

A typological Study of the Historical Mosques in Erbil City

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Abstract



A mosque is a place of worship for Muslims. Erbil city contains a collection of historical mosques built in different eras dating back to 900 years ago. This paper highlights the plan typology of mosques and compares them with the known Islamic architectural typologies in an attempt to fill this gap of knowledge on such topics, especially with regard to the built environment of historic mosques in the city of Erbil. The central question of the research was: is the type of plans of the historical mosques in Erbil city related to a specific style in Islamic architecture? The aim of the research is to study the plan layout typology of mosques and to identify to which extent these typologies connected with Islamic known styles. The methodology is offering the known Islamic styles around the world with examples, selecting 5 historical mosques for analysing their plan morphologies graphically according to (shape of the prayer hall, corridor, and courtyard) then comparing these plans with the plans of Islamic styles. From the analysis, a typological tendency in the historical mosques of Erbil city was recognized. The discussion in this paper emphasizes the correlation between the typology of historical mosques in Erbil city with the known Islamic architectural typologies of mosques. As a result, the architectural typologies of the floor plan of historical mosques in Erbil city were identified. The study concluded several types of plans, such as Ottoman style, Umayyad style, and irregular plan style. The current research revealed that the typology of plans in historical mosques in Erbil city related to the plan typology of Islamic known styles.

Keywords: Typology, Historical mosque, Islamic architecture, Plan, Erbil city.

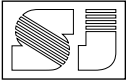
1. Introduction

The meaning of "type" does not exactly mean images that can be copied or imitated. The meaning is taken deeper as a process of getting

the quality of formal arrangements. "Type" is not a model which has to be built according to the exact look; it is more independence, ambiguous but identifiable. Typology is the categorized study of the physical characteristics of the built environment into various types. Typological thought refers to the whole, to the manifold relationships among things, to the extreme and at the same time the harmonious (Gulgonen and Laisney, 1982).

There are several ways to explore and provide a better understanding of built spaces, and typology is one of the most powerful tools in this field. The types and typology are important topics in modern architecture. It could be considered as important as to other main concepts of architecture, space and form. The types and typology have been used in various fields of sciences including architecture since about two hundred years ago, and over the past thirty years, there have been a large number of architectural researchers having dealt with it. A type is a scheme in which one can see the common characteristics of a group of buildings; the main question here is the specific view of common features (Memarian and Tabarsee, 2013). The term "typology" refers to the classification of objects; therefore "type" is an abstract that could only be identified by the person carrying the classifying activity, which is mostly determined by the material and cultural production of the architects and society (Othman et al., 2008). The mosque is an Arabic word referred to the place of worship. In Islamic society and throughout the history, the mosque is the most focused building and maintained its importance as a source for Islamic institutions. The main objective of the mosque is the place of individual and common worship and a place for educating religious, and also acts as a socio-cultural place, where the social life is maintained (Okuyucu, 2016).





Erbil city comprises a number of historical mosques built in different eras dating oldest back to 900 years ago. Most of these mosques have been unstudied and renovated several times which effect on the importance of the building. Till now this type of building has been neglected and even undocumented. This paper highlights this type of building in order to analyse its plan typology and comparing it with the known Islamic architectural typologies in an attempt to fill this gap of knowledge on such topics, specifically with regard to the built environment of historic mosques in the city of Erbil.

2. The main spaces of the mosque

There are a number of basic spaces that form the mosque as follows:

- **Entrance:** The entrance acts as a threshold to separate the interior from the external view. The entrance of mosques makes prayer feels inviting and welcoming (Othman et al., 2008).
- **Courtyard:** It is a middle space between the public space and the spiritual space which is prayer hall it also acts as an extra place to take more worshippers on Friday (Abdulhamid et al., 2016).
- **Corridor:** corridor is one of the expansions from the basic form of the mosque, corridor always introduced in buildings as a shaded space provided to cool off the outdoor air before entering the building (Othman et al., 2008).
- **Prayer hall:** a prayer hall is the main space of mosques where is the place of worship and prostration. It is generally open without partition and large space where Muslims can pray together (Budi, 2006; Budi and Wibowo, 2018).
- **Mihrab:** The niche in the qibla wall of a mosque is a space for the leader of the prayer (Imam); in fact, the earliest mosque that was developed from the house of the Prophet in Medina does not use this element. But later mihrab became an important space of mosque architecture in the Muslim world (Budi, 2006; Budi and Wibowo, 2018).
- **Minbar:** it is the location within a mosque where the *imam* stands; a raised platform in the front area of a mosque, from which sermons or speeches are given. The minbar is

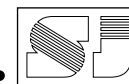
located to the right of the mihrab, which marks the direction of the qiblah for prayer. In addition to making the speaker visible to worshippers, the minbar helps to amplify the voice of the speaker (Okuyucu, 2016).

- **Service elements:** Service spaces include ablution places, library, storage and Imam's room, and they are different from one mosque to another (Abdulhamid et al., 2016).

3. Literature review

The study of patterns and typologies of buildings vary in time and place, and this is what has been seen through a wide range of research and studies carried out in this context. Much research and investigations have been done to specify the typology of mosques around the world according to different physical characters of the mosque. For example, Budi (2006) studied the typology and distribution of the plan and structure of the Javanese historical mosque. His study focuses on the main characteristics of the Javanese mosque, in particular, the plan of the main prayer hall. The methodology was analysing and investigating 127 mosques that were constructed between the 15th-19th centuries in Java. He concluded that the original mosque type in Java is square in plan with four master-pillars in the center of the main prayer hall. While Othman et al. (2008) focused on the typology of Malaysian mosques in terms of internal spatial arrangement through analysing of 24 mosques in Peninsular, Malaysia. They classified mosques into three types.

In another study and in the same region, Utaberta et al. (2012) carried out a typological study on traditional mosques based on ornamentation as a basis towards the understanding of the framework of design thinking and the identity in ornaments in Malaysian mosques. They found out that ornamentation plays a role in representing the historical beliefs and background of the local Malays and also publishing the symbolic meaning. According to Shah et al. (2014), the typology of Malaysia mosques is transformed due to their technology, morphology and design articulation, and they achieved a holistic approach by linking 12 earliest mosques to contemporary ones in Malaysia. The study concluded that



mosque transformation within each characteristic display different types.

Moreover, Budi and Wibowo (2018) studied the typology of historical mosques in West Sumatra, Indonesia. The study surveyed and analysed the architectural elements of mosques as the main research methodology focusing on floor plan level, main building material, roof type, and minaret of 31 traditional architectural heritage mosques. As a result, they identified the typology of these mosques by determining four architectural elements in relation to their locations. They developed a new hypothesis about the original building materials of the historical mosques in West Sumatra.

In a different context, Mustafa and Hassan (2013) conducted an analytical study on mosques in the early Ottoman period through quantifying the impact of spatial configuration on the functional efficiency of mosque layouts using space syntax analysis. The study concluded that mosques with courtyard layouts are more accessible, efficient, and flexible in terms of function. Ashkan and Ahmad (2009) studied the typology of Persian domes and their history and morphology. They considered Persian domes as the most important feature of Eastern domes in the Middle East. The methodology of research was analysing the architectural concepts and stylistic attributes of Persian domes in accordance to an epistemological premise of their space syntax morphologies based on the specific timeline from the pre-Islamic era throughout the Qajarian period in Iran.

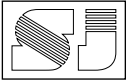
In a context not far off, Baharudin and Ismail (2014) categorised the typology of mosques according to their function towards the development of sustainability for the community, based on text interpretation, qualitative studies and observations. They described the design of outstanding mosques in Muslim and non-Muslim countries and how these mosques are developed to achieve the needs of the Muslim community through formulating a new design guideline in designing future communal mosques based on a functional basis.

At the level of form and aesthetic, Okuyucu (2016) studied architectural fictions of 10 traditional and modern mosques from past to present through analyzing its outdoor qualitative properties and indoor schemes. Line with this context, Kassim and Taib (2014); Othman and

Zainal-Abidin (2011); Rasdi and Utaberta (2012) conducted studies on the typology and function of decoration, geometrical motifs and Islamic calligraphy in the main hall of the mosque and its negative or positive impact on people as well. Furthermore, Farrag (2017) studied the architecture of mosques and Islamic centres in a non-Muslim context according to the form and style of the mosque. He studied the effects of culture, colonialism, Muslim immigrants, laws, funding, and traditions on the typology of mosques. The study approached the typology of mosques based on a descriptive, deductive, and analytical method. The analysis was based on different examples from Africa, Asia, America and Europe, concluding that Islamic buildings are usually affected by one dominant style from one country or region, depending on who is funding, designing, or leading the project.

At the level of socio-cultural and spatial aspects, Aazam (2007) studied the typology of mosques according to their social logic through the socio-spatial organisation of the congregation mosque; spaces, circulation and form of the mosques. The study adopted space syntax as a methodology in analysing socio-spatial relationships by breaking the building into its convex spaces, lines of movement, points of visibility and boundaries for 12 mosques selected from cities representing the Islamic world's cultural diversity and historical continuity. Alamdari et al. (2017) studied the typology of form and structure of the Mosque-School in Iran according to sensitivities, religious beliefs, space, and costs through descriptive and historical-analytic of examples of Mosque-Schools in Iran. Based on the method of accessibility they defined and explained three general types of mosque-school.

Linking architecture with mathematics and geometry, shape grammar, calculations and statistics is another approach in dealing with historical architecture. In line with this context, Stouffs and Tuncer (2015) suggested an approach using typological descriptions as generative guides for historical architecture. They presented an ontological approach to describe the typology of classical period Ottoman mosques and proposed description grammars as the mechanism for generating an instance of the typology from this



ontology. The study illustrated this process with an example, namely the Sehzade Mosque in Istanbul. While Yilmaz (2012) focused on the mosque orientation in Turkey before the seventeenth century with regard to the astronomical knowledge derived from Arabic sources before Islam, mathematical theory and spherical computation derived from Greek sources and traditions based on the early Islamic period. The mosque orientations are compared to the *qibla* directions that are used in sacred geography which was determined by the producers of folk astronomy and in the application of the geometric or trigonometric formulae in mathematical astronomy.

Regionally, Zarei (2010) studied the typology of Kurdistan style, plan, and iwans of Mosques in Iranian Kurdistan. He addressed how the climatic, cultural and religious factors influenced their typologies. The study concluded that Kurdistan style mosques, in general, possess a great variety in plans and have a unity in general local architectural patterns and principles.

With regard to Erbil city, maybe the study conducted by Abdulhamid et al. (2016) one of the few studies that dealt with the subject of mosques in Erbil city. They evaluated the prayer hall proportions for mosques in Erbil city based on functional and symbolic elements, constant and variable elements, basic, complementary and extra elements, using graphical analysis of some selected mosques. They concluded that neglecting the number of users and the proportion of each element led to losing the basic principles of design in mosques buildings.

In the same context, Ali and Qadir (2015) addressed the mosque architecture in Erbil city but from a socio-cultural and symbolic perspective. The study discusses that symbolism is one of the cultural aspects as it is one of the humane needs which rectifies society's identity. It sheds light on the interpretation of mosque architecture with other regions that resulted in various styles of mosque architecture. They concluded that the symbolism of mosque architecture could be obtained through two points one from its key symbolic elements and the other from its relation with local architecture.

As noted from the literature, there are limited research attempts to address the subject of historical mosques, especially studies that deal

with the building typologies despite the rich heritage of this type of buildings in this ancient city, which extends to thousands of years. Therefore, this study is an endeavor to deal with the topic of building typology, particularly historic mosques in the city of Erbil, which has not been addressed so far.

3.1. Research problem

Erbil city has a diverse cultural heritage that dates back thousands of years; includes many archaeological sites and historical mosques constitute a large part of them. Although some research studies have been conducted on mosques in Erbil city from different points of view, there is still a lack of research on the plan typology, particularly historical mosques that have not received sufficient attention. The following research questions facilitate the research process and help to find compelling answers to the research problem:

- What is the typology of plans in the historical mosques of Erbil city?
- Is the plan typology of mosques in a particular historical period linked to a specific style in Islamic architecture?

3.2. Research objectives

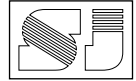
The research seeks to achieve the following objectives:

- 1- To identify the plan typology of historical mosques in Erbil city.
- 2- To analyse the plan typology of historical mosques in Erbil city compared to the known Islamic styles.
- 3- To document and archive historic mosques in the city of Erbil to preserve their original characteristics from change and distortion.

4. Research methodology

The current research has taken the following methodological steps to solve the research problem and get answers to its questions toward achieving the research objectives.

- An overview of Islamic known styles regarding mosque architecture, in particular, the plan typology.



- The research sample consists of 5 mosques built before 100 years in Erbil city. The floor plan of these mosques will be analysed graphically in terms of their (shape of the prayer hall, corridor, and courtyard).
- Comparing the plan typology of the selected mosques with the plans of known Islamic typologies.

Data collected from the survey included drawings and measurements of the selected mosques, pictures, interviews with relevant people and mosque administrators.

4.1. Plan typologies and styles in Islamic architecture

Since the 7th century, mosques have been built around the globe. While there are many different types of mosque architecture, three basic forms can be defined.

- a) The hypostyle mosque
- b) The four-*iwān* mosque
- c) III. The centrally-planned mosque (Weisbin, 2018).

The spread of the Islamic religion in a wide range of different areas led to the emergence of different types of mosque architecture. The following are the most common types of mosques according to scholars in the field of mosque architecture.

4.1.1. The Prophet – Type Mosque (PBUH) : The Prophet's Mosque

The home of the Prophet Muhammad is considered the first mosque. His house, in Medina in modern-day Saudi Arabia, was a typical 7th-century Arabian style house, with a large courtyard surrounded by long rooms supported by columns. The mosque was built by Muhammad in 622 CE and it measured 30.5 m × 35.62 m it is about a large courtyard and rows of columns in two sides and space in one side had three doors (Figure 1). This style of mosques came to be known as a hypostyle mosque, meaning “many columns.” This type spread widely throughout Islamic lands utilized this style for centuries (Kamiya, 2006; Urey, 2013).

4.1.2. The Umayyad – Type Mosque (661-750): The Umayyad Mosque

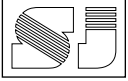
The Umayyad Mosque, also known as the Great Mosque of Damascus, located in the old city of Damascus, is one of the largest and oldest mosques in the world. It is considered by some Muslims to be the fourth-holiest place in Islam (Hitti, 2004). It is a rectangular hypostyle plan (157m × 100m) (Figure 2). The plan of the mosque is pure rectangular in shape contains a large courtyard surrounded by colonnaded corridors in four sides and spaces in two parallel sides and large colonnaded prayer hall in other side (Grafman and Ayalon, 1999).

4.1.3. Abbasid – Type Mosques (750-945): The Great Mosque of Samarra

The Abbasid mosques continued to follow the Umayyad rectangular hypostyle large plan as a distinguished type which was first introduced by the Prophet's mosque in Madinah. The Great Mosque of Samarra is one of the most prominent examples of the Abbasid mosques. The rectangular hypostyle plan of the mosque was an arcaded courtyard and covered the prayer hall with a large number of columns around the courtyard (Figure 3). The mosque was built between 848 and 851 AD. By the early 3rd / mid-10th century, especially with the emergence of what is referred to as the 'Samarra style', the architecture of the Abbasids could be described as self-referential, evolving through an internal process that relied primarily on Muslim prototypes rather than styles imported from other traditions (Hassan and Omer, 2013).

4.1.4. Andalusian- Style Mosque (711-1492 AD): Al-Qarawiyyin Mosque

The Mosque of Al-Qarawiyyin, near the Suq al-attain, or Spice Market of Fez al-Bali, is one of the world's oldest universities, and among the largest mosques in Africa. It was founded in 859 by Fatima Al-Fahri, the daughter of a wealthy Qayrawani immigrant. In the tenth century, the mosque became the congregational mosque of the quarter of Al-Qarawiyyin. The mosque is surrounded by madrasas and was a major



intellectual center in the medieval Mediterranean. The mosque plan consists of three main sections. It is of a rectangular shape stretching from the north to the west thus giving the Qibla side the longest breadth (Figure 4). The span of such space, 83×44.2 meters, extends over 21 aisles running perpendicular to the Qibla wall, a reminder of the T plan seen in much of North African (Maghribi) mosques (Hillenbrand, 1994; Michell, 1996).

4.1.5. Persian – Type Mosque (850-1736 AD): The four-*iwan* mosque

According to (Khazaei et al., 2013), after the arrival of Islam to Persia (Iran), four basic types of mosques were used:

- 4- Hypostyle mosque (Arabic mosque).
- 5- Domed chamber mosque (kiosk mosque).
- 6- *Iwan* mosque without domes.
- 7- Dome chamber mosque with an *iwan*.

Hypostyle mosque (Arab mosque) was the perspective power of the “Arab Plan” that its influence has developed in the non-Arab lands too. Persian mosques acquire its distinctive character by enriching the hypostyle form by two elements deeply rooted in pre-Islamic Iranian architecture: the *iwan* (a vaulted open hall with a rectangular arched façade which is the most notable feature in Persian mosques) and the domed chamber (derived either from Sasanian fire temple architecture is called *chahartaq*) (Hillenbrand, 1994). In the 11th century, Iran started to convert hypostyle mosques into four-*iwan* mosques, which, as the name indicates, incorporate four *iwans* in their architectural plan. The Great Mosque of Isfahan reflects this broader development. The mosque began its life as a hypostyle mosque but was modified by the Seljuks in Iran after their conquest of the city of Isfahan in the 11th century. Like a hypostyle mosque, the layout is arranged around a large open courtyard (Figure 5). However, in the four-*iwan* mosque, each wall of the courtyard is punctuated with a monumental vaulted hall, the *iwan*. This mosque type, which became widespread in the 12th century, has maintained its popularity to the present. Though it originated in Iran, the four-*iwan* plan would become the new plan for mosques all over the Islamic world, used widely

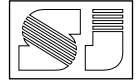
from India to Cairo and replacing the hypostyle mosque in many places (Weisbin, 2018).

4.1.6. Fatimid – Type Mosque (909-1171): Al-Azhar Mosque

Of the many splendors of Egypt, the Al-Azhar stands as a landmark in its architectural and cultural history, marking the beginning of the Fatimid rule and the foundation of its capital Cairo (Al-Qahira, "The Victorious"). It was founded by Jawhar al-Siqilly, the Fatimid conqueror of Egypt, in 970 as the congregational mosque for the new city of Al-Qahira. The first *khutba* (Friday sermon) was delivered from its *minbar* in 972 and a university was established there in 988. The oldest part of the mosque is the original prayer hall (85m by 24m) (Figure 6-left). It is made of five aisles parallel to the old *qibla* wall with the central nave (transept) cutting through them in the middle, running from the court in the west to the old *qibla* wall in the east. This reminds us of the North African T-plan mosques, such as al-Qayrawan. This is not surprising as this plan originated with the Fatimids. As the aim of this nave was to emphasize the connection with the *mihrab*, it was made wider than the other aisles and its arcades were carried on coupled columns, culminating on either end in a bay carrying a dome as at al-Qayrawan. The Ottomans removed the old *qibla* wall in 1753 extending the prayer hall towards the east (Figure 6-right), keeping the old *mihrab in situ* covered with restored carved stucco. The *cul-de-four* and the double frame are all that was left of the Fatimid décor (Hill et al., 1976; Williams, 2002).

4.1.7. Ayyubid – Type Mosque (1171-1250): Mosque and Madrasa of Sultan al-Salih Najm al-Din Ayyub

Madrasa is an institution of learning that appeared in Khurasan in the 10th century and spread all over the Islamic world. It was adopted by the Seljuqs to promote higher religious education. Madrasas usually follow an *Iwan*-based plan and they contain a mosque, classrooms, and lodgings for students and teachers. Salahaddin, the founder of the Ayyubid state (1171 AD - 1250 AD) was interested in building schools to teach



the four Sunni schools of Sharia (Islamic law): *Hanafi, Maliki, Shafi'i and Hanbali*. The system of schools adopted by Salahaddin in his time is orthogonal *iwans* rather than corridors that were previously spread. *Madrasa* of Sultan al-Salih Najm al-Din Ayyub was the first madrasa in Cairo to accommodate the four schools of law. Built in the heart of the Fatimid city, it was composed of two separate, self-contained courtyard units, parallel in the plan, separated by a passage, and having every two large *iwans*. Maqrizi calls them the two madrasas and specifies that each *iwan* was allotted to one of the four school of Sunni jurisprudence. A mausoleum for the founder was added shortly after the completion of the complex by Shajar al-Durr, his wife (1243 -1249). The plan of the *madrasa-mosque* is composed of two identical buildings (the schools) which have a single, shared, entranceway and a shared façade. The entrance leads to a passageway with two opposing doors. The eastern door leads to the two *iwans* of the *Maliki* and *Shafi'i* Schools, and the western door leads to the two *iwans* of the *Hanbali* and *Hanafi* Schools. Thus, each side consists of two independent schools composed of two confronting *iwans*, in the middle of which is an open courtyard (Figure 7). This design layout may be considered as a transitional stage to the conventional *madrasa* layout of four axial *iwans* (cruciform), which appeared later in the Mamluks period (Creswell, 1978; Behrens-Abouseif, 1985; Behrens-Abouseif, 1998).

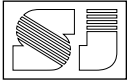
4.1.8. Mamluk-Type Mosque (1250-1517) : The Mosque of Sultan al-Zahir Baybars in Cairo

First royal Mamluks mosque in Cairo built in (1267-69). It is hypostyle in the plan, and fortress-like in elevation, the mosque with its three portals originally stood alone in a quarter north of the walled city. The mosque displays local and Seljuks influences in its spatial arrangement and its surface articulation (Hill et al., 1976). It was the first congregational mosque to be built in Cairo after the elimination of the *Shafi'* monopoly on jurisprudence, which restricted Friday prayer to a single congregational mosque. It is a hypostyle mosque whose arcades are deployed in a pattern that alludes to the cruciform layout and incorporates a nine-bay *iwan qibla* or *maqsura* in front of the *mihrab* defined

by piers carrying a wooden dome. The central section of the sanctuary, consisting of an elevated triple aisle and the *maqsura*, is flanked by aisles formed by arcades on columns running parallel to the qibla wall (Figure 8). This configuration of a transept emphasized in height and flanked by transverse aisles points to the classical hypostyle mosque design (Creswell, 1978; Bloom, 1982; Jarrar et al., 1994).

4.1.9. Ottoman – Type Mosque (the centrally-planned mosque) (1299–1923): Hatuniye Mosque

Ottoman architecture (referred to the centrally-planned mosque) is both very similar and distinct to other styles of Islamic Architecture and reflects many religious and cultural values. The centrally-planned mosque means that "a building in which the sides are of equal length and in which the main space is symmetrical when bisected laterally and longitudinally. A centrally-planned building may be square, circular, or polygonal. The most important feature of a centrally-planned building is the open space at the center of the building, developed around a vertical axis" Sweiss, 2016). The Ottoman architecture represented a time period that is distinct to the other styles of Islamic architecture and had a very distinct style than that of the other types of Islamic architecture. The Ottoman Empire was founded in 1299. However, it did not become a major force until the 15th century, when Mehmed II captured Constantinople, the capital of the late Roman (Byzantine) Empire since the 4th century. The Ottoman architects were strongly influenced by Hagia Sophia in Istanbul, the greatest of all Byzantine churches and one that features a monumental central dome high over its large nave (Weisbin, 2018). Many Ottoman mosques in the late 15th and early 16th centuries referenced Hagia Sophia's dome; one of these mosques is the Khatuniye Mosque in Tokat, Turkey, which designed during the early Ottoman period. The whole layout plan in this mosque called earring layout or pendentive layout which was derived from the single dome layout. Pendentive word is borrowed from the pendant shape of the layout plan. The mosque layout was developed from the single dome layout (nuclear layout) by adding smaller spaces to each side of the main prayer



hall (Figure 9). From the perspective of the layout plan, these spaces appear like pendants; thus, the shape of the layout is not a pure Plato's, form but rather a compound thereof. The layout may have a porch on the entrance side. The entire porch is attached to the building, thus making the square shape of the interior appear rectangular. A series of columns are placed in the absence of a porch. In this category, the number of domes can vary from one to three. A large dome, which is the dominant one, surmounts the prayer hall. The remaining spaces can be covered by smaller domes, although the pendent areas are not always covered with domes. A semi-dome can be applied when the prayer hall is elongated. The semi-dome is usually used once on the prayer hall and is placed on the opposite side of the porch (Mustafa and Hassan, 2013).

4.2. Research sample

The research sample specifically covers the historical mosques in the city of Erbil, which date back more than 100 years. Five mosques were selected as cases of study. The floor plan of these mosques will be analysed graphically in terms of their morphology and typologies based on (shape of the prayer hall, corridor, and courtyard). To identify the plan typology of these mosques, the floor plan of each mosque will be compared with the plans of the known Islamic typologies. Table 1 provides general information on selected mosques.

4.2.1. The Great Mosque of Erbil Citadel

The first mosque to be built on its grounds, the Citadel Mosque is located in the center of the Citadel. Yaqout Hamawi mentioned it in 1220 A.D. in his book "The Compendium of Countries." Ibn Mustawfi referred to it as the Fortress Mosque in his book "The History of Erbil." The Citadel Mosque was renovated several times. In its Mihrab (prayer niche), an inscription points to its renovation and rehabilitation in 1719 - 1720 A.D. under the supervision of Abo Bakr Ben Mulla Omar (General Board of Tourism-Erbil). The Mosque has an irregular plan, its dimensions around (51.4m*31.98m) with an area around 1452m². The area of the prayer hall is around 700 m² with the dimensions (31.98m* 22.1m) (Figure 10).

4.2.2. Haji Mawlood Mosque

The Mosque of Haji Mawlood is one of Erbil's ancient heritage mosques. It was founded and built by haji Mawlood in 1785. The mosque built from brick and mud on an area (2000m²). It consists of a large rectangular colonnade prayer hall and several spaces for teaching. The mosques have an L shape plan covered a large open courtyard (Figure 11).

4.2.3. Choly Mosque

The Mosque of Sheikh Mohammed Choly another historical mosque in Erbil city. It was founded and built by Muhammad Ibn Mustafa Ibn Haj Omar Al-Arbili in 1883. The mosque is located in *Ta'ajeel* quarter. It has a large area of (2000m²), built of brick and mud. The mosque consists of a large prayer hall in the centre of six small spaces (Figure 12). There are many rooms reserved for the *Imam* and the *Khateeb*. The mosque houses two libraries containing manuscripts and old books written by Sheikh Choly.

4.2.4. Mosque of Sheikh Muhiuddin Barzanji

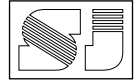
The Mosque of Sheikh Muhiuddin Barzanji is one of the ancient mosques in Erbil city. It was built and founded by Sheikh Mohammed Saleh Barzanji in 1894 on an area of (1000m²). The area of the prayer hall is about (110 m²). The mosque consists of several rooms open onto a large central courtyard (Figure 13).

4.2.5. Mosque of Haji Abdulqadir Saeed Debbagh

The history of the building of this mosque dates back to more than 100 years. It was built by Haji Abdulqadir Saeed Debbagh in 1902 on an area of (1000 m²). The mosque consists of a large rectangular prayer hall, office and service spaces on the side of the prayer hall surrounded by a courtyard and stairs in the middle of the courtyard leading to the basement (Figure 14).

5. Results and Discussions

Table 2 indicates the main spaces to be analyzed and compared in each of the five mosques



selected. These spaces include (the shape of the main prayer hall, the corridor, the courtyard).

Table 3 shows the comparison of the floor plan of each mosque with the corresponding known typologies and styles of Islamic mosque architecture. According to this comparison, the typology of each of the five mosques was determined.

As shown in Table 3, the plan in the Great Mosque of Erbil Citadel is about irregular shape, the prayer hall is near to square shape with a colonnaded corridor, this type of plan is more closely related to the Ottoman - Type mosques. While the plan of Haji Mawlood Mosque is pure rectangular in shape (hypostyle), the built spaces are arranged in an L-shape and the mosque has a colonnaded corridor; this type of plan is close to the plan of the Great Mosque of Damascus, which is an Umayyad style. As for the plan of Choly mosque, the main prayer hall is surrounded by several secondary spaces on two sides with a colonnaded corridor. Based on the graphical analysis, it can be said that this plan is related to the Ottoman style. From the graphical analysis, it is noted that the layout of the Sheikh Muhiuddin Barzanji Mosque is irregular in shape; the main prayer hall is square with a colonnaded corridor and the service spaces are separated. In general, and because of the great similarity in its structure, the closest Islamic typology known to this mosque is the Ottoman style.

With regard to the plan of Haji Abdulqadir Saeed Debbagh mosque, it has a clear rectangular prayer hall (hypostyle type); with the existence of a central courtyard and service spaces are located separately. Based on this data, the layout of this mosque can be classified on the basis of the Umayyad mosques in which the main prayer hall is rectangular.

6. Conclusions

This study shows clearly how Erbil's historical mosques have evolved in its plan typologies over time. Based on graphical analysis and comparison, the study concludes the following conclusions:

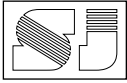
- The research explored several types of plan typologies, first Ottoman style which is about the main space which is dedicated as the main prayer hall surrounded by

secondary spaces and have colonnade corridor. The second type is the Umayyad style in which the plan of the mosque is pure rectangular in shape contains a large courtyard surrounded by colonnaded corridors in different sides and spaces in two parallel sides and large colonnaded prayer hall in another side.

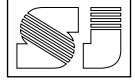
- In general, the shape of the prayer halls in the selected mosques in Erbil city is square in some mosques and a rectangular shape in others. Most of these mosques have colonnaded corridors in front of its main prayer hall. In addition, overall mosques contain an open courtyard with varied shapes between square, rectangle and irregular.
- Comparative results and graphic analysis showed that the historical mosques built in the local environment of the city of Erbil are similar and closely related to the patterns and typologies of known Islamic mosques.
- The plan typologies of the five selected cases varied between the Ottoman and Umayyad styles. This indicates that the historical mosques in the city of Erbil were influenced in their basic structure by the known Islamic patterns. The reason why the mosques built in Erbil city influenced by these two types may be due to the geographical and historical convergence of the city of Erbil with these two states.
- The results obtained in this paper will help current and future generations learn history through the design and evaluation of mosques according to the known Islamic patterns reviewed in the current research.

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دراسة تصنيفية لأنماط المساجد التاريخية في مدينة أربيل

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المستخلص :

المسجد هو مكان العبادة لعموم المسلمين. تحتوي مدينة أربيل على مجموعة من المساجد التاريخية التي بنيت في عصور مختلفة يعود تاريخ أقدمها إلى 900 عام مضت. تسلط هذه الورقة البحثية الضوء على تصنيف أنماط المخططات الوظيفية لهذه المساجد ومقارنتها بالأنماط المعمارية الإسلامية المعروفة في محاولة لمليء هذه الفجوة المعرفية لهكذا مواضيع ، لا سيما فيما يتعلق بالبيئة المبنية للمساجد التاريخية في مدينة أربيل. التساؤل الرئيسي في البحث يتمحور حول : هل يرتبط نمط مخططات المساجد التاريخية في مدينة أربيل بأسلوب ونمط محدد للمساجد في العمارة الإسلامية؟ فكان هدف البحث هو السعي في دراسة أنماط المخططات الوظيفية للمساجد وتحديد مدى إرتباط هذه الأنماط بالأنماط الإسلامية المعروفة. منهجية البحث إتسمت بعرض أنماط المخططات الإسلامية المعروفة للمساجد في جميع أنحاء العالم بأمثلة وشروحات مفصلة ، ولأغراض التحليل والمقارنة فقد تم اختيار خمسة مساجد تاريخية في مدينة أربيل ، ومن خلال التحليل الكرافيكي للبنية الشكلية لمخططاتها الوظيفية وفقاً لـ (شكل قاعة الصلاة الرئيسية، الممر أو الرواق، والفناء الداخلي) تم مقارنتها مع أساليب وأنماط المخططات الوظيفية الإسلامية المعروفة. من التحليل ، تم التعرف على إتجاه نمذجي أو نمطي في المساجد التاريخية لمدينة أربيل. نتائج التحليل أبرزت أن هناك علاقة وطيدة بين تصنيف أنماط المساجد التاريخية في مدينة أربيل والأنماط المعمارية الإسلامية المعروفة للابنية المسجدية. نتيجة لذلك ، تم تحديد الأنماط المعمارية للمخططات الوظيفية للمساجد التاريخية المبنية في مدينة أربيل. خلصت الدراسة إلى عدة أنواع من أنماط المخططات الوظيفية ، مثل النمط العثماني ، والأسلوب أو النمط الأموي ، والنمط غيرالمنتظم. كشفت الدراسة الحالية أن تصنيف أنماط المخططات الوظيفية في المساجد التاريخية في مدينة أربيل ترتبط وتتشابه مع مثيلاتها من الأنماط الإسلامية المعروفة للمساجد.

الكلمات المفتاحية: نمط ، مسجد تاريخي ، عمارة إسلامية ، مخطط وظيفي ، مدينة أربيل.

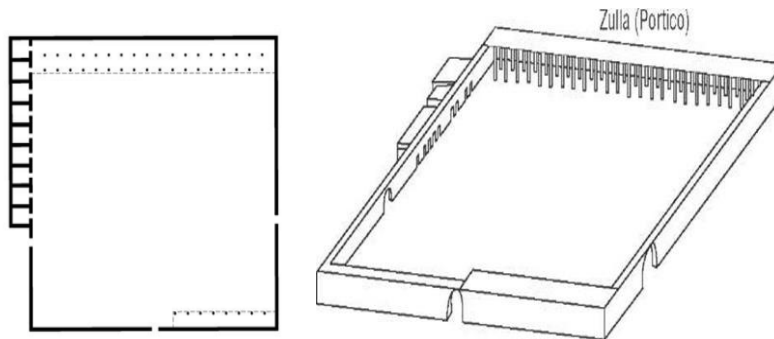
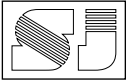


Figure 1: Plan of the Prophet Mosque (Urey, 2013)

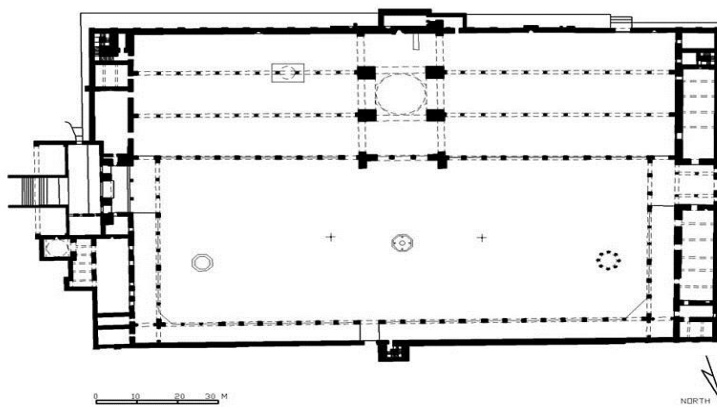


Figure - 2: Plan of the Great Umayyad Mosque in Damascus, Syria as an example of the hypostyle mosque type (<https://archnet.org/sites/31/publications/1271>)

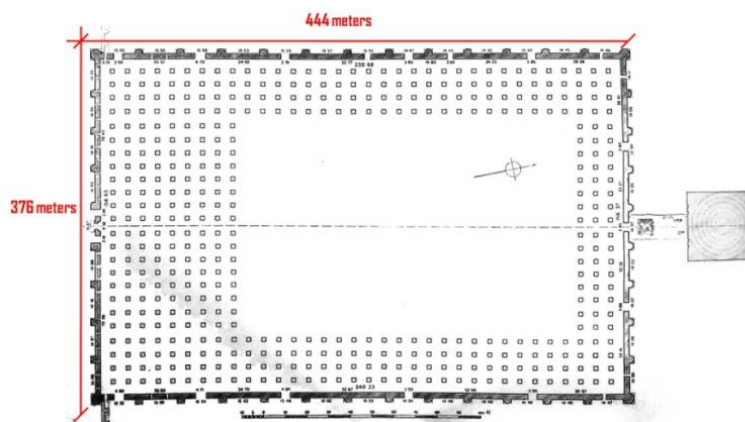


Figure 3: Plan of the Great Mosque of Samarra
(<http://islamicarchitecturebydxx.blogspot.com/2015/10/the-great-mosque-of-samarra.html>)

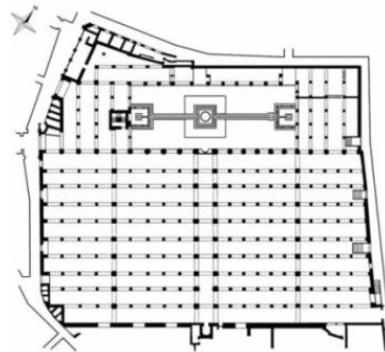
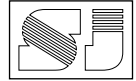


Figure 4: Plan of Al-Qarawiyyin Mosque
 (http://www.discoverislamicart.org/database_item.php?id=monuments;ISL;ma;Mon01;1;en)



Figure 5: Plan of the Great Mosque of Isfahan, Iran, showing four iwans opening onto the sahn (court) (<https://classconnection.s3.amazonaws.com/650/flashcards/4706650/jpg/a9rafe1-145143EFC7E1544A799.jpg>)

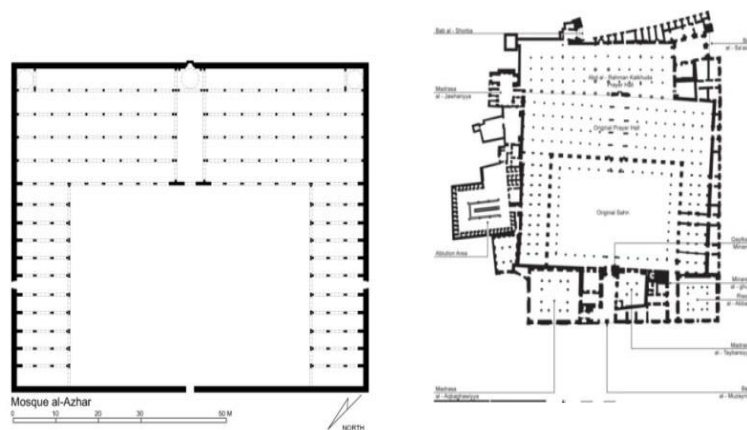


Figure 6: The original hypostyle prayer hall in Al-Azhar mosque (left); general plan of Al-Azhar showing the mosque in the center surrounded by madrasas-university (Hill et al., 1976; Behrens-Abouseif, 1989).

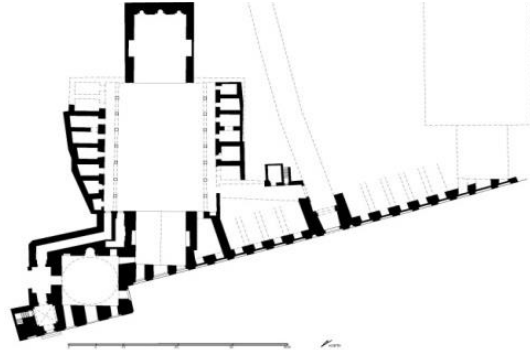
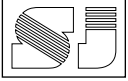


Figure 7: Plan of Madrasa and Mosque of Sultan al-Salih Najm al-Din Ayyub (Behrens-Abouseif, 1998).

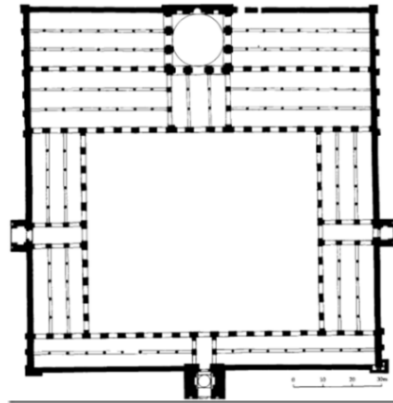


Figure 8: Plan of the mosque of Sultan al-Zahir (Hill et al., 1976).

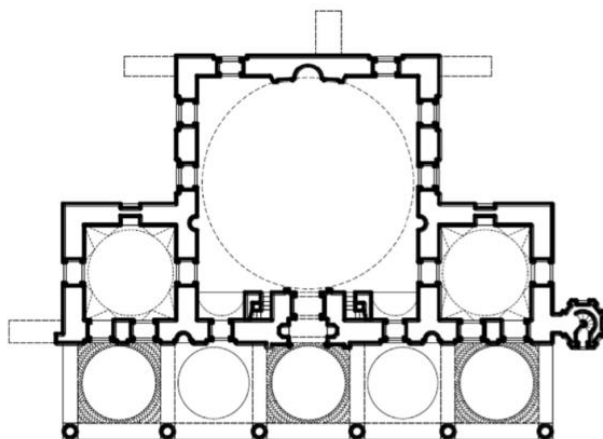


Figure 9: Plan of the Hatuniye mosque (Mustafa and Hassan, 2013).

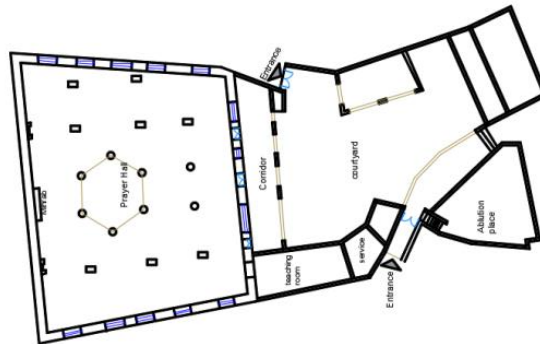
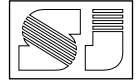


Figure 10: Plan of the Great Mosque of Erbil Citadel (Source: Authors).

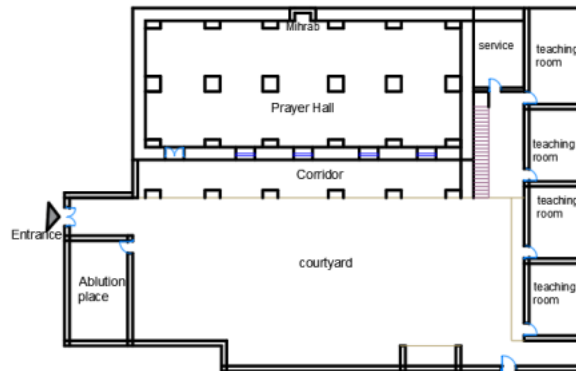


Figure 11: Plan of Haji Mawlood mosque (Source: Authors).

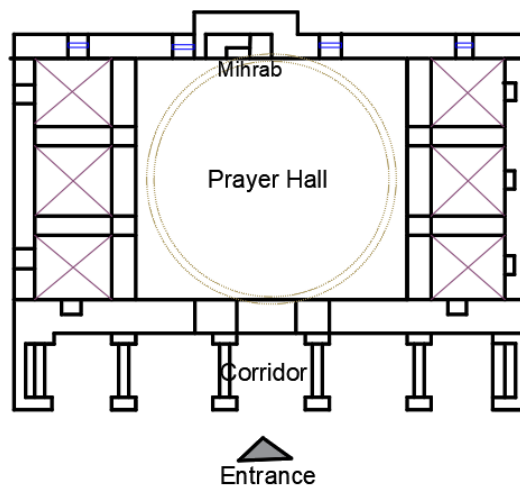


Figure 12: Plan of Choly mosque (Source: Authors).

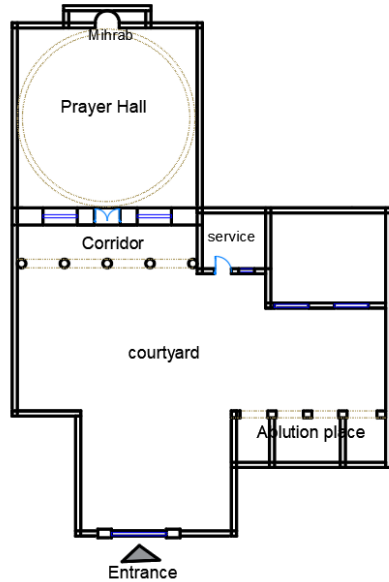
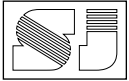


Figure 13: Plan of Sheikh Muhiuddin Barzanji mosque (Source: Authors)

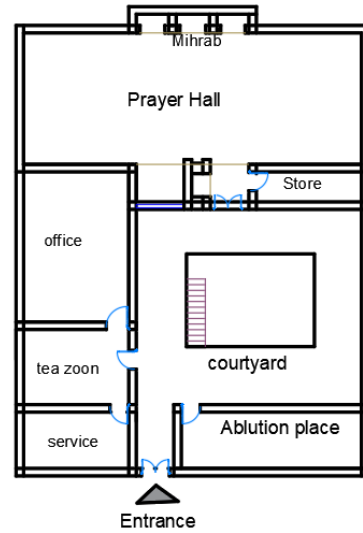


Figure 14: Plan of haji Abdulqadir Saeed Debbagh mosque (Source: Authors)

Table 1: General information on the selected mosques (Source: Authors)..

	Name of Mosque	Date of building	Area in m ²
1	The Great Mosque of Erbil Citadel	1132-1719	1452
2	Mosque of Haji Mawlood	1785	2000
3	Choly Mosque	1883	2000
4	Mosque of Sheikh Muhiuddin Barzanji	1892	1000
5	Mosque of Haji Abulqadir Saeed Debbagh	1902	1000

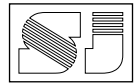


Table 2: Analysing Erbil historical mosques (Source: Authors).

Name of Mosque	Shape of prayer hall	Corridor	Courtyard
1 The Great Mosque of Erbil Citadel			
2 Mosque of Haji Mawlood			
3 Choly Mosque			
4 Mosque of Sheikh Mohiuddin Barzanji			
5 Mosque of Haji Abulqadir Saeed Debbagh			

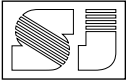


Table 4: Result of Erbil historical mosques typology (Source: Authors).

Mosque Name	Plan of the Mosque	Relation to Islamic Typology	Style
1 The Great Mosque of Erbil Citadel			Ottoman style
2 Mosque of Haji Mawlood			Umayyad style
3 Choly Mosque			Ottoman style
4 Mosque of Sheikh Muhiuddin Barzanji			Ottoman style
5 Mosque of Haji Abulqadir Saeed Debbagh			Umayyad style