques with the concept of garden, and have not taken into account the elements that contribute to the development of various types of mosque courtyards. The theoretical findings of the research indicate that the conditions and instructions regarding the Jemaah [collective] prayers on one hand and the notion of exterior performance of the worshiping rites as a recommended religious precept paired with the cultural, environmental and natural factors on the other hand have had their share of founding the courtyards. This study employs the historical analytical approach since the samples are not contemporary. The dependant variables are culture and climate while the form of courtyard in the *jame* [congregational] mosque is the dependent variable. The statistical population includes the *jame* mosques from all over the Islamic world and the samples are picked selectively from among the population. The findings have demonstrated that the presence of courtyard is in part due to the nature of the prayers that are recommended to say in an open air, and in part because this is also favoured by the weather in most instances and on most days. The area covered by the courtyard and its features were mainly determined by the climate and culture of the given area, and this is what originates the variety of mosque courtyards across the Islamic territory.

Keywords: *Jame* Mosques, Courtyard, Portico, Hypostyle Prayer Courtyard

1. Introduction

The art and architecture of Islamic territories are distinctive in two senses if it is not the more: one of them is the fact that they have been developed and transformed in the course of time in compliance with the alterations of the respective era and they have appeared as more and more impeccable from one period to the next. The latter distinctive fact is that, they have been greatly influenced by the climatic environment, climate and culture of their immediate surrounding as far as the influence would not contradict the Islamic beliefs and practices. The art and architecture of the Islamic civilization reflect the local characteristics of their original region. This is why the Iranian, Arabian, African, Indian, Ottoman and Chinese mosques share certain features and yet are each of distinctive characteristics of their own. Obviously, as in any other prominent religion, culture and civilization, symbolism and symbolic representation have been common practices in the design of architectural spaces and their decoration and adornment. However, probing into such symbols and introducing them call for well-documented, well-argued research. Seemingly, no comprehensive research has as such been conducted to date to accommodate to all features of architecture within

the Islamic territory. What has grown into the dominant trend in Iran in the past few decades, particularly from the 1970's on, and it is believed to be raised by the imported western traditionalism is the interpretation of works of architecture (among other art forms) in a way that is not rooted in history nor is supported by sound reasoning. In most instances such interpretations suffer from a lack of reasoning and documentation. Also, contexts including such interpretational content are at times garnished as ritual texts, or are thus revered. Above all, the tradition of architectural criticism is by no means a common practice in Iran. It is rather postulated as disqualification or even hostility. Altogether, these all have resulted in the absence of proper and sufficient examination of the issue. It is at times received well on the side on the students, but has stopped right there without being studied or analyzed further.

It is to be pointed that holding to the abovementioned view is not meant to substantially refute the western-style traditionalism that lived in the cultural context of Iran for the past 5 decades, nor is it to undermine the achievements of western scholars who follow the

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discipline. The only issue is that some of these scholars such as *René Guénon*, *Frithjof Schuon*, *Titus Burckhardt*, or even *Henry Corbin* and *Henri Stierlin* have at times put forth exaggerated or erroneous impressions. For instance, what *Burckhardt* writes about the form of courtyard in the traditional houses of Islamic countries reads, “with its enclosed courtyard and garden where the fountain or well is located, a Muslim’s house is similar to the world. The house is the family’s sanctuary, and is the kingdom of the woman where the man is treated merely as a guest. Plus, the square-shaped plan is in accordance with the Islamic matrimonial rules where the man is allowed to be married four women at the same time provided that he treats all four fairly. The Islamic house plan absolutely blocks the exterior world out; thus, the family life is disconnected from the social life. The only way out is the upper part which is open to the skies reflected in the water in the fountain.” (Burckhardt, 1990: 148). Elsewhere, *Stierlin*’s description of *Imam Mosque* in Isfahan is also interesting, “the two *wudu* [ablution for prayer] fountains in the center [of the courtyard] lend their glow to the four surrounding porticos arranged in two symmetrical pairs in order to shape the cruciform plan of the courtyard with centripetal facades, i.e. facing the center of an unroofed space. This cruciform plan is similar to that of the *chahar-baq*, which is in turn a metaphorical representation of the paradise” (Stierlin, 2008: 63). Is it possible to compare the courtyard of *Imam mosque*, which is scantily planted, to the paradise merely for the decorative floral tile patterns? Then, would it not exclude the courtyards of *Atiq Mosque* in Isfahan or others that are bare of tiles from the comparison? Or aren’t those mosque courtyards without a central fountain or cruciform portico plan comparable to the paradise? Also, if being decorated with tiles likens a given place to the paradise, so are palaces or other buildings with decorative tile work, and this would be the case as for the cruciform porticos and quadrangles common in the plan of caravanserais, cemeteries or places. Is the hypothesis true? Are they also similar to the *chahar-baq* plan and compared to the paradise? What is the indication of mosque courtyards with fountains but without quadrangles? These are entailed by several other questions. It is true that the cruciform plan is analogous to the *chahar-baq*, but each type of quadrangle has the features of its own in spite of formal resemblances, as seen in the variety formed by *Chahrtaq*, *Chaharsoffeh*, *Chaharsoo*, *centrifugal and centripetal cruciform porticos* and the like, each with function(s) of its own. They are all rooted in the ancient Iranian architecture (Soltanzadeh, 2014: 107).

Burckhardt has also likened the mosque courtyard to the paradise, saying, “Normally mosques have a courtyard with a spring or well where the believers can perform the *wudu* prior to the prayers. Sometimes, the source of water protected by a small dome. Similar to an enclosed garden with gutters streaming off the center, the courtyard and its central water fountain are likened to paradise” (Burckhardt, 1990: 147). Elsewhere, he describes the mosques with a pair of minarets at the portal: “the mosque portal flanked by two towering minarets is an eternal reminder of the gates to the Heaven, which is the sole axis of the universe being located between two conflicting yet complementary symbols” (Burckhardt, 1986: 174). The simile is obviously far too simplistic and superficial as it raises the question of whether the mosques built before the reign of Ilkhanids (including *Masjid Al-Haram* and *Masjid an-Nabawi*) and lacked the pair of minarets were not the eternal reminders of the gate to the heaven?

Such interpretations about the mosque courtyards and their related spaces and elements necessitate some researches on the characteristics of the mosque courtyards, their architecture and the aspects that contribute to their formation.

2. Methodology

A descriptive-analytical approach is employed to conduct this research. Some data were collected using the documentary method while others were the result of the author’s field observations of Iranian mosques as well some other mosques in Saudi Arabia, India and Azerbaijan. The independent variables are culture and climate, and the dependent variables are the form of courtyards and their related elements. The statistical population comprises a number of well-known mosques dating back to the earlier periods of the Islamic era. Sampling has been based on the formal attributes of the courtyards, opting for one prominent mosque from among a group of similar ones. However, an article does not seem to have the required capacity for introduction of sufficient samples in details, and thus a limited number of more significant mosques are selected. The historical development of courtyards in each Islamic country is as such beyond the scope of the present article.

3. Conceptual framework

Almost all scholars have highlighted that upon entering lands of great civilizations, Muslims and the Islamic culture allowed the locals to partially preserve their artistic traditions to the extent that they would not

contradict the Islamic and monotheistic rites of Islam. Thus, the architecture and urban design of post-Islamic Iran reserved the traits they had inherited from the ancient Iran. Spain would also fit within this category (Le Bon, 1974: 14, 139). Certain shared religious orders, attitudes and behaviour patterns resulted in similarities between the structures and constituent features of the mosques within the boundaries of Islamic territory (Ingpen Wilkinson, 1990: 75). That is why all mosques share structures and elements such as prayers hall [*shabestan*], minaret, *mihrab* [the niche at the front of the prayer hall which marks the direction of *qibla*], etc. Also, the directions of the plan are determined by the direction of *qibla*, while the axis along which the prayers rows are formed is perpendicular to the former.

With its history-old civilization and monotheistic backgrounds (unlike Egypt whose ancient culture is believed to be extremely polytheistic), Iran has always been looked up as a role model in architecture and urban design. During the Islamic period there was always a number of Iranians who contributed to the advancement of Islamic culture. This was particularly evident in the rule of the *Abbasids* Caliphate who rose to power by the help and support of *Khorasan* troops had a significant role in the development of architecture across the Islamic kingdom, and this went so far as many scholars see Baghdad as a reflection of Iranian architecture (Bennison, 2009: 69). The impact of Iranian art and culture on the formation of Islamic culture has also been underlined by several Islamic scholars of the past times (Ibn Khaldun, 1974: 1002).

The link between some features of the Iranian architecture in the pre-Islamic and Islamic periods seems to be binding, but also the same is seen in other regions with brilliant pre-Islam civilizations whose type of architecture had the potentials to house Islam. Some dome-centered mosques of the Ottoman territory are inspired by or modeled after Hagia Sophia, which originally belonged to the Byzantine architecture, thus one cannot expect to see the fact that their most prominent mosques are inspired by mosques from other countries. In China, *Ja'mes* follow the Chinese patterns of architecture. Thus, it is by all means expected that when it comes to the most exquisite Iranian mosque architecture, the practice is believed to be influenced by pre-Islamic experiences and principles of architecture. This is because Islamic architecture and art would never frown upon the preservation and practice of local artistic traits of the given region as long as it was not against the Islamic teachings. Therefore, the grand *james* of any significant, large country is the reflection of some

local architectural characteristics. The fundamental principles of *jame* mosques are varied and yet unified in certain issues.

The role of natural and geographical features such as the climate, altitude, distance from the beach, geological structures of the era, annual precipitation and the like should also be taken into consideration in the formation of architectural spaces. Several scholars of geography and environmental sciences have mentioned the above issues (Rahnamaei, 1992: 3).

4. Findings

The Courtyard and some its functions

The word *hayāt* [courtyard] has Arabic origins, and is defined as an enclosed or semi-enclosed open space. Other similar words used in Farsi to refer to the open space surrounding one or more buildings are also originally Arabic, which entered the destination language during the Islamic period and are still in use. In older Farsi dialects spoken in some towns terms such as *miyānsarāy* (Samarqandi, 1964: 59) or *jāysarāy* (Efandi, 1997: 206) are used to refer to it.

Once the prayer hall was full, the surplus crowd of prayers would stand in the courtyard for Jemaah or Friday prayers. Lighting, ventilation and providing access were also among the functions of the courtyard. However, the plan of courtyards being located in a vast open space in some Ottoman mosques shows the cultural and symbolic function of the courtyard as well.

In the occasion when the courtyard of the mosque was integrated into the urban texture it was used for crossing by the public, and this was the sole instance when the Islamic clerics alleviated the condition of being clean and free, while at any other circumstances people need to be pure to be eligible for entering the mosque.

Some other mosques had their courtyards as located in the junction of bazaars, and were thus possibly used as places for socializing. Naserkhorso refers to a mosque in Egypt as a "promenade", saying, "There are bazaars off all four portals of the mosque. It is constantly filled with the trainers and instructors of Quran; the mosque is the promenade of the large city, and there are at least five thousand people in it at all times" (NaserKhorso, 1977: 62).

Having visited the Damascus *jame* in the first half of the 8th century A.H, Ibn Battuta mentions the rather urban function of the mosque courtyard, "the beauty of the courtyard is near perfection. People gather in it in the

evenings to recite Quran and hadith, and return home after the evening prayers” (Ibn Battuta, 1980: 86).

The variety of uses and functions was the basic reason why the courtyards in large cities were vast. Being associated with the Oljaitu’s minister, Tajeddin Alishah, Tabriz’s *Alishah* mosque is magnificent and is probably one of the largest mosques in the boundaries of today’s Iran. As an attempt to make the portico even larger than that of Taq-e Kasra it is built with an opening of 30.15 meter and depth of 65 meters. It is suggested that the original height had been 25 meters from the floor to the ceiling. The walls had also been around 10.40 meter (Wilber, 1996: 159). As reported by Hamdollah Mostowfi the ceiling has collapsed due to the hurried construction (Hamdollah Mostofi, 1983: 77). It is also written in his books that the courtyard had originally been 200 by 250 meters. Donald Wilber also seems to have based his report on this source, putting the length and width of the courtyard at 250 and 200 meters (Wilber, 1985: map no, 30)

The pattern of prototype mosques and their development

Several sources name Prophet Mohammad’s house in Medina as the first model for the earliest mosques. His house included one simple space with a large courtyard, which was roofed in the south with two rows of wooden columns. Half of the north side was another roofed area erected on a row of columns, which was called *zelleh* meaning the shadowed area. There were some rooms along the east, which was the residence of the Prophet and his family. Originally the entrance portal wood face the courtyard but it was later relocated. The square- shaped courtyard measured 50 meters on each side (Gerabaar, 2000: 117). This simple space could be considered the earliest mosques. One of the two open air spaces would serve as the prayer courtyard. When the weather was favourable, the morning, noon and evening prayers were held in this place and the only prayers that were performed under the midday sun in summer was the noon and afternoon prayers, which made it a bit difficult due to heat and called on the creation of more roofed for prayers. As performing the prayers in the open space under the condition of having favourable weather was recommended, most mosques in Islamic countries comprise a combination of roofed and unroofed cater to the possibility of holding prayer ceremonies at the right time. The role of courtyard was meagre or even eliminated in areas in very cold or rainy places.

It seems that the most important notion in building initial Islamic mosques was that the roofed part was built along the direction of *qibla* so that people face the mihrab side

while saying prayers or listening to the speech, and are not disturb by the people who enter or exit the hall. This was observed in almost all mosques. In the chapter on the *Abbasid* Mosques, Hillenbrand dates the addition of three porticos along the three sides of the courtyard (except for the prayer hall side) back to the second half of the second century AH. He introduces examples of this trend from the western side of the Islamic territory: “this [reflection of the heat from the sun in the plain courtyard of some mosques] was especially probable when three out of four sides of the courtyard lacked shades. This is evident in Mosque of Cordoba (170/786), Mosque of Kairouan (221/836) and the *Jame* of Tunisia (864/250). Thus, the idea of adding porticos along the other three sides of the Courtyard was put in to practice so the crowd could walk around in the shadows” (Hillenbrand, 2001: 73). He also mentions under the Earliest Arabian Mosques that the idea aligning the Courtyard and porticos was not received well, and the portico was instead built around the Courtyard. However, he does not mention the name of the mosque where this occurred. (Hillenbrand, 2001: 67)

The author has mentioned elsewhere in an article published two decade ago (Soltanzadeh, 1995: 508) that the idea of adding three porticos is most probably and adaption of Iranian architecture style one of whose examples can be seen the Kufa *Jame* which was destroyed by fire, and was reconstructed with the aforesaid addition in 40 AH. Parts of the eastern Iraq have obviously been influenced by the Iranian culture and art, and they even belonged to the greater Persia one day. Ctesiphon near Baghdad was one the most important government seats and the capital of the Sassanid’s dynasty. The plan of courtyard with porticos has long been favoured in the Iranian architecture. There are still relics of the heritage in the Persepolis.

Another significant issue which indicated the influence of the Iranian architectural culture in the construction of eastern Iraq in the 6th century AH is what Hillenbrand says about the reconstruction of *Kufa* mosque in 40 A.H: “the same ruler [Ziyad bin Abi Sufian] brought the use of brick columns into the architecture of mosques along with Iranian style capital decorations, i.e. those resembling the columns of the Persepolis with ox and other animal motifs” (Hillenbrand, 2001: 68). This can prove that the Arabs were so influenced by the Iranian culture and architecture that they used animal figures and motifs in the 1st century AH, and that in religious venues, despite its being prohibited in the Islamic tradition.

Stierlin

How did the Courtyards become enclosed?

As mentioned earlier, a mosque has a prayer hall on one side and three porticos on the other three in its most basic form, which enclosed the mosque. However, from the middle of the 1st century A.H the lateral Courtyard came to be used as the main Courtyard. One of the common traditions in the construction of Courtyards with various combinations and arrangements of porticos such as one portico, two or four porticos, examples of which already existed before the Islamic era during the reign of the Ghaznavids and the Seljukids. The quadrangle plan and most probably the porched Courtyard plan has seemingly travelled from Iran to other neighbouring Islamic countries through the publication of ritual materials.

In a certain type of Ottoman mosques with porticos there is high central dome in the center of the roofed space or the prayer hall. Examples of this style are *Fatih* or *Shehzade* Mosques in Istanbul or *Beyazit II* Mosque in Edirne. There is a portico with vaulted arches along all four sides of the courtyard as, unlike other Islamic countries, the centripetal façade and its looks are not really important and is would not merge into the continuation of the openings of the rows of vaults. In this type of the ottoman mosques the dome is visible from all directions and is considered as the most important part of the building. As it is normally 2 to 3 times higher than the porticos, they cannot block its sight. Also, most of such mosques are built in an empty land where they could be seen from distances and from all angles. This is while most mosques in Iran are nestled within the dense urban texture in Iran and many other Muslim countries, and are not easy to see from outside the building expect for some random exceptions through long distanced or passageways.

Some types of Courtyards in mosques

Lateral Courtyard

It is the simplest type of courtyard with two prayer halls in one or two sides and the remaining 2 or 3 sides are enclosed by walls. Most early mosques were like this, examples, of which being Masjid al-Nabawi and mosque of Kufa, which had two Courtyards on the sides in the 17th century A.H.

Central Courtyard

Kufa *jame* was built in the year 17 AH by the order of Sa'ad and by the work of the Iranian architecture Ruzbeh bin Bozorgmehr bin Sassan of Hamedan (Khalil quoting Zamani, 1972: 25). Several columns were brought in for this mosque from the palace of the Lakhmid ruler of Hiraah, and they made the roof of wood, palm leaves and finally mud. In a map associated with this period the mosques seems to have a prayer hall and a lateral Courtyard. But when it was destroyed by fire in the year 40 AH and was reconstructed, the lateral courtyard was changed into the central one. That is, they built three porticos along the three sides of the courtyard. This, too, is obviously influence by the Iranian architecture, as there is a Shush *jame* whose plan is dated to the late 1st century and has a central courtyard, a prayer hall in the *qibla* direction and 3 porticos along the other three sides.

Patio

Some mosques have a number of smaller courtyards for lighting and ventilation, which can be called patio due to their minor importance. However, at times the design of such patios was so creative, like what one can see in the *Khiraki* mosque of India to the north of Delhi which was built in 753 AD. It has a square-shaped plan and some tower-like elements in the four corners of the exterior, which makes it alike some caravanserais. The depth of the prayer hall is similar along all four sides, and thus it is among those mosques where the *qibla* side prayer hall is no deeper than the others. There are four identical courtyards with similar geometrical and architectural values, which can indicate that the courtyards were mainly meant to provide light and ventilation of to add an open, unroofed space inside the mosque.

Courtyard in the open space

A category of Ottoman religious complexes includes the most symbolic, most non-functional type of spaces: complexes with mosques and courtyards of the central dome type, where the whole mosque is located within a very large open space or a vast courtyard. An example of this can be seen in the Sultan Mehmet the Conqueror complex in Istanbul. It is built across a square shaped crate of land measuring 325meters on each side, including eight large schools and other symmetrical functions along the two sides of the courtyard. There is a hospital on the third side and monastery, built in a way to create a square courtyard with sides of 200 meters each. Then the mosque is located at the center of this complex. It can be categorized as one of those mosques with symbolic

function. The construction started in 1436 and it finished in 1471 (Blair, Bloom, 2007: 554). The space is designed in a perfect geometrical and symmetrical manner, and the exterior of the mosque is also orderly. However, the outer space of the mosque seems to be considered as less important. In a complex like *Beyazit* in Edirne an exterior open space side, which is enclosed by a wall, has a non-perpendicular angle with other crossing sides (Blair, Bloom, 2007: 586). This is also evident in *Shehzade* Mosque in Istanbul. The excess amount of outer space distortion is evident in one side of this mosque

Consecutive Courtyards

Consecutive courtyards are a number of two or more courtyards in a succession, yet designed in such a way as to show their distinction.

One of the best examples of such type of courtyards is in Xian Mosque of China, which is built based on the local architectural tradition and is considered to be a very important structure with four consecutive courtyards aligned with an east-west axis. Length of the courtyard is 2454meters and the width is 47meters. The main prayer hall is located in the last courtyard, covering an area of about 1270m². (Xiaowei, 1994: 222). Based on a common practice in Chinese magnificent architecture, the complex would comprise several courtyards with the most important building lies in the last one in a way that the visitors would go through many courtyards to reach the main prayer hall in the heart of the last one. The lateral buildings flank the main axis and they are attached to the main wall of the complex. This kind of structure can be spotted only in China as it is rooted in the local architectural tradition of the area.

Lateral Courtyard

A lateral courtyard is one dedicated to certain functions along the mosque. For example, there are smaller chambers around a smaller courtyard in the *Ardestan jame*, which seemingly were once used a small school. Another example is the east side of *Atiq- jame* in Isfahan with its courtyard and educational functions. *Imam* (Shah) Mosque of Isfahan also has a pair of side courtyards belonging to the schools affiliated with the mosque.

Service Courtyard

In very few instances, a small space or a very small courtyard would be dedicated to services in the corner of the garden, which was at times called *barf andaz*. An

example of such spaces can be found in the *Atiq-Jame* of Qazvin.

Courtyard- platform

In some smaller *jame* mosques there was no high wall surrounding the building. Rather, the structure was placed over an elevation due to which it overlooked the passageways around. Naser Khosro describes *Qeysariye* Mosque: "A Friday mosque so pleasant that once one sat inside the courtyard it was as if they had a view of the sea" (Naser Khosro, 1977, 24). Some mosques along the Persian Gulf are made in this style.

Belvedere

This structure is normally a courtyard or an open space elevated from the ground level, street level or the main courtyard. In some buildings such as *Seyyed* mosque and school in Isfahan there were 4 belvederes on the ground floor. It seems that even those structures situated on an elevation of 20 to 30cm were given the name of belvedere.

According to some sources, platforms with elevations in comparison to the mosque garden surface were also called belvedere. They were built as such so the passers-by would not interrupt the prayers and the praying space would be separated from the passages. During the Qajars reign, belvederes were added to some mosques (al-Isfahani, 1999" 61-63).

Elements and spaces inside the Courtyard

Gutters and pools

Wherever possible, water fountains, gutters, canals or at least a small pool was built in the courtyard to give it a more delicate air and to facilitate the prayer wash for people. It is said about the "*Sorra Man Ra'ah*" [he who saw it was delighted] mosque near Baghdad that was built at the order of Jafar Mutavakel that it had a fountain which flow would never stop (Ahmad bin Abi Yaqub, 1977: 38).

Certain Muslim sects have instructed the wash for prayers to be performed only in running water, and they would not use the fountain for the prayer wash (Hillenbrand, 2001: 56)

The importance of simplicity in the structure of mosques raised objections against the mosque of the Egyptian ruler, Ibn Toulun, for the [probably decorated] pool he had in the center of his mosque. There were instances of pools decorated by precious stones and built under domes,

which brought to mind those of royal palaces (Hillenbrand, 2001: 55)

There were beds over the pool at few mosques where more people could stand for prayers. As Chardin describes about the *Atiq Jame* of Isfahan, "There is a large square pool in the center of the mosque over which there is wooden bed of three feet height on which people can say prayers after ablution" (Chardin, 2000, 110)

He adds that they would carry the water from a well in order to fill the pools of Shah mosque (Chardin, 2000, 40).

There is a fore court at *Imam* mosque in Isfahan with a pool mentioned by several tourists. (Chardin, 2000: 36).

It seems that the existence of pools has also been derived from the Iranian architecture, as it is not very common in other Muslim countries. It could then be inferred that this concept belongs to ancient Iran when water was considered to be a sacred element and wherever there was a permanent water spring they would build a ritual construction as in *Taq-e Bostan* of Kermanshah or *Takht-e Soleyman* of Azerbaijan where underground waters still flow. But during the Islamic period when mosques entered the urban texture, the water was symbolically added in the form of pools at the portal.

Design and the construction of such pools was done in a way that no one could directly enter or exit the mosque, and they had to go round it. This is also modeled after the tradition of indirect entry into some mosques or large and important places, which is not common in other Islamic countries.

The importance of water in arid lands like Iran is so vital that they would call a large pool in a mosque "the lake" (Rostam-ol Hokama, 2001: 371).

Gardens and green spaces in the mosque

It was not a common practice to build gardens or flowerbeds in the courtyard in order to keep the integration of the space for prayers. Existing documents show that once a new mosque was built in a city and the Friday prayer was transferred there, they would possibly plant some trees or make a flowerbed, as it is seen in some older mosques such as the Old *Jame* of Tehran, *Qazvin Jame*, the New Mosque in Shiraz.

Moqaddasi writes of the old *jame* of Amol that the *Atiq Jame* has a stream of water and some trees and is located next to the bazaar, and there used to be another *jame* next to it. (Moqaddasi, 1982: 528)

Normally, it was not common to plant trees in the courtyard of mosque, according to some evidences it was not considered to be a part of the mosque where they can say prayers, "Before the endowment prayers is said for the

whole land of the mosque, a fraction of it can be dedicated to trees and green space but after the endowment is officialised this cannot be done, for, as mentioned earlier, mosque is an example of endowment and is supposed to be used exclusively in the way mentioned in the official pray. Mosque is meant for prayers and acts of worship, and no portion of it can be changed into gardens or parks" (Nobahar, 1999: 95).

One of the reasons for the absence of trees from the mosque courtyards is that in the congregational prayers rows of people and especially those of ladies are extended outside and should not be broken. According to Moqaddasi on *Fustat Jame*, "On each and every Friday, around 10,000 people gather to say the prayers with Imam. I would not believe that until the day that I went to the *Tayr bazaar* earlier and I discovered about its truth. Another Friday, and the rows were extended for thousands of meters, I saw the bazaars, the shops, the mosques and everywhere full of people" (Moqaddasi, 1982: 282)

Naser Khosro says about the green space in the *jame* of Tyre that it is because the place is considered sacred as it is believed that Adam has planted some greens there: "The courtyard is part stone paved and part planted as it is said that Adam has planted the greens here." (NaserKhosro, 1977: 20)

The establishment of mosque-schools, which started in the late Safavid, reign and developed through the Qajars brought in the idea of planting, though it still depended on the more important functions of the place. For instance, *Sepahsalar* mosque was supposed to be the new *Jame* for Tehran but due to greater significance given to the educational function, our large gardens and one large green-space was added. However, in *Seyyed* mosque-school the highlight is on the religious functions; so there is no green space and the mosque garden was constructed alike other *jame* mosques.

In the literary contexts of Iran and some other Islamic countries the green space is compared to the paradise and when one wanted to show their appreciation of a garden, they would liken it to the heaven. So was the case with palaces, houses or religious schools. A description of *Teymur Jame* in the book of *Samariyeh* (13th century AH) reads: "The smooth courtyard was brighter than the enlightened heart and the high indentions were more beautiful than moqarnases of the moon" (Samarqandi, 1964: 42) which describes the vast size of the courtyard and nothing about gardens or paradise.

Basically, as mosque courtyards normally lack the green space or plantation, such descriptions sound more like

exaggeration as written elsewhere about the New *jame* mosque of Dahuk town outside Yazd: “The chambers are decorated like the chambers of heaven, and the courtyard is as pleasant as the paradise, and the entrance portal is planted by trees from paradise and it is so sublimely elevated as if built in the skies...” (Jafari, 2010: 100) which is much exaggerated.

Treasury [Qobbeh]

It is a small structure, usually built on an octagonal plan with a dome over four or eight columns, and with a height of two meters from the ground in the school courtyard. It is said that as a thief could burgle the treasury of Kufa and steal from there by making a hole in the wall, they decided to make an elevated building to keep people’s valuables. (Amjad Bohumil, Prochazka, 1992: 31). It seems that the tradition was practiced only in few more places such as Damascus *jame*. As Ibn Battuta says from the 8th century AH there was three treasuries in that mosque, each being a small structure on eight columns. The first one was in the west and was built on columns of marble, and decorated with colourful mosaics. It was a treasury where they kept the estate income of the mosque. The second one looked similar, only smaller and to the east.

The third one was an octagonal space of exquisite marble over four columns in the center of the courtyard. There was an iron mesh underneath through which a copper pipe passed which shot the water upwards and down again in the form of a fountain from which people could drink. It was called the “water cage”. (Ibn Battuta, 1980: 86)

Darul Mas’haf

It is documented that in the current location of the *Khodaykhaneh* building in Atiq-mosque of Shiraz, there was a chamber called Darulmas’haf with meshed walls to let the air in and out. *Khodaykhaneh* was built in two storeys in 752 AH by Shah Abu Ishaq (Behruzi, 2008: 95), which was later destroyed in the earthquake. It is recently reconstructed into the form of a one-storey building. Two miniatures of the space were found among the Iranian paintings so far (Soltanzadeh, 1970: 95)

Existence of a Darul Mas’haf at the center of a mosque is unprecedented. Some people would take it as a replica of Kaaba. Dieulafoy says, “At its center there is a small square shaped structure instead of the pool, which is made of stone and lies upon a short column at each corner. Guides would say it is a replica of Kaaba. It is known as *KhodayKhaneh* in Shiraz” (Dieulafoy, 1990: 465)

Kiosk

In some larger mosques it was not easy to coordinate all the worshipers due to overly long rows. Thus a platform or kiosk was constructed somewhere in the courtyard of prayer hall over which some people would stand for prayer, having a view of the *Imam* and others would look at them. Thus the prayers would be harmonized. The platforms were made of wood or stone.

Tomb

Building tombs in the mosque garden was considered undesirable, and it was usually avoided. However, very few people would be buried in the mosque in special cases. For example, Akbar, the son of the Gurkanid king appreciated a scholar called Sheikh Salim Chashti and ordered a tomb to be built in his honour at the Fatihpur Sikri *jame*.

Fatihpur Sikri (1573) has a large courtyard with dimensions of 118m by 95. One of the scholars called Sheikh Salim Chashti is buried in the northern part of this courtyard in square tomb of 14.63m at each side (Blair and Bloom, 2007: 703)

It is written about the tomb of another scholar known as Fakhrol Islam Ali Samarqand *jame*: “His tomb is also inside the citadel, he is in the courtyard of the mosque and is located near the tomb of the 14th Qotb” (Samarqandi, 1964: 70)

Wudu Houses and Washrooms Services

To respect the reverence of mosques, washrooms were built outside the mosque and specially outside the *james*. There is a hadith associated with Prophet Muhammad instructing the washrooms to be built adjacent to the mosque (Nobahar, 1998: 94). Historical evidence shows that this has usually been observed.

Moqaddasi writes about the mosques in Damascus: “The washrooms are at the portals of mosques and *james*” (Moqaddasi, 1982: 256). He adds about the Damascus *jame*, “There is washroom of marble near each portal with running water. There are also fountains in a marble spring” (Moqaddasi, 1982: 223).

The strange point is during the Safavids’ in which the washrooms were built just next to the mosque. Although the distance from the courtyard was still well calculated, this heresy caused a lack of attention to this point in the construction of mosques in the future.

The available documents reveal that the washrooms and wudu space were not usually inside the mosque, and were built outside. Archaeological excavations of Siraf mosque site of the 9th century show that there had been a *wudu* room outside it (Gerabaar, 2000: 134). The issue were

both cleanliness and the religious notion of purity as are highlighted in the many hadiths, and those who clean the mosques are promised to enjoy the divine rewards of after life (Javadi Amoli, 2012: 568-569; Shakeri, Mohammadi, 1999: 79). However, cleanliness of mosques should not be confused with the exaggerated ornamentation.

There is a hadith from Prophet Muhammad in this regard: "Do not decorate your mosques with gold and ornaments as the Jewish and the Christians do." (Javadi Amoli, 2012: 565)

Various ways were used for cleaning the mosques. As long as the structure and the building material allowed, they would pour water into the courtyard and prayers hall to wash its ground. Moqaddasi says of Damascus jame, "There is a water canal in the jame which is opened once a year so that the mosque floor is filled with water. Then after washing the floors and walls, another hole is opened so the water is drained." (Moqaddasi, 1982: 224)

Role of climate in the formation of mosque Courtyards

As the prayers ritual normally lasts for half an hour or more, and the preaching sessions and Friday prayers could last for 2 hours or more, providing a peaceful environment is essential, for it is not appropriate to hold the rituals in the burning sun of Arabia, or in the freezing winters of Azerbaijan and Caucasus. This is why the shaded space of Prophet's mosque was created for the first time and was thus named Zelleh [shadowed], or some mosques in certain parts such as the desert areas of Iran have summer or winter prayer halls so to provide the best possible environment for the worship rites. Thus, the connection between the roofed and unroofed spaces of the mosque and the climate could be outlined, and it is clearly visible in most mosques. The issue is as well taken into consideration at the design and construction stages.

Role of culture in the formation of mosque Courtyards

In some cold regions where the prayers are held in the roofed hall for the bigger part of the year or the whole year long as in some parts of the Ottoman kingdom, the courtyard would still be designed and built, but the prayer hall or dome room had a direct access to the outer space and the courtyard is not necessary to pass through to go in or out - Especially for the cases in which the mosque and its courtyard are built within a large space. This illustrates the courtyard as a culturally important space.

In some moderate or humid areas like Gilan and Mazandaran, the mosque spaces are designed as centripetal areas and the courtyards are included only as cultural elements as seen in Gorgan jame mosque.

Also the design and construction of Xian Mosque of China has simply followed the cultural patterns and there is no particular functionality attached to it.

Therefore, in certain areas the inclusion of courtyard design were merely related to cultural reasons rather than functional or climate issues.

5. Conclusion

The findings of this research show that there has never been a particular, fixed pattern for the design and construction of mosques and especially jame. However, principles and instructions prescribed by norms have always been observed. First of all, it must be highlighted that performing the prayers rituals in the open air is strongly recommended unless it is not practical due to extreme weathers.

Considering the direction of *qibla* and aligning the mosque with it is very important. All entries of any nature have been eliminated from the *qibla* side so as to keep the concentration of the believers. Thus, in mosques with courtyards the prayer hall is normally located along the side of *qibla*.

The impacts of climate and environment on the formation of mosque architecture are always minimally reflected in the two phenomena: in the volume of the structure and specially the connection between the constructed space and open space, and in the formal aspects, materials and elements of the structure which were once formed by the environment. This way there is at least one territorial categorization of mosques is available as Iranian, Arabian, Ottoman, Indian (of the Gurkanids), Chinese and the western territories of the Islamic world, knowing that in each of the lands various types of mosques had been formed in accordance with historical developments and microclimates, and examples of certain types of mosques were formed in some lands and would not be confined within one territory (like mosques with dome room or prayers hall). The most significant types of courtyards can be categorized in these seven categories: lateral, central, patio, central courtyard in the open space, consecutive, courtyards, kiosks, belvederes, and each of them had a particular use according to historical, environmental or functional features. Normally, mosque courtyards are bare of greenery and cannot be compared to paradise.

Notes:

1. A book named "The Sense of Unity: by Nader Ardalan and Laleh Bakhtiyar can be mentioned here, which, though published over 4 decades ago, its contents are not yet fully appreciated and analyzed.

2. Kufa jame was built in 14 AH; it was burnt down in fire in year 40 AH, it was then rebuilt.
3. Today's advancements in cooling and heating technologies have eliminated the climate restrictions which people used to be facing in the past.

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