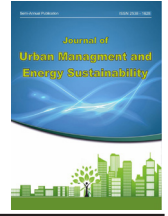


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CASE STUDY RESEARCH PAPER

Typology and Visual Evaluation of the Architecture of Traditional Schools in Isfahan (Case Study: Schools of the Safavid, Qajar, and Early Pahlavi Periods)

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ABSTRACT

Traditional historical schools in Iran represent valuable and human-centered architecture. The structure, formation, and spatial organization of these schools reached their peak in historical cities like Isfahan during various periods. The concept of typology and evaluation of the architecture of traditional schools from both visual and functional perspectives is a research topic and challenge for contemporary researchers to achieve the structure of architectural configuration. In this research, the main goal is to typify and evaluate the visual criteria in 16 schools related to the three historical periods of Safavid, Qajar, and early Pahlavi in the city of Isfahan. The research method is descriptive-analytical and applied in purpose, and it has functioned based on content analysis and inferential reasoning. The findings indicate the influence of the three sub-criteria of basic form, the method of symmetry, and the position of the central courtyard in the visual structure of the architecture of traditional schools. As a result, in the comparison between these three periods, it can be seen that each period has changed the design of spaces according to the needs of society and has tried to create a balance between educational, social, and cultural elements in such a way that in the type of social interactions and the type of education, respectively, from the structure of open space in the visual dimension, it has ended in the individual behavioral setting, and the spatial structure has been transformed from around the central courtyard of the Safavid era to a wider, more asymmetrical space in the later periods. In the studies, by examining the functional dimension of the architecture of traditional schools, the correlation between the two structures can be further and more accurately addressed.

Running Title: *Typology and Visual Evaluation of the Architecture of Traditional Schools in Isfahan*



NUMBER OF REFERENCES

31



NUMBER OF FIGURES

02



NUMBER OF TABLES

14

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INTRODUCTION

The traditional schools of Isfahan, spanning the pre-Safavid, Safavid, Qajar, and early Pahlavi periods, have profoundly impacted the history of education in Iran. These schools not only contributed to the formation of Iranian cultural identity but also played a crucial role in the improvement and advancement of society by producing knowledge and scholarship (Ahmadi Moghadam et al., 2020). Moreover, the traditional schools of Isfahan during the Safavid, Qajar, and early Pahlavi eras are recognized as influential institutions in the cultural and scientific development of Iran, and their effects on the history of education in this land are still evident (Golestani, 2019). The architecture of traditional schools in the Safavid period can be studied in terms of overall composition and the four-iwan plan (Setayesh, 1400); while the greater volume and diversity of space, and the more generous use of decorations and tile work, distinguished them from the schools of the Timurid and Ilkhanid periods (Hayati et al., 2020). Despite maintaining the general pattern of the four-iwan arrangement, the plans of Safavid schools presented more complete compositions, designs, and ideas in their details (Moradi, 2022). Among these, mention should be made of the entrance complex between the exterior facade and the inner courtyard, which was skillfully transformed into an independent and fully integrated complex (Amini, 2021). Also, the four spaces in the corners of the building were strengthened in the new design and found a more suitable function, such as a library or school office (Hosseini, 2017). In most schools of the Safavid and Qajar periods, the principle of introversion was observed in the building design (Sadri Kia & Ansari, 2021). The designs of Safavid schools became the architectural model for schools in later centuries (Hayati, Rahmatnia & Kavarizadeh, 1398).

Safavid and Qajar schools also functioned to some extent as social institutions (Rajabi, 2020). In addition to education in these schools, issues such as ethics, social rights, and religious responsibilities were also taught (Karahmadi

et al., 2019). For this reason, students not only trained as religious scholars but also as responsible citizens (Amini, 2021). The spatial organization of Qajar schools was designed in a four-iwan pattern to create a natural and easy communication. Another feature of these traditional schools of Isfahan is the diversity of education. In these schools, various sciences, including literature, astronomy, jurisprudence, interpretation of the Qur'an, philosophy, and mathematics, were taught (Bratloo, 2023). This multifaceted approach to education enabled students to acquire skills in various scientific and cultural fields and contribute to their social development (Khalili, 2016). Given the political and economic situation of Iran in these periods, the traditional schools of Isfahan played an important role in the cultural identity of Iranians (Pirnia, 2010).

These schools, as centers of science and culture, laid the groundwork for the stability of the system and the strengthening of Shiism in Iran. Also, the educational programs of these schools provided a platform for intellectual and theoretical ideas that were passed on to later periods (Sadeghi, 2019). Education in these schools, in particular, was a great opportunity for religious families as it was considered an advantage for the social advancement of individuals. In addition to social and cultural skills, students also learned religious knowledge in these centers. As a result, a large proportion of the graduates of these schools were people with high religious and social positions (Ebrahimi, 2016). Despite the prominent features, traditional schools in Isfahan also had challenges. These challenges included inefficient educational systems and social restrictions for the admission of students from lower classes (Mirzaei Khalilabadi & Hojjat, 2022). These problems prevented access for most people who had scientific merit and potential talents (Rajabi, 2020). Thus, the traditional schools of Isfahan are recognized as effective institutions in the cultural and scientific formation of Iran, and their effects on the history of education in this land are still evident. (Sadeghi, 2019)

In the architecture of these schools, the central courtyard was one of the key elements in the design of traditional schools in Isfahan. As the main core of the building, this space provided a space for gathering and interaction of students and teachers, and social and educational activities were usually carried out in the courtyard (Khalili, 2016). Classrooms were usually located around the central courtyard (Razavi, 1400).

The design of these classes was such that they received enough natural light through openings and windows and had proper ventilation (Hayati, 2023). In some schools, the classrooms were organized according to the educational level and the type of lesson (Golestani, 2019). Use of arches and various sizes: Beautiful arches and different sizes of spaces were well used in many Safavid schools. These elements not only increased the aesthetics of the building; but also helped to facilitate the flow of air and light (Ahmadi Moghadam et al., 2020). Public and Private Spaces: In addition to classrooms, traditional schools also had public and private spaces. A space for students to study and places for rest and social interaction were considered (Esmaili, 1401). These factors helped to create a learning-encouraging environment (Rezaei, 2021). Isfahan's Islamic schools are known for their beautiful decorations of calligraphy and tile work (Qasemian & Heydari, 2024). These beautiful elements have contributed to the formation of the cultural and artistic identity of these schools and have had a positive effect on the visual experience of the students (Nasr, 2015). In many schools, educational spaces for men and women were designed separately to allow girls to study, considering the social context of the time. This design helped to balance the learning process (Kazemi, 2020).

The proximity and connection of schools to mosques or other religious places was also a prominent feature of these schools (Vermaghani, 2022). This connection gave students the opportunity to participate in religious activities and strengthen the spiritual and moral dimensions of education (Karahmadi et al., 2019). Libraries

were an integral part of traditional schools and served as a center for students' study and research. These spaces were usually located in the main building of the schools and close to the classrooms to be easily accessible to the students (Seyed Alavi, 2018). These schools usually had special rooms for teachers, which allowed them to interact more with the students and discuss the course content in that space. These rooms were usually designed in such a way that they could easily access the classes (Mohammadi, 2022). The schools were designed in such a way that light could penetrate the interior spaces in the best way through windows and awnings. Light and shadow, as two design elements, played an essential role in facilitating learning (Faraji, 2023).

The science of typology means the study and classification of objects, phenomena, or meanings based on their characteristics and specifications. In the field of architecture, typology examines the different types of buildings and spaces, especially in specific fields such as the architecture of traditional schools, which specifically includes historical and comparative studies. Considering the knowledge of case examples in the previous section, it is possible to categorize a specific type based on the mentioned criteria based on the architectural structure of each of the traditional schools. Traditional Iranian schools, which were mainly built in different historical periods, have special features that distinguish them from other buildings. Some of the key features and elements in the typology of traditional schools are as follows:

- Space division: Traditional schools are usually divided into courtyards, cells, prayer rooms, and other social spaces. The central courtyard (courtyard) is important as a space for gathering and social activities.
- Structural features: These schools usually follow a patterned structure based on the division of main and secondary spaces with an emphasis on the type of access to important uses, which in the construction dimension are also made of local materials such as brick,

stone, and plaster, and vaulted ceilings and arches are common features in this type of buildings.

- Based on the studies of authors such as Mirmiran (1388) and Sequence (1398), the criteria that can be considered in the typology of traditional school architecture include the following, each of which presents a specific category in the mentioned dimensions:
- Visual dimension: shape and volume, color, facade of buildings.
- Functional dimension: how to use spaces and the relationships between different parts.
- Cultural dimension: social, political, and religious influences on the design and construction of schools.
- Structural dimension: use of materials and construction techniques

In this research, the category of visual criteria is examined. Accordingly, the following criteria can be suggested as one of the types of criteria for the typology of traditional schools in Isfahan in three periods, which in a way continues the previous research as well.

Table 1: Dimensions, criteria and sub-criteria used in the typology of traditional schools

Dimensions	Criteria	Sub-criteria
Visual	Plan geometry	Base shape
	Plan axis	Symmetry method
	Central courtyard	Location of the central courtyard
		Number of courtyards

One of the fundamental characteristics of traditional Iranian schools, especially during the Safavid and Qajar periods, is the presence of a central courtyard in most of their plans, the size of which is very important. The most important issue in this regard is, in fact, the relationship between the size and the numerical quality of the accumulated space of the central courtyard of the school, which is completely ambiguous. In general, the level of the courtyard, which can be measured numerically by size, is quite understandable for humans in the following sub-criteria of regularity, although, the quantitative

evaluation of the degree of order and regularity will naturally be difficult. In addition, the purely mathematical evaluation of this important issue will inherently lead the problem towards creating a problem. Meanwhile, algorithmic capabilities exist to detect regular geometries in order to identify the signs of traffic flow. According to the conducted research (Barnes; Levoy Robles, 2005 and Piccoli; Micheli; Parodi and Compagni, 1996). The application of these algorithms is used for the analysis of aerial photos and according to the type of these signs, the research is categorized based on focusing on the geometric shapes of these courtyards of schools.

Proportions in the central courtyards of traditional Iranian schools are a qualitative concept of architecture that is of great importance in terms of aesthetics and function. One of the prominent features of central courtyards in traditional Iranian schools is the creation of visual balance and harmony. These courtyards are usually designed with specific proportions that make the space appear proportionate and harmonious. In this type of architecture, the precise division of spaces is done in such a way that each part of the courtyard has its own specific function. For example, the use of a central pool and surrounding flowerbeds helps to divide the space and create proportion. The main axes in the design of central courtyards play a fundamental role in creating proportion and balance. These axes usually extend from the entrance door to the central pool and from the central pool to the main buildings. Another important aspect of proportions in central courtyards is attention to human dimensions. These dimensions are chosen in such a way that people feel comfortable and relaxed in these spaces (Pirnia, 1374). In fact, the central courtyards act as the heart of the school and strengthen educational activities. Studies have shown that the proper design of these spaces can have a positive effect on the level of learning and social interactions (Sharifi, 2020). It can be said that the central courtyards in traditional Iranian schools are a symbol of the deep connection between man

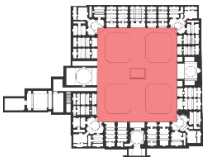
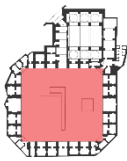
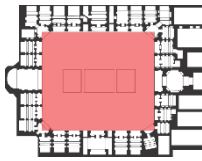
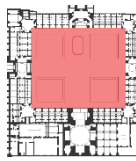
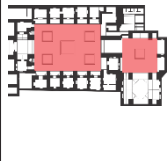
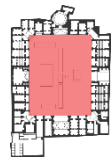
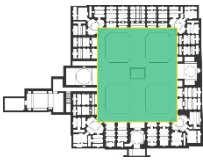
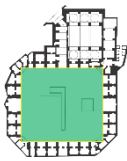
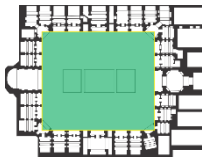
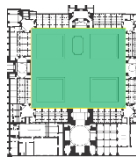
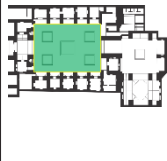
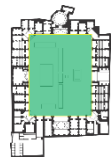
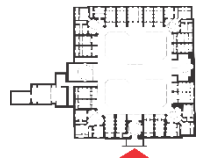
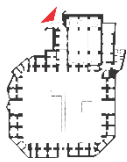



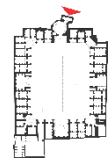
and the environment and society (Rostami, 2018). These spaces, by providing a balance between education and the environment, help to discover and nurture talents.

MATERIALS AND METHODS

The research method of the present study is applied in terms of purpose, and in terms of nature and method of work, it is a combined research of descriptive method and logical reasoning. The method of data collection is library-based and regarding the initial data and study samples of the research, it has been collected through the study of documents and articles. In the process of conducting the research, the comparison of samples and finally logical reasoning were used. The study samples are also from different types of schools related to the Safavid, Qajar, and early Pahlavi periods in the city of Isfahan and in-

clude 16 schools: Jedeh Bozorg, Jedeh Koochak, Chaharbagh, Mulla Abdullah, Kaseh Garan, and Nim Avard related to the Safavid period, Khajou, Sadr Bazaar, Seyed, Rokn al-Molk, and Rahim Khan schools related to the Qajar period, and the schools of Fine Arts, Saadi, Danshsara Moghadamati, Behesht Ayin, and Adab related to the early Pahlavi period, which are discussed in the following, the models presented in the field of school plans are discussed in the context of case studies with a descriptive-analytical approach, and the type of configuration is explained for each case. According to the type of criterion and the sub-criteria mentioned, each of the relevant schools are identified and categorized in the visual criterion category, and in each section, analysis is done according to the type of specified metric. Finally, the typology and the desired evaluation results are presented and concluded.

Table 2: Results of the study of the visual dimension of the typology of traditional schools of the Safavid period

School	Nim Avard	Mulla Abdullah	Kasegaran	Chahar Bagh	Jadde Kuchak	Jadde Bozorg
Basic shape	Square	Rectangle	Rectangular	Square	Rectangular	Rectangle
Symmetry method	Symmetric	Asymmetric	Asymmetrical	Symmetrical	Asymmetrical	Asymmetric
Location of the courtyard	Center of plan	Center Plan	Center plan	Center plan	West Front	Center plan
Spatial orientation	Introverted	Introverted	Introverted	Introverted	Introverted	Introverted
Type of spatial diagram	Entrance- Porch- School	Entrance -Hishti-School	Entrance-Vestimate-School	Entrance- Porch- School	Entrance-Vesti-Madras	Entrance-Porch-School
Number of courtyards						
Type of space of the central courtyard						
Entrance location						

DISCUSSION AND FINDINGS

Typology of traditional schools in Isfahan in the three periods of Safavid, Qajar, and early Pahlavi

According to the examination of the research samples, 16 schools in the historical periods of Safavid, Qajar, and early Pahlavi have been selected in the city of Isfahan, each of which is categorized based on the mentioned typology framework in the table below. (Table 2)

Evaluation of visual criteria in the architecture of traditional schools in Isfahan in the three periods of Safavid, Qajar and Pahlavi

Size

Therefore, attention to size as a positive property follows as follows

$$S(A) = 1 - \frac{A_p - A_{py}}{A_{px} - A_{py}}$$

The area of the largest and smallest traditional school yard in the category is Apy and Apx, respectively, the area of the yard under study. Therefore, the formula for calculating the size of each yard in the 16 categories of this study will be equal to:

$$S(A) = 1 - \frac{A_p - 247}{3500 - 247}$$

Considering the area of traditional schoolyards, the largest is 3,500 square meters (Chahar Bagh School) and the smallest is 247 square meters (Jeddah Kuchuk). The size of schools can be categorized based on the following Likert scale, which can be calculated according to the natural breakdown formula:

Based on this, the boundary of failure of district boundaries in urban areas can be presented as follows.

Table 3: Results of the study of the visual dimension of the typology of traditional schools during the Qajar period

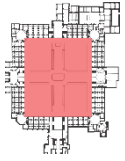
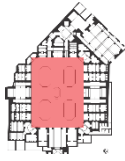
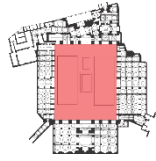
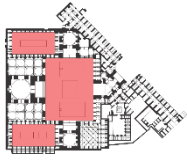
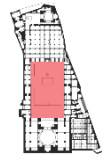
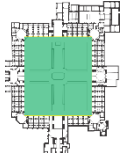
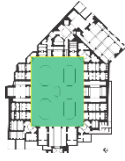
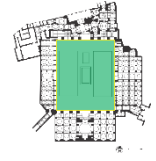
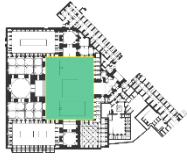
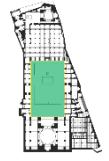


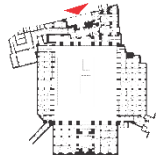
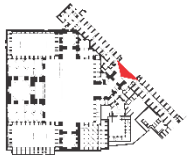
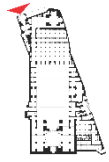
School	Sadr Bazar	Khajoue	Seyed	Rokn al-Molk	Rahim Khan
Basic shape	Rectangle	Rectangular	Square	Rectangle	Rectangle
Symmetry method	Symmetric	Asymmetric	Asymmetric	Asymmetric	Asymmetric
Location of the courtyard	Center of plan	Southern Front	Center plan	Center plan	West Front
Spatial orientation	Introverted	Introverted	Introverted	Introverted	Introverted
Type of spatial diagram	Entrance-Porch-School	Entrance-Porch-School	Entrance-Porch-School	Entrance-Vestibule-School	Entrance-Vestibule-School
Number of courtyards					
Type of space of the central courtyard					
Entrance location					

Table 4: Results of the study of the visual dimension of the typology of traditional schools of the first Pahlavi period

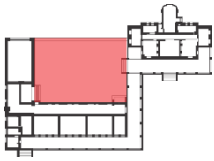
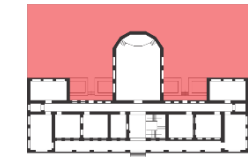
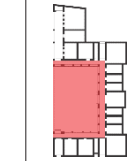
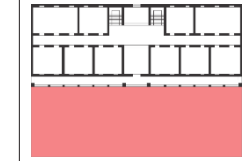
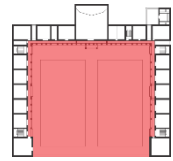
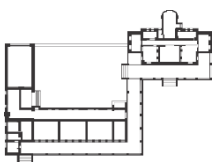
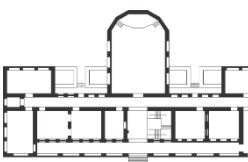
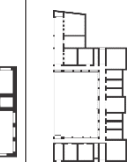
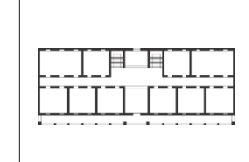
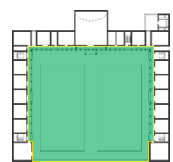
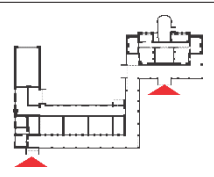
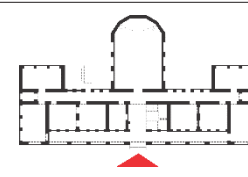
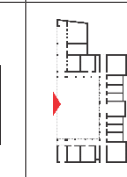
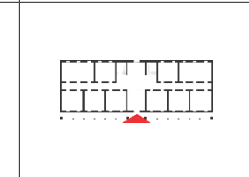
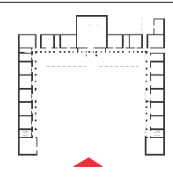
School	Honarhaye Ziba	Saadi	Daneshsara	Behesht Aiin	Adab
Basic shape	Rectangle	Rectangle	Rectangle	Square	Rectangle
Symmetry method	Asymmetric	Symmetric	Asymmetric	Symmetric	Asymmetric
Location of the courtyard	Northern Front	Center plan	West Front	Center plan	Center plan
Spatial orientation	External	Extroverted	Extroverted	Extroverted	Extroverted
Type of spatial diagram	Entrance-School	Entrance-School	Entrance - School	Entrance-School	Entrance-School
Number of courtyards					
Type of space of the central courtyard					
Entrance location					

Table 5: Area of the schools studied in the three periods

School	Safavid period						Qajar period					Pahlavi period				
	Nim Avard	Mulla Abdulllah	Kasegaran	Chahar Bagh	Jadde Kuchak	Jadde Bozorg	Sadr Bazar	Khajoue	Seyed	Rokn al-Molk	Rahim Khan	Honarhaye Ziba	Saadi	Daneshsara	Behesht Aiin	Adab
Size (square meters)	700	1200	500	3500	247	782	3000	800	2500	650	1250	672	1275	550	2304	2784

Table 6: Determining the failure boundary in the size classification of traditional schoolyards

Schools in order of size	Failure limit (square meter)	Rank
Chahar Bagh	3500- 2686.75	1
Sadr Bazar		2
Adab		3
Seyed	2686.75-1873.5	4
Behesht Aiin		5
Saadi		6
Rahim Khan	1873.5-1060.25	7
Mulla Abdullah		8
Khajoue		9
Jadde Bozorg	1060.25-247	10
Nim Avard		11
Honarhaye Ziba		12
Rokn al-Molk		13
Daneshsara		14
Kasegaran		15
Jadde Kuchak		16

Table 7: Delimitation of the size of traditional schoolyards based on the Likert scale

3500-2686.75	2686.75-1873.5	1873.5-1060.25	1060.25-247	Range
4	3	2	1	Size in the spectrum

Table 8: Determining the number of schools with three courses based on the Likert scale

3500-2686.75	2686.75-1873.5	1873.5-1060.25	1060.25-247	Area
3	2	3	8	Number of schools in the area

Table 9: Determining the number of regional status based on the Likert scale in terms of identity and identity crisis in Region 1 of Kashan

3500-2686.75	2686.75-1873.5	1873.5-1060.25	1060.25-247	Range
4	3	2	1	Size in the overall range of traditional schoolyards
Fairly large to large	Relative-ly large	Medium	Small to relatively small	Range

Regularity

The range of evaluation values is from 0 to 1, respectively for the most regular to the most irregular, which is given in all maps of all 16 schoolyards with calculated numerical values for these three characteristics.

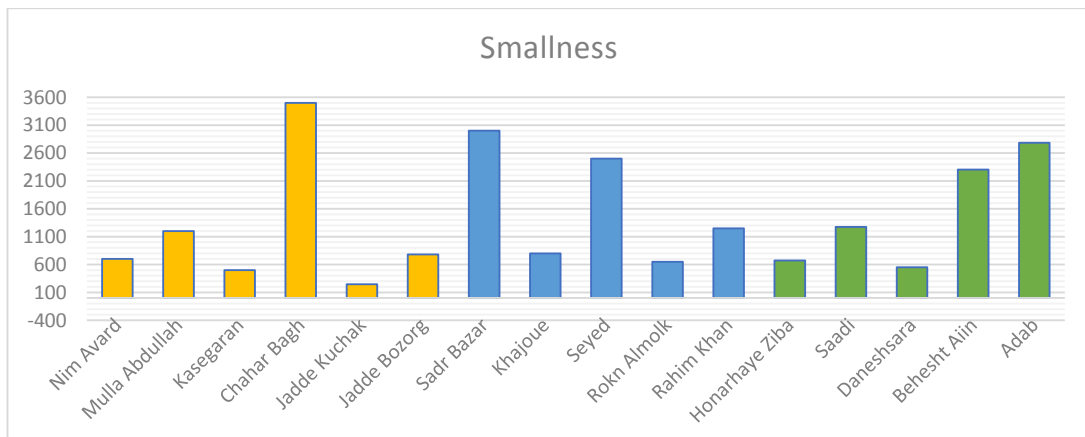


Figure 1: Comparison of the size of the studied schools

Table 10: Results of the evaluation of the regularity index in the spatial configuration of traditional schools of the Safavid period

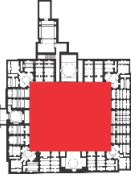
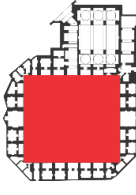
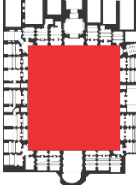

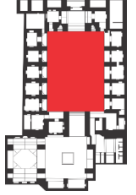
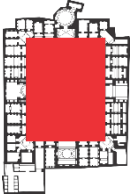
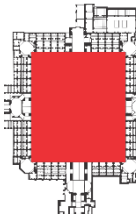
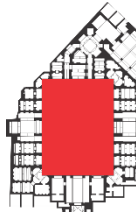
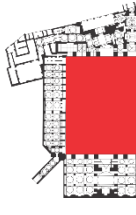
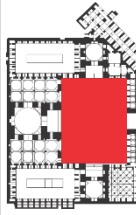
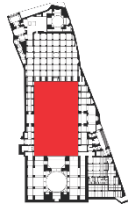
School	Nim Avard	Mulla Abdullah	Kasegaran	Chahar Bagh	Jadde Kuchak	Jadde Bozorg
Basic Rule Shape	Square	Rectangle	Rectangle	Square	Rectangle	Rectangle
Length to Width (m)	25*25	25*30	30*15	55*55	19*13	34*23
Rule Value	1	0.85	0.50	1	0.68	0.67
Plan						

Table 11: Results of the evaluation of the regularity index in the spatial configuration of traditional schools during the Qajar period

School	Sadr Bazar	Khajoue	Seyed	Rokn al-Molk	Rahim Khan
Basic Rule Shape	Rectangle	Rectangle	Square	Rectangle	Rectangle
Length to Width (m)	60*50	30*20	50*50	30*20	50*25
Rule Value	0.83	0.66	1	0.66	0.50
Plan					

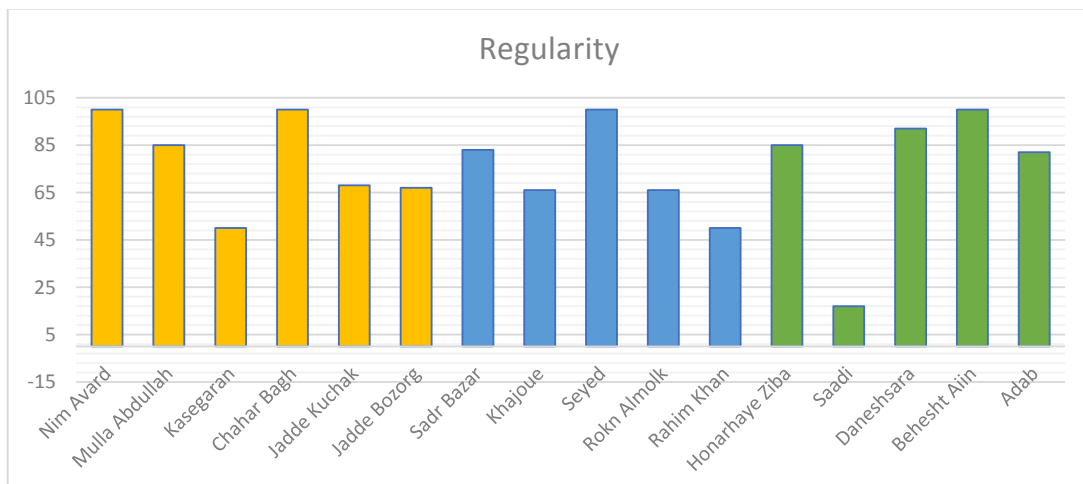
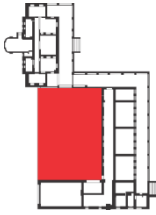


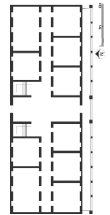
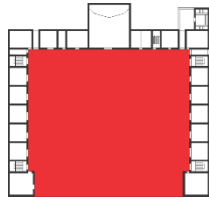


Figure 2: Comparison of the regularity of Isfahan traditional schools

Table 12: Results of the evaluation of the regularity index in the spatial configuration of traditional schools of the first Pahlavi period

School	Honarhaye Ziba	Saadi	Daneshsara	Behesht Aiin	Adab
Basic Rule Shape	Rectangle	Rectangle	Rectangle	Square	Rectangle
Length to Width (m)	28*24	85*15	25*23	48*48	58*48
Rule Value	0.85	0.17	0.92	1	0.82
Plan					

Proportions

The design and attention to the qualitative aspects of central courtyards should be considered by architects and designers. These points indicate the importance of educational spaces in the formation of students' social and cultural identity. As a result, central courtyards can be effective in creating a dynamic and balanced space for students' learning and individual and social growth.

RESULT AND CONCLUSION

The case analysis of traditional schools shows a great difference in the architecture of traditional schools in the city of Isfahan in the three periods. The visual structure and spatial organization of the Nim Avard school represent its specific spatial system. The main entrance leads to a central courtyard, which acts as a space for gathering and social activities. The courtyard is located at the top of the graph, and around it, the cells

Table 13: Results of the evaluation of the proportionality index in the spatial configuration of traditional schools

School	Safavid period						Qajar period					Pahlavi period				
	Nim Avard	Mulla Abdollah	Kasegaran	Chahar Bagh	Jadde Kuchak	Jadde Bozorg	Sadr Bazar	Khajoue	Seyed	Rokn al-Molk	Rahim Khan	Honarhaye Ziba	Saadi	Daneshsara	Behesht Aiin	Adab
Approximate proportions	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Inappropriate	Suitable	Suitable	Suitable	
The value of ideal fit	1:1	1:1	1:2	1:1	1:1	1:1	1:1	1:1	1:1	1:1	1:2	1:1	1:5	1:1	1:1	1:1

are designed in such a way that they provide accommodation and education for the students. The cells are simple and in different dimensions and communicate with the courtyard through windows. On one side of the courtyard, there is a platform, and on the other sides, there are service spaces such as the kitchen and warehouse, which are located at lower levels than the courtyard and cells. In the Mulla Abdullah school, the central courtyard is also considered the social center, and all educational spaces overlook it. The entrance to this courtyard is designed separately and separates it from the street. At the top of the graph, there is a courtyard, and below it, there are cells that are intended for the accommodation of students. Around the courtyard, there are various spaces such as a library, a cistern, and a platform, which are located at lower levels.

The Great and Small Jedeh schools are other prominent examples of traditional schools in Isfahan, in which the hierarchy of spaces is also carefully designed. The central courtyard, as the main axis of the design, is located at the top of the graph and acts as a space for gathering and social communication. Around this courtyard, there are cells for the accommodation of students, which connect to the courtyard with simple facades and their own special majesty. In this school, the library space and service spaces are located at lower levels than the courtyard and cells, respectively. The platforms are also designed next to the courtyard as spaces for rest and study. The small and big Jedeh are considered as educational and social interaction spaces, which are other unique elements of this building; therefore, the conceptual model for the hierarchy of spaces of traditional schools in Isfahan in the Safavid period can include details and key elements around the central courtyard axis. Regarding the analysis of the visual structure of the architecture of traditional schools in the Qajar period, the Rokn al-Molk school can be mentioned as an example. The central courtyard of this school is considered the main social axis and is the center of gathering of students and

holding various ceremonies. Around this courtyard, the cells, which are designed in a compact form and in different dimensions, are located in such a way that they open to the courtyard and students can benefit from natural light. On the other sides of the courtyard, there are spaces such as a library and a platform, which are located at lower levels than the courtyard, respectively. Service spaces such as the kitchen and warehouse are also included in the design of this school.

In the Rahim Khan school, the central courtyard is located at the top of the graph as the context of social interactions, and around it, the cells are designed in such a way that students can study in a calm space. The cells are in different dimensions and qualities, and each has a way to the courtyard, which strengthens the semantic and physical connection between the spaces. The library space and service spaces, similar to other schools, are located at lower levels than the courtyard and facilitate the daily life of the students. This structure has designed the spaces in such a way that, in addition to learning, strong social connections are also established. The design and flow of various spaces in the Rahim Khan school clearly show the efforts of the architects to create a space that considers both the educational and social aspects. In the Sadr Bazaar school, the central courtyard is located at the top of the hierarchical graph and provides a social and educational space for the students. The cells, which are organized around the courtyard, allow students to learn in a calm and focused environment. In this school, the library and service spaces are also located at lower levels than the courtyard and cells. In the analysis of the hierarchy of spaces in the three historical periods of Safavid, Qajar, and early Pahlavi in Isfahan, a more accurate comparison can be made. The Safavid period, as a turning point in Iranian architecture, designs a space in which the central courtyard acts as the main axis, and all other spaces, such as cells and service spaces, are built regularly around it. The

cell rooms were designed to achieve peace and better learning for the students and had good access to natural light. In this period, the art and aesthetics of the spaces are also clearly visible, and various decorations play an important role in the principles of design.

The Qajar period, considering the social and cultural developments, focuses more on social and daily needs. The central courtyard is still preserved, but the service spaces and cells are designed in a more diverse way. Libraries are recognized as separate and effective spaces in the promotion of science and knowledge, but the natural light is less considered in some spaces. This period, with its emphasis on decorative and applied arts, seeks to respond to the social and cultural needs of the society. Finally, the first Pahlavi period brings new developments. In this era, the design of spaces with regard to the efficiency and facilitation of the lives of students is well evident. The central courtyard

still acts as a space for social interactions, but the educational and service spaces are reviewed in terms of efficiency and more modern design. Libraries have a place as effective spaces for research and advanced learning, and halls and art workshops pay special attention to creativity and innovation. In general, in the comparison between these three periods, it can be seen that each period has changed the design of spaces according to the needs of the society and has tried to create a balance between educational, social, and cultural elements. These changes have manifested themselves not only in terms of architecture but also in terms of cultural and social aspects, and present a comprehensive picture of the developments in Iranian history. In the following comparative table, the differences in the configuration structure of traditional schools in the Safavid, Qajar, and early Pahlavi periods can be expressed briefly and clearly according to the visual structure.

Table 14: Architectural configuration characteristics of traditional schools based on the visual structure of the Safavid, Qajar, and early Pahlavi periods

Feature	Safavid-era schools	Qajar-era schools	Pahlavi-era schools
Spatial structure	Central courtyard with classrooms and social spaces around it	A wider space with large, tiered spaces	Open and spacious spaces with modern and diverse design
Architectural elements	Iwans and porches, emphasis on natural beauty	Large windows and appropriate lighting	Modern designism, workshops and laboratories
Type of education	Traditional education with a focus on religious sciences	Blended education and attention to new sciences	Modern education and focus on skill training
Social interactions	Strong social interactions in open spaces	Less social interactions and more based on collective methods	Less social spaces and emphasis on individual study
Function of spaces	Emphasis on social learning and participation	A scientific location with diverse educational facilities	Variety in the function of spaces, educational and recreational centers
Cultural influences	Emphasis on Islamic art and culture	Expanding Western culture and drawing inspiration from it	Direct influence of Western culture and architecture on design
Space design	Spatial design with cultural and religious needs in mind	Designing according to new educational needs and techniques	Space design based on democratic and social needs
Scientific development	Scientific and religious centers focusing on Islamic and philosophical sciences	Expanding scientific and educational institutions in line with modernism	Emphasis on technical and vocational education and social empowerment

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