Recognition of the Principles of Spatial Hierarchy in Traditional Mosques of Iran and its Analysis by Space Syntax Method (Case study: Mosques of Shiraz)

Abstract

Architecture is a tool for encountering human needs, and in this regard, mosques, as one of the manifestations of Islamic architecture, have a distinct role in meeting human spiritual needs. Mosques over time have unified principles for creating hierarchies. This research seeks to recognize the hierarchy of the mosques of Shiraz in which the obtained information can be applied in contemporary mosques. Accordingly, first, by referring to architectural texts and experts' views, the principle of spatial hierarchy is recognized and then the scientific definition of the word and its foundations are found. For this purpose, a descriptive-analytical method is applied to obtain theoretical foundations; furthermore, the method of space method with the help of Depthmap software was also used to analyze four mosques. The research findings express the view that the mosques of shiraz behold public spaces such as the courtyards in first degree and other areas that were more cloistered and are classified as second spaces of accessibility in which ordinary people may have been unaware of. Correspondingly, if it was possible to create two entrances, they were made from two completely diverse places to the point that the mosques connected neighborhoods.

Research aims:

1. Recognizing the principles of spatial hierarchy in traditional Iranian mosques.

2. Analyzing the spatial hierarchy of Shiraz mosques with the method of space syntax.

Research questions:

1. What factors have influenced the shaping of the spatial structure of traditional Iranian mosques?

2. What is the spatial hierarchy of Shiraz mosques based on?

Introduction

The principles governing the traditional architecture of Iran have deep origins in the ideology and beliefs of this region. Therefore, it can be said that the principles of Iranian architecture are derived from local identity and concepts and have been manifested as a significant prototype in traditional elements. Traditional architects, in addition to paying attention to the appearance, paid considerable attention to the valuable interior and its implied connotations and deliberated on the hidden methods and principles of law to create spatial forms. Each of the principles created a specific concept in a traditional urban context. With the arrival of Islam in the borders of Iran, the worldview of the traditional architect was influenced by this way of thinking. In this regard, inspired by their traditional culture, Iranians also provided favorable environments for their lives that the construction of these buildings, especially in the Islamic era, was greatly influenced by the religious beliefs of the people at that time. Mosque architecture is one of the sensitive topics in the art of architecture. Beyond this unity and continuity, there is an undeniable foundation that is necessary to understand in order to appreciate the Iranian tradition. The principle of hierarchy is one of the most central principles of Iranian-Islamic architecture and urban planning, which is considered as one of the manifestations of Islamic thoughts and ideas and also due to the special characteristics of tradition, has diverse dimensions. Nevertheless, for various reasons such as physical attitude in the construction of the mosque, lack of attention to the meaning and function of space and neglect of the impact of the environment on the spiritual dimensions of man, etc., this principle has been neglected and ignored in mosques today. These principles are rooted in the culture and way of life of the people and after Islam, they have been integrated with the Islamic worldview and have created unique architectural works. In addition, in a theory proposed by Bill Hillier (1986), for the first time, with reference to the space difference factor, the study of different spatial values in a plan using quantitative methods (mathematical relations) Space syntax) was discussed. Until now, in Rapaport's theory, the recognition of spatial value was accomplished only by qualitative methods. It seems that the use of quantitative methods in examining the place of resident culture in shaping spatial values can pave the way for a new perspective in this regard, thus research into the concepts of the dynasty and the type of attitudes towards architecture of past mosques and effort in finding the roots of the principles governing hierarchy in the architecture of mosques with the help of space syntax method and Depthmap software helps to understand this issue.

In this regard, among different types of architecture, he explained the mosque as the most manifestation of these principles and by selecting four mosques of Halaj Nezam, Haj Alireza, Haj Ghani and Nasir Al-Molk in Shiraz, he tried to analyze the manifestation in architectural structures. Hierarchy in mosques as one of the most prominent issues of Islamic architecture has always been considered. Sahib Mohammadian (2007) in a study entitled "The hierarchy of secrecy in Iranian mosques", one of the aspects of the hierarchy has been expressed as the hierarchy of secrecy and then in Iranian mosques in the way of mosques in the way of entering the courtyard and comparing this issue with how to enter he has dealt with the porch and the dome of the house. Finally, it is concluded that measures such as the hierarchy of secrecy in Iranian mosques intensify the feeling of being in another area for the audience and are involved and effective in the behavior and transfer of the audience from one area to another. Chamanfar (2012) in another study entitled Preserving the identity of Iranian architecture from long ago to contemporary with the presence of hierarchy, has addressed the issue that the principle of hierarchy in Iranian architecture has been present in all architectural buildings and even urban planning in Iran from the past to the present. Its factors include scale, proportions, spatial value, privacy and privacy. Tabibian (2011) in another article entitled Reflection of the principle of hierarchy in Iranian-Islamic cities, has introduced hierarchy as one of the most important principles in Islamic mysticism and used in Iranian-Islamic urban planning. He further considers this principle as one of the most important laws necessary to achieve urban cohesion. Rezaei (2015) in another study entitled Recognizing the principle of hierarchy in the architecture of mosques in Iran, recognizes the principle of

hierarchy as one of the important factors in creating a spiritual feeling of various dimensions in the architecture of mosques and tracing the roots of this principle. He writes that this principle is a preparation that Iranian architects have used the first type of it when a person enters the mosque, and the other type is the entrance to the porch and the dome. In English articles entitled Basic Concepts of Islamic Architecture Based on the Verses of the Holy Quran, Mousavipour seeks to understand the concepts of explanation and understanding of Islamic architecture based on some verses of the Holy Quran in this field, the result of which shows the importance of observing hierarchy. It is in the Qur'an (Mousavipour and etc, 2015). What emerges from the review of the above research is that the research that has been done so far has always sought to examine hierarchy as a completely separate factor from architecture. But in this research, it seeks to investigate the hierarchical factor according to the architectural context of Shiraz mosques. The following is a description of the keywords in the relevant sources. In the present article, the combined research method has been used, so this research includes qualitative and quantitative sections. In the first and qualitative part, information was collected in the form of a library on theoretical foundations, and then this information was analyzed in order to find criteria for hierarchical analysis by the method of space syntax, in order to answer research questions.

Conclusion

Despite the increasing complexity of Shiraz mosques, these mosques continue to observe factors such as placing the readability of the nave first, paying attention to the privacy of spaces, second reading the placement of other spaces, paying attention to the needs of their time and creating multi-functional and interconnected spaces. With adjacent spaces, the existence of multiple doors from different urban contexts to the mosque, if possible, pay attention to the visual view and design of this view according to the location of the mosque in the urban context, to create and strengthen a spatial hierarchy. The criteria for the spatial syntax method for analyzing the spatial hierarchy are depth, visibility, correlation, explanatory diagram, and readability diagram or index. The spatial hierarchy in the mosques of Shiraz is such that mosques have more spaces over time, which increases the area of mosques to meet this need, as well as public spaces that include naves. They are designed with first-class readability, however, at the end of the naves, there are cozy spaces for people who need privacy and privacy. But all the other spaces, except the nave, were in the second degree of access and had privacy to the point that ordinary users might not even have noticed the existence of these spaces in the mosque. The spatial hierarchy in the spaces of mosques in Shiraz is of two types: the first and more common type, there were two or even three indirect entrances to the courtyard of the mosque that connected different urban textures, the second type has one was the entrance to the courtyard, which had less space and a simpler plan than the first type. Also, the number 0.9 can be considered as a suitable standard for the number of readability in Shiraz mosques. Since this number is obtained from the depth and correlation diagram, if a number higher than 0.9 is obtained, the mosque can be considered.

References

Ardalan, N; Bakhtiar, L. (1380). Sense of unity. Translated by Hamid Shahrokh, Isfahan: Khak Publishing. [In Persian]

Bahraini, S. (1392). Urban design process. Tehran: Institute of Printing and Publishing, University of Tehran. [In Persian]

Peyvastehgar, Y, Heidari, A., Kiai, M. (1396). Investigating the factor of space difference and spatial value in traditional Iranian houses using space layout method, Haft Hesar Environmental Studies, No. 20, pp. 5-14. [In Persian]

Chamanfar, Sh, Salimi, S. (۱۳۹۱). Preserving the identity of Iranian architecture from ancient to contemporary with the presence of hierarchy, National Conference on One Hundred Years of Contemporary Iranian Architecture and Urban Planning, Alborz Province Building Engineering System Organization: Karaj. [In Persian]

Ching, F.; (۱۳۹۴). Architectural alphabet. Translated by Ali Yaran, Tehran: University of Tehran Press[In Persian].

Heydari, A.A.; Qasemian, A. and Kiai, M. (1396). Analysis of the Spatial Structure of Traditional Iranian Homes Using the Nehospace Method Case Study: A Comparison of Yazd, Kashan and Isfahan Houses, Islamic Iranian City, No. 28, pp. 21-33. [In Persian]

Heydari, A. Qasemian, A. (1398). Analysis of the concept of contentment in the model of traditional Iranian houses (Case study: Mortaz house in Yazd), Quarterly Journal of Islamic Architectural Research, No. 23, pp. 108-87. [In Persian]

Zulfiqarzadeh, H(1395), Zarkesh., Z. Exploring the principle of hierarchy in Islamic architecture and folding. 4th International Congress of Civil Engineering, Architecture and Urban Development, Tehran, Permanent Secretariat of the Conference, Shahid Beheshti University. [In Persian]

Rezaei, S. (1394). Recognition of the principle of hierarchy in the architecture of Iranian mosques. National Conference on Indigenous Architecture and Urban Planning of Iran, Yazd, Safiran Mehrazi Institute of Architecture and Urban Planning, Yazd: Yazd University of Science and Art. [In Persian]

Shiraz Cultural Heritage Organization. [In Persian]

Sahib Mohammadian, M. (2007). Hierarchy of secrecy in Iranian mosques, Journal of Fine Arts, No. 29. [In Persian]

Saremi, H.; God bless, s. (1395). A comparative study of the orientation of the nave in traditional and contemporary mosques. Iranian Islamic City Studies Quarterly, No. 24, pp. 84-65. [In Persian]

Tahir Toloo Del, M; Mehdi Nejad, J. and Sadeghi Habibabad, A. (1395). Recognition of the meaning of the nature of sacred ideas in the original Islamic architecture of Iran based on the identification of the stable identity of the body of Iranian comprehensive mosques, two quarterly journals of sustainable architecture and urban planning, No. 2, pp. 17-30. [In Persian]

Tabibian, M.; Fat, n; Abdullahi Mehr, A. (1390). Reflection of the principle of hierarchy in Iranian-Islamic cities, Volume 7, No. [In Persian]

Grotter, y. (2007). Aesthetics in Architecture, translated by Javanshah Pakzad, Turan, third edition, Tehran: Shahid Beheshti University. [In Persian]

Mays, p. (2004). A look at the basics of architecture from form to place with analysis and analogy with the basics of Iranian architecture, translated and suspended by Simon Ayvazian, Tehran: University of Tehran Press.

Nadimi, H. (1373). Truth article. Proceedings of the Congress on the History of Architecture and Urban Planning, Cultural Heritage, Tehran.

Naghizadeh, M. (1998). Article on the attributes of the Islamic city in Islamic texts. Journal of Fine Arts, No. 5 and 4.

Brown. F., & Bellal. T. (2001). Comparative analysis of Mzabite and other Berber domestic spaces, Proceedings of the 3rd International Symposium on Space Syntax, Atlanta, GA.

Gibson, J.J. (1986). The Ecological Approach to Visual Perception (New Jersey, Lawrence Erlbaum Associates Inc).

Hillier, B., & Hanson, J., & Graham, H. (1986). Ideas are in things: the application of the space syntax method to discovering house genotypes. Environment and planning B: planning and design.

Mostafa, A., & Hassan, F. (2013). "Mosque layout design: An analytical study of mosque layouts in the early Ottoman period". Frontiers of Architectural Research, 2, 445–456.

Mousavipour, M., & Peyvastehgar, Y,. & Hayaty, H. (2015). "Explain the Basic Concepts of Islamic Architecture, Based on the Verses of the Holy Quran". Republican University Faculty of Science Department of Science Department; Vol 36, No 4 (2015): Special Issue II; 2273-2288.

Tandy, C.R. V. (1967). The isovist method of landscape survey, in Symposium: Methods of Landscape Analysis (Ed) HC Murray (London, Landscape Research Group): 10-9.

Turner, A. (2007). "from axial to road-center lines: A new representation for space syntax and a new model of route choice for transport network analysis". Environment and Planning B: Planning and Design, 34 (3), pp. 539-555.