

A methodological approach to the investigation of regional variations in Artuqid Islamic architecture

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Abstract

Anatolia is a geographical area characterized by various architectural styles from different civilizations and offers a rich historical and cultural heritage in terms of Islamic architecture. This study aims to examine the spatial features of the Harput, Silvan, and Kızıltepe Great Mosques built during the Artuqid period and determine the effects of regional differences on the architectural features. The study discusses the historical and architectural characteristics of mosques and adopts a method of analysis based on Kevin Lynch's urban images of paths, edges, districts, nodes, and landmarks. With this method, the plan diagrams, spatial organizations, and facades of the mosques were typologically compared, and their relationships with regional variations were examined. The results reveal that the mihrab dome and the harim plan scheme are significant in the key design decisions in the spatial configuration of the three mosques. However, different architectural approaches, such as the porticoes and interior walls, were developed depending on regional requirements and functions. The study emphasizes the importance of these mosques in Islamic history and provides a framework for examining the relationship between the monumental structures and urban images by using the proposed methodology.

Keywords: Architectural heritage, Historical buildings, Islamic architecture, Artuqid, Kevin Lynch

Extended Abstract

Introduction: Anatolia, a region rich in geographical and historical significance, has been home to some of the world's earliest civilizations, contributing a vast cultural and architectural heritage. Civilizations like the Hittites, Phrygians, and Ottomans have left a distinctive architectural legacy, with numerous historical buildings exemplifying both religious and vernacular architecture. Key archaeological sites like Ephesus, Aphrodisias, and the Great Mosque and Hospital of Divriği highlight the region's artistic achievements through mosaics, frescoes, and reliefs. These traditional architectural elements continue to influence contemporary designs and help maintain the region's cultural identity. The Artuqids, a Turkish principality in southeastern Anatolia, notably influenced the architectural landscape, particularly in cities like Diyarbakır and Mardin. Their strategic geographical position facilitated interactions with other Turkish principalities and the broader Islamic civilization, leading to a unique architectural style that combined Seljuk and Anatolian Turkish features with Islamic elements from Mesopotamia and Syria. Significant structures from this period, such as palaces and mosques, are characterized by intricate brickwork and domed designs, contributing richly to Anatolia's cultural history. Existing literature has explored various aspects of Artuqid architecture, including structural designs, inscriptions, and economic activities. However, there is still a lack of comprehensive studies evaluating Artuqid cities. The Artuqids made substantial historical and architectural contributions that are essential for understanding the region's development during both their reign and contemporary times. Kevin Lynch's work on urban design, particularly in *The Image of the City*, offers a theoretical framework for understanding how urban elements shape perceptions of space. His emphasis on paths, edges, districts, nodes, and landmarks is crucial for creating livable urban environments. This study aims to apply Lynch's principles to analyze smaller-scale buildings constructed during the Artuqid period, thereby enhancing our understanding of urban identity and user-centered design in historical contexts.

Purpose and scope: This study aims to examine the spatial and typological features of the Harput, Silvan, and Kızıltepe Great Mosques built during the Artuqid period and to reveal the effects of regional variations on architectural styles. These mosques built in different regions of Anatolia reflect the characteristic features of Artuqid architecture and have

unique details from their geographical and cultural contexts. Within the scope of the study, the architectural approaches of the Artuqid period are discussed in more depth by examining the plan schemes, spatial organizations, and facade designs of these three mosques. These analyses provide insights into the architectural details and regional variations of each structure while reflecting the overall characteristics of Artuqid architecture. The study not only presents historical information about the mosques but also contributes to the development of a significant archive by including current information and visuals. This archive serves as a valuable resource for researchers and architecture students, facilitating a deeper understanding of the architectural heritage from the Artuqid period.

Method: Within this study, the spatial characteristics and typological differences of three mosques built during the Artuqid period were analyzed. The study adopted a qualitative research approach, comprehensively addressing the cultural context of the period in which the mosques were built, their structural characteristics, and the transformations they experienced over time. The methodological framework was based on the adaptation of conceptual images (paths, edges, districts, nodes, and landmarks) defined by Kevin Lynch in his *The Image of the City* to spatial and building scales. These images were analyzed through the plan schemes, spatial organizations, and facade designs of mosques. The applicability of Lynch's images designed for urban areas on a structural scale allows a detailed examination of the spatial organization and typological characteristics of the mosques of the Artuqid period. With this approach, how the architectural organization of the mosques was shaped in terms of both design and functionality and the relationships of these buildings with their cultural contexts were revealed. The study not only provides an understanding of the spatial characteristics of the mosques but also provides the opportunity to make a spatial comparison between these mosques. It was observed that Lynch's urban imagery, encompassing paths, edges, districts, nodes, and landmarks, not only enhances the legibility of urban environments but also significantly contributes to the clarity of architectural forms. Consequently, this study undertakes a spatial analysis of the Artuqid mosques, utilizing Lynch's principles to deepen the understanding of their architectural and cultural contexts.

Findings and conclusion: This study examines mosques from the Artuqid period across different regions, utilizing a methodological framework based on Kevin Lynch's urban analysis categories. The analysis focuses on circulation systems, boundaries, districts, nodes, and landmark elements to identify similarities and differences among the selected mosques. All investigated mosques are single-storey structures, with staircases located solely within their minarets. While each mosque features minarets, those of the Silvan and Kızıltepe Great Mosques are not original. The Harput Great Mosque uniquely retains portico pillars, suggesting that the original designs of the Silvan and Kızıltepe mosques included surrounding porticoes, which have since been lost. The entrance gates, significant for circulation, vary in number and organization among the mosques, with no common approach evident. Boundaries are similar across the mosques, with exterior walls appearing as closed structures, although the Harput Great Mosque includes additional boundary elements. Districts are categorized into private/public and interior/exterior spaces, revealing significant similarities between Silvan and Kızıltepe, while the Harput Great Mosque differs. The nodes, determined by building geometry, vary for each mosque, with the Harput node located in the courtyard and the others aligned with prayer hall features. Despite their unique characteristics, common symbolic elements, such as ornamental entrance gates, minarets, and domes, are present. The Silvan and Kızıltepe mosques feature ornate gates, while the Harput Great Mosque's minaret is particularly distinctive. The domes, a key feature of Artuqid mosques, exhibit variations in design and construction across the three mosques. Ultimately, the study identifies both shared and distinctive features, noting the absence of a common circulation parameter, similarities in boundaries, differing district parameters, varied nodes, and common landmark elements.

Keywords: Architectural heritage, Historical buildings, Islamic architecture, Artuqid, Kevin Lynch

INTRODUCTION

Anatolia is a geographically rich region that hosts some of the oldest civilizations in history, offering a wealth of cultural and architectural heritage (Freely, 2011: 20-33). Numerous civilizations, including the Hittites, Phrygians, Lydians, Persians, Hellenistic, Byzantines, Seljuks, and Ottomans, have developed on this land, leaving behind a unique architectural legacy. Many historical buildings that have survived in Anatolia exemplify both the religious and vernacular architecture of past civilizations (Kuban, 1965: 18). Archaeological sites and architectural heritage such as Ephesus, Aphrodisias, Sagalassos, and Hattusa shed light on the cultural and historical values of the region. The mosaics, frescoes, reliefs, and other creative works found in Anatolia reflect the high artistic sensibilities of these civilizations (Kuban, 1965; Freely, 2011; Bekar et al., 2024). Today, traditional architectural elements in Anatolia influence design decisions in contemporary structures and contribute to the preservation of the region's unique cultural identity.

The Artuqids were a Turkish principality controlling significant centers such as Diyarbakır, Mardin, and Hasankeyf in southeastern Anatolia (Cahen, 2001: 67-68). Due to their strategic location, the Artuqids interacted with other Turkish principalities in Anatolia as well as with the Islamic civilization spreading throughout the region (Darkot, 1993: 707; İldeniz & Bozkurt, 2024; Kutlu & Şimşek, 2024). Artuqid architecture developed a distinctive style that synthesized characteristics of Seljuk and Anatolian Turkish architecture with elements of Islamic architecture from Mesopotamia and Syria (Aslanapa, 1971). The Artuqid palaces, madrasas, mosques, and bridges constructed in Hasankeyf, Mardin, and Diyarbakır represent significant examples of the region's cultural and architectural heritage (Sözen, 1981). These structures are notable for their brickwork, multicolored stone decorations, expansive iwans, and domed designs (Aslanapa, 1971; Kutlu et al., 2022a). This unique and ornate style of Artuqid architecture makes a significant contribution to Anatolia's rich cultural history (Sözen, 1981). To obtain a detailed understanding of this architectural style, it is essential to examine the planning and design processes of the buildings. Altun (1978) examined the development of Artuqid period buildings, including their existing plans, sections, and elevations. Karaçam (2012) focused on the inscriptions found in the period's mosques. Yeşilbaş and Acat Akgül (2020) investigated the artistic and cultural interactions of the era. Bedirhanoğlu (2021) addressed the economic activities in regions influenced by the Artuqids. Kutlu and Soyluk (2021) researched the effects of the period's mosques on Anatolian Turkish architecture. Studies examining the effects and works of the Artuqid period in a region-specific context have also been conducted in Mardin (Çağlayan, 2018; Arslan, 2019; Erdal, 2020; Baday, 2021), Harput (Aytaç, 2018; Uzun, 2014; Altun, 1973; Bahşi & Özçelik, 2022), Silvan (Alican, 2013), and Diyarbakır (Yariş, 2022; Parla, 2015). Existing studies have generally focused on cities in southeastern Anatolia during the Artuqid period. It is noted that there are relatively few studies evaluating Artuqid cities collectively.

The Artuqids exhibited significant historical, architectural, and social contributions to the region both during the period of the Anatolian principalities and in the contemporary period. Holistic and methodological approaches to this contribution provide significant data to investigate the historical, architectural, social, and other characteristics of the period. Examining the role of a major principality on a regional and urban scale can be related to "the formation of its image in cities" and "its perception by urban residents". In this context, this study examines Lynch's studies of cities through smaller-scale buildings constructed in different regions during the same period. This study was conducted to compare the spatial characteristics of mosques built in different geographical regions during the Artuqid period and to reveal the typological features specific to these buildings. The main problem of the study is to observe the regional differences in Artuqid architecture and the effects of these differences on the spatial organization of the mosques. The Harput Great Mosque (in Elazığ), the Silvan Great Mosque (in Diyarbakır), and the Kızıltepe Great Mosque (in Mardin) were discussed, and the plan diagrams, spatial organizations, and facade designs of these buildings were examined in detail. Additionally, these mosques were compared with one another to identify distinct qualities. This approach has enabled the identification of varying characteristics within a region affected by the same principality. The study not only provides historical information about these mosques but also contributes to a deeper perspective of the Artuqid architectural heritage by creating an archive that includes current information and visuals supported by spatial analyses.

MATERIAL

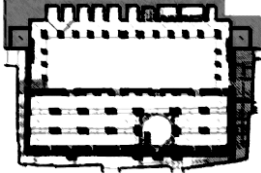
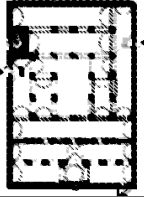
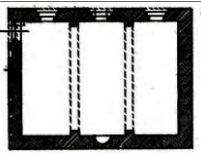
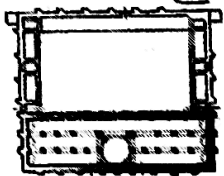
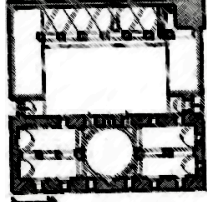
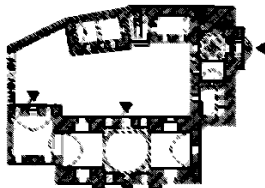
Artuqid Islamic Architecture

The Artuqids constructed significant monumental buildings in the Eastern and Southeastern Anatolia region, where they ruled for three centuries (12th century - 15th century). These buildings were significant in the design decisions of monuments with similar functions built in Anatolian Turkish architecture after the 12th century (Kutlu & Soyluk, 2021). Due to its strategic location, Artuqid architecture reflects the characteristics of Seljuk and Anatolian Turkish architecture, along with elements of Islamic architecture from Mesopotamia and Syria (Aslanapa, 1971).

Currently, seven mosques that can be attributed to the Artuqid period have been identified. These mosques, listed according to their construction years, are the Mardin Great Mosque, Harput Great Mosque, Silvan Great

Mosque, Harput Alacalı Mosque, Kızıltepe Great Mosque, Latifiye Mosque, and Melik Mahmut Mosque (Table 1).

Table 1. General information about the Artuqid Period mosques

	Construction Year	Plan (adapted from Altun, 1978)	Literature	Literature review
Mardin Great Mosque	1108/1144		Güler and Aktuğ Kolay, 2010; Erdal, 2017; Çağlayan, 2018; Baday, 2021; Kızılelma, 2022; Kucur, 2024.	The past process of the mosque, its structural system features and minarets were discussed.
Harput Great Mosque	1144/1146		Altun, 1973; Tanyıldızı and Sayın, 2006; Uzun, 2014; Aytac, 2018; Bahşi & Özçelik, 2022.	The earthquake resistance, structural features and past periods of the mosque were discussed.
Silvan Great Mosque	1152/1157		Çetin, 2008; Alican, 2013; Keser Kayaalp, 2017; Ergin & Dal, 2019.	The effect of the mosque's plan features in Anatolia, its historical features and restoration processes were examined.
Harput Alacalı Mosque	1202/1204		Çakmak, 2006; Aytac, 2018; Danık, 1997.	The history and architectural features of the mosque were included together with the castle of Harput.
Kızıltepe Great Mosque	1204		Kılıcı, 2007; Aktur, 2012; Güler, 2019.	The previous restoration processes, historical and architectural features of the mosque were investigated.
Latifiye Mosque	1371		Dal et al., 2020; Baday, 2021.	The minaret features of the mosque and the stone deterioration were identified and chemically analyzed.
Melik Mahmut Mosque	14 th century		Aslanapa, 1971; Baday, 2021; Kutlu et al., 2022b.	The historical features of the mosque and the minaret formation were discussed and a digital model was generated.

The primary materials for this study consist of the Harput Great Mosque, Silvan Great Mosque, and Kızıltepe Great Mosque (Figure 1). There are several main reasons for selecting these mosques in this study. Firstly, these three mosques represent the applications of Artuqid architecture in different geographical regions. The fact that they were built in regions with different climatic and cultural characteristics, such as Elazığ (Harput), Diyarbakır (Silvan), and Mardin (Kızıltepe), provides an appropriate context for examining the effects of regional differences on architectural designs. Secondly, these structures are among the examples that have received relatively fewer academic studies in the literature. The study contributes to the literature by addressing both the historical and architectural features of these mosques. Thirdly, the current conservation status of these

mosques was also effective in the selection. When the past photographs are examined, Kızıltepe and Silvan Great Mosques encountered difficulties, especially in terms of restoration and conservation processes. This situation increases the importance of spatial and typological analyses. Harput Great Mosque, on the other hand, is relatively well preserved and constitutes an important example for comparative analyses with similar period structures.

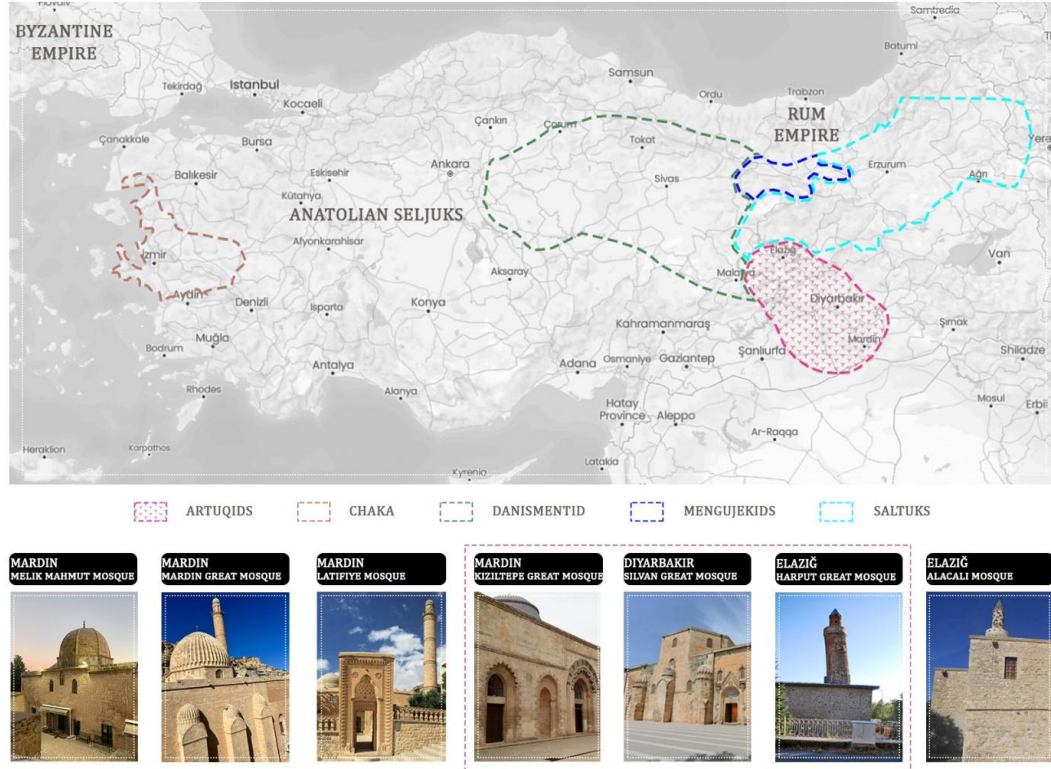


Figure 1. The location of the Artuqids in Anatolia and the views of the mosques

In this qualitative study, similarities and differences were identified by comparing the selected mosques. It examined the cultural characteristics of the period in which the mosques were constructed, as well as the structural transformations over time. Existing studies focused on the architecture of mosques (Çetin, 2008; Ergin & Dal, 2019; Güler, 2019; Keser Kayaalp, 2017; Artuk, 1946; Uzun, 2014; Altun, 1973). This study, on the other hand, creates a new framework by applying the conceptual meanings (images) used by Kevin Lynch's book *The Image of the City* to the spatial/building scale.

Harput Great (Ulu) Mosque

Although there is no inscription about the construction year of the mosque, three distinct dates are generally provided based on the tax inscription located on the northern wall of the courtyard. These dates are 551 H/1156-57 AD (Sunguroğlu 1958: 306; Ardiç, 1939; Ardiçoğlu, 1966: 45) and 561 H/1165-66 AD (Gabriel 1940: 259). Additionally, Oral (1967) indicates the construction date as 541 H/1146 AD. All three dates refer to the rule of Fahrettin Karaarslan of the Artuqid dynasty in Harput (1144-1167).

The mosque, which has a rectangular plan in the north-south direction, consists of a main prayer hall (*harim*), the latest community place (*son cemaat yeri*), an open courtyard, and porticoes (Figure 2). At the center of the rectangular plan is an open-oriented north-south courtyard. To the south of this courtyard are porticoed spaces that serve as an entrance area. On the eastern and western edges of these porticoes, two naves (*sahn*) are available. In the main prayer hall, directly in front of the mihrab, some load-bearing columns support the weight of a dome. In the nave immediately to the north of the mihrab, remains of a groin vault with the same width as the dome can be observed. Currently, it has been noted that the groin vault is damaged, and this roof area is covered with a barrel vault. All areas of the main prayer hall, apart from this space, are covered with a pointed vault oriented in the east-west direction. The north wall of the main prayer hall features two gates at

the eastern and western ends, providing access to the other prayer hall, the latest community place. The lighting of the main prayer hall is supported by windows between these gates.

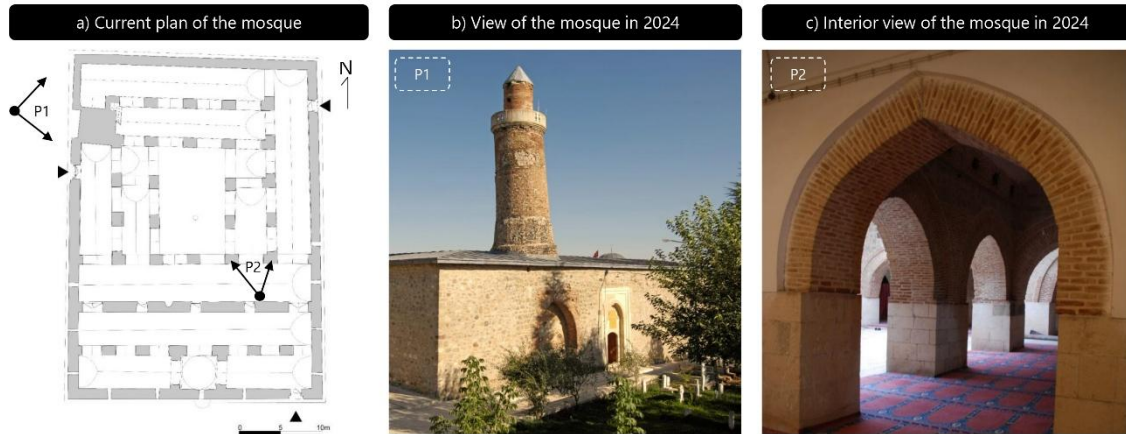


Figure 2. Current plan and views of the Harput Great Mosque

When the building is examined from the outside, it presents a rather strict appearance with no ornamentation. There is a niche at the minaret's base, north of the entrance gate on the west exterior wall. No ornamentation or decoration is observed on the north wall. However, on the east wall, a gate oriented towards the north provides access to the interior. On the south wall, there is a semi-circular mihrab and a gate. Additionally, this southern body wall contains a total of four small window openings at higher levels. Similar types of windows can also be observed at higher levels along the axes of the east and west walls of the main prayer hall stage and the latest community place. When the transformation of the building was investigated, it was observed that the most significant changes occurred in the dome (Figure 3). The original form of the dome indicated that it was composed of drums and was not circular. It is also noted that the minaret remained without a conical top for a long time and was restored during the most recent restoration and preservation practices.

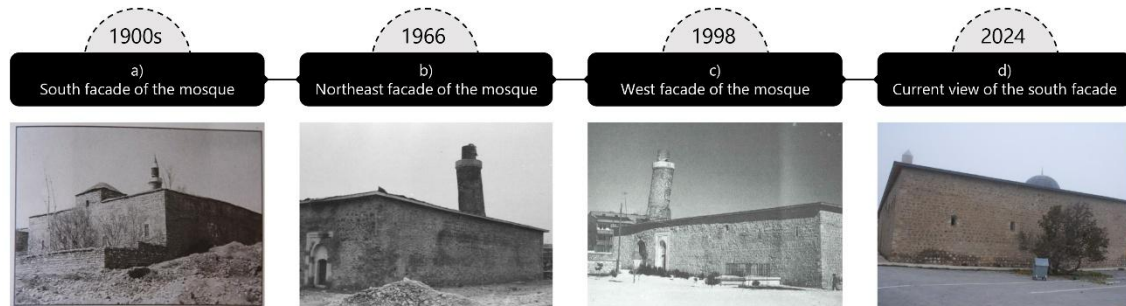


Figure 3. The transformation of the Harput Great Mosque over the years

On the western side of the mosque stands a minaret that has curved over time and currently leans at an angle. The base and shaft of the minaret, constructed using bricks in various forms and arrangements, are among the most renowned and distinctive minarets of the period (Bakirer, 1976).

Silvan Great (Ulu) Mosque

The mosque, located on Gazi Street in the center of the Silvan district, continues to serve as the central point of the settlement. The exact date of the first construction of the building is not definitively known, which makes it difficult to propose conclusive ideas about its date of construction (Çetin, 2008). However, information found in the records of travelers who visited the region in the 11th century provides evidence that the building existed at that time (Hüsrev, 1950; Azrak, 1975: 96). The building has two inscriptions. The first, located at the dome's base, documents that the mosque was restored by Necmettin Alpi during the Artuqid period (1152-1176). The second inscription, above the eastern mihrab on the qibla wall, refers to the Ayyubid restoration completed by Sultan Abu'l-Muzaffer Ghazi in 1227 AD (624 AH). The building has a rectangular plan measuring 21.40x50.00 meters (Figure 4). In the interior, there is a dome in front of the mihrab area measuring

13.60x13.76 meters, supported by ten columns positioned with pendentives. The columns supporting the dome are rectangular and joined to the qibla wall to the south, while those to the east and west are also rectangular, and the northern columns are arranged in a cruciform plan. The “central space” under the dome is extended to the east and west by three naves parallel to the mihrab, the central nave being wider than the others. To the north, there is a nave parallel to the mihrab, which includes the central dome and the side naves. The rectangular columns that form the naves are joined together by pointed arches. Except for the central dome, the naves are covered with barrel vaults in an east-west direction. The section of the northern nave adjacent to the dome is covered by three cross vaults.



Figure 4. Current plan and views of the Silvan Great Mosque

Although the building appears generally symmetrical, closer observation reveals that it is not entirely symmetrical. Using the central dome as a reference point, the eastern edge is 2.40 metres longer than the western edge. The minaret, which is separate from the structure in the northwest corner, was built more recently. The minaret has a square base and shaft, but its original position and shape cannot be determined with certainty. There is no information about the restoration of the building until the early 20th century. It is estimated that during the last period of the Ottoman Empire, between 1911 and 1913, some restorations were implemented by craftsmen from Mardin (Durukan, 1992: 199; Figure 5). Moreover, it was reported that some original historical elements of the building were destroyed during the restorations conducted by the General Directorate of Foundations in 1964 (Durukan, 2002: 96).

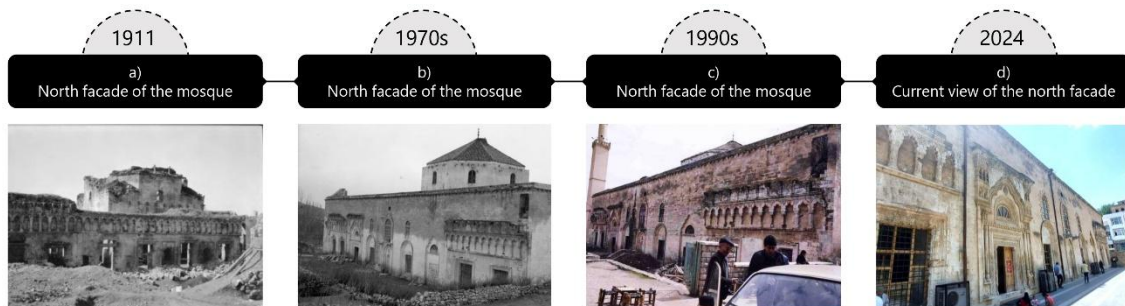


Figure 5. The transformation of the Silvan Great Mosque over the years

The walls that form the external facades of the building are of the same height. This uniformity is challenged by the drum that supports the dome above the mihrab on the south facade. The junction of the central point of the facade with the drum results in a heightened visual appearance.

Kızıltepe Great (Ulu) Mosque

The Kızıltepe-Dunaysır Great Mosque, located in the northwestern part of the Kızıltepe district of Mardin, is remarkable from both an architectural and historical point of view. According to available information, its construction was initiated by Yavlak Arslan of the Artuqids (1184-1200) and completed in 1204 by his brother, Artuk Arslan (1200-1239) (Güler, 2019). This process represents a significant period in the architectural and cultural development of the Artuqid principality.

The mosque is constructed of cut stone and brick. The entrance to the mosque courtyard (non-original) is from the eastern side. The architectural plan of the building consists of a rectangular three-nave plan parallel to the mihrab wall (Figure 6). The design of the naves is intersected by a 9.75-metre-diameter dome in front of the

mihrab, which adds visual depth and spatial richness. The dome is also notable for its acoustic properties within the building.



Figure 6. Current plan and view of the Kızıltepe Great Mosque

The architectural ornamentation of the Kızıltepe Great Mosque has a rich appearance that reflects the art of the time. The two-tone stone voussoirs of the entrance arch demonstrate the characteristics of Zengid architecture (a Turkish state that ruled in Mesopotamia and Syria during the 12th and 13th centuries). This situation is indicative of the architectural interactions in the region. The niche of the entrance is surrounded by an intricately carved segmented frame. Additionally, the intricate border motifs throughout the building are duplicated in the side portals, providing visual continuity. The chain motifs, candelabra, and various star shapes within these borders, together with the intricately carved details, add to the aesthetic value of the building. When examining the transformation of the mosque over the years, it is obvious that it was in a dilapidated state at the beginning of the 20th century (Figure 7). In particular, the damage to the dome could not be repaired, and it was covered with steel during the restoration. Tuncer (1996) includes in his study drawings of the original courtyard, the portico section, and the spatial units of the complex. Today, the mosque has only a courtyard surrounded by boundary walls.

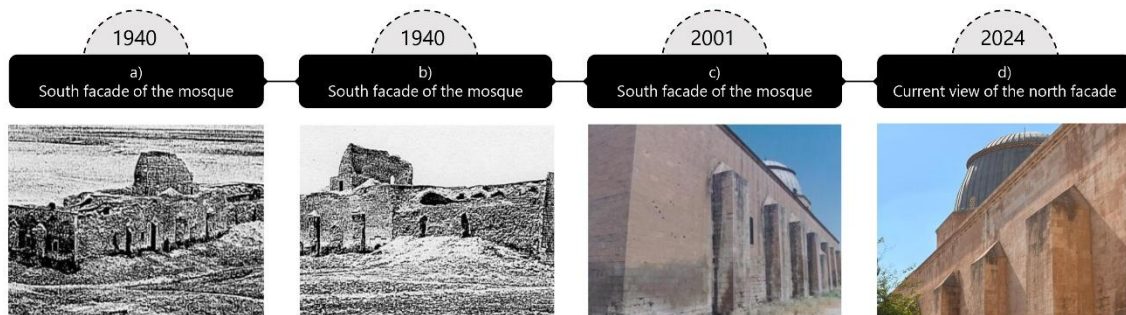


Figure 7. The transformation of the Kızıltepe Great Mosque over the years

The Kızıltepe Great Mosque is a building that reflects not only the architectural significance but also the social and cultural dynamics of its time and is an important part of the cultural heritage of the Artuqid Principality. This mosque is a significant example of the development of Turkish-Islamic architecture in Anatolia and has played a central role in the religious and cultural life of the region throughout the historical processes.

METHOD

Kevin Lynch's studies on the urban environment have made significant theoretical contributions to the field of urban design (Lynch, 1960; Carmona, 2021; Cuthbert, 2007). Lynch, in *The Image of the City*, thoroughly investigates how individuals form urban images in their minds and the role of urban elements in shaping these images (Lynch, 1960). He emphasizes the importance of elements like "paths, edges, districts, nodes, and landmarks" in the processes through which urban users perceive, interpret, and conceptualize space (Carmona, 2021). These insights into how cities are experienced by users provide a crucial fundamental basis for designing more livable, functional, and expressive urban spaces (Cuthbert, 2007). Thus, Lynch's approach based on urban has significantly contributed to the adoption of user-centeredness, participation, and a sense of belonging in the disciplines of urban design and planning (Zmudzinska-Nowak, 2003; Cuthbert, 2007;

Damayanti & Kossak, 2016; Filomena et al., 2019; Meenar et al., 2022). There are also studies discussing Lynch imagery at the building scale (Asar, 2013; Kara, 2019). Sağsöz and Al (2013) argued that Lynch's concept of legibility and its elements can also apply to buildings. Kelkit (2023) conducted a spatial analysis of the madrasas in Sivas using Lynch's concepts and methodologies. Şahin and Aslanöz (2023) included a comparative analysis of airport structures in Türkiye using Kevin Lynch images. It was noted that the urban images designed by Lynch, which include paths, edges, districts, nodes, and landmarks, not only enhance the legibility of cities but can also contribute to the legibility of buildings.

The conceptual framework utilized by Kevin Lynch was initially developed to analyze the legibility and spatial organization of cities. However, in this study, Lynch's methods and principles were adapted to increase the spatial legibility of buildings' scale and to create a new framework for architectural analysis. In this context, Lynch's urban images, such as paths, edges, districts, nodes, and landmarks, were reconsidered and revised to be suitable for the analysis of historical mosques in architectural and spatial contexts. The paths are defined as a circulation system that directs the user movements of the mosque spaces. The edges are revised to express the boundaries between the interior and exterior of the mosques. The districts represent the functional areas in the interior/exterior of the mosques, and the organization and definition of these areas support the legibility of the mosques. While the nodes are considered the main transition points or central areas of the mosques, the landmarks are used to express the aesthetic and architectural details of the mosques.

It is noted that Lynch's approach generally encourages participatory research and that spatial images can be shaped based on individual experiences. However, in this study, the analyses were conducted within the framework of the author's evaluations and observations. Although a participatory approach was not adopted, it was systematically demonstrated how Lynch's principles could be applied through individual evaluations. This emphasizes the flexibility of Lynch's method and its adaptability to architectural practices at different scales.

The study includes a four-stage methodology (Figure 8). In the first stage, a literature review was conducted regarding the historical development of the mosques from the Artuqid period and documenting their transformations. The data obtained in this stage facilitated the development of the research's conceptual framework. In the second stage, descriptive analyses were performed using the plans and visuals of the mosques. The plan diagrams obtained from the General Directorate of Foundations in Malatya (MDGF) and the General Directorate of Foundations in Diyarbakır (DDGF) were revised to create diagrams that combine both drawings and written descriptions. The intention of revising the plans is to address the research question of whether it is possible to relate the mosques to Kevin Lynch's concept of images. The third stage involved a comparative analysis of the spatial configurations of mosques constructed during the same period. In this stage, tables were created utilizing Lynch's images, thereby revealing the similarities and differences among the mosques located in different regions. The fourth stage focused on the evaluation of the spatial configurations of the mosques.

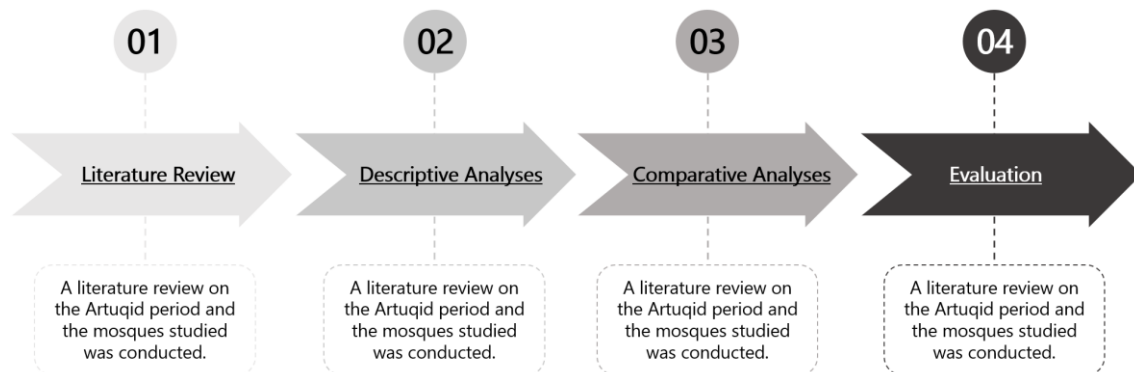


Figure 8. Representation of the stages of the study

The study focuses on the Elazığ-Harpur Great Mosque, the Diyarbakır-Silvan Great Mosque, and the Mardin-Kızıltepe Great Mosque, all constructed during the Artuqid period. These mosques were selected for the analysis of the spatial configurations built in the same period but particularly in different subregions. The

selection of the Kızıltepe Great Mosque in Mardin was motivated by the limited number of existing studies in the literature and especially the lack of documentation studies on both its history and its current condition. In this regard, figures were created that visualize the spatial characteristics and typological differences of each mosque to provide a clearer and more understandable image. The figures demonstrate the relationships between the plan schemes, spatial organizations, and facade features of the mosques and illustrate the comparative analysis process. This method provides a better understanding of the architectural characteristics of the mosques while also allowing the effects of regional differences to be emphasized.

FINDINGS

The new analytical model presented in the study is structured under five headings—circulation systems, boundaries, districts, nodes/focal points, and landmark elements—intended at conducting an in-depth examination of spatial perception. In this context, Lynch’s original conceptual framework has been updated to include sub-parameters in the study (Figure 9):

- Under the heading of circulation, historical gates, corridors (porticoes), and stairs were examined.
- Under the heading of boundaries, facade walls, portico pillars, and interior walls were analyzed.
- Under the heading of districts, indoor/outdoor spaces, main/intermediate space, public/private spaces, and open/semi-open/closed spaces were discussed.
- Under the heading of nodes/focal points, the intersections of the entrance axis and the dome axis in front of the mihrab, as well as symmetry, were explored.
- Under the heading of landmarks, the sub-parameters of the historical gate, the dome in front of the mihrab, portico, minaret, and facades/ornaments were investigated.

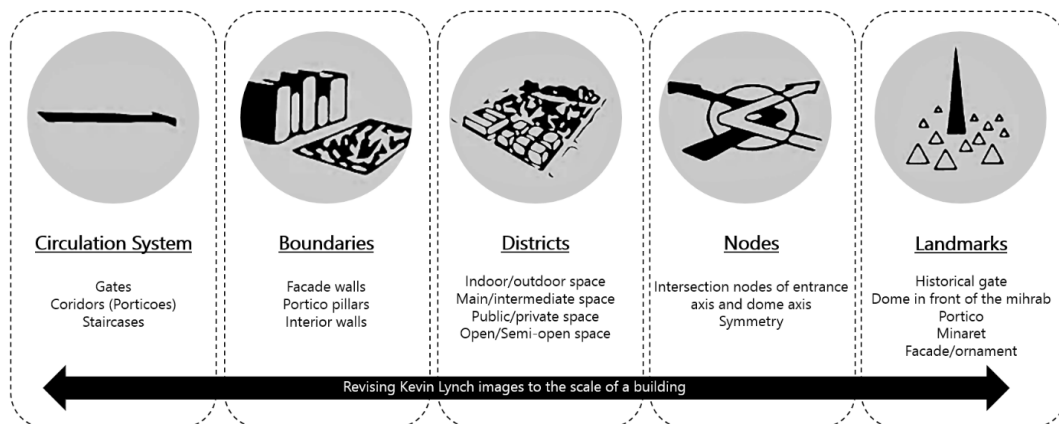


Figure 9. Scale for the titles framing the design problem

A new methodological approach, which can be integrated into building-scale studies of the city, has been developed by reducing urban-scale images to structural and spatial parameters. This new framework aims to reflect the dynamic nature of spaces. To assess the current spatial performance of buildings, the current forms of these mosques were adopted. Evaluations of their original conditions were also included. Therefore, the circulation system plays a significant role not only in providing a physical movement area but also in facilitating social interactions and the connections users develop with the space.

Circulation

Circulation refers to the organization that facilitates the effective movement of people within a building, both horizontally and vertically. The mosque plans detailed in Figure 10 include gates, corridors (porticoed circulation areas), and stairs. This system provides connectivity and transitions between different units within the building. Circulation elements create critical spaces and circulation areas that provide movement for all users. The design of circulation elements must consider essential factors such as accessibility, safety, and comfort, as they directly relate to the users’ experience of the space. In this context, effective circulation design contributes to the functionality of buildings, user satisfaction, and the overall aesthetics of the space. The

porticos that facilitate circulation within the building and the stairs that provide access to the minarets are the prominent parameters in the spatial analysis of the buildings. In the original state of the Harput Great Mosque, it was observed that the porticoes surrounding the open courtyard formed a semi-open space. On the other hand, Silvan Great Mosque and Kızıltepe Great Mosque currently do not have courtyards or porticoes.

A different perspective on the Silvan Great Mosque suggests that there may be a courtyard to the north of the mosque. The existence of such a courtyard is a reasonable suggestion when considering the mosques in the region. Hüsrev (1950) mentions that the building had a courtyard before the Artuqid period. However, neither Bell (1911) nor Gabriel (1940) provided any information about the courtyard in their studies. Altun (1978) confirmed the existence of a northern courtyard by pointing to the traces of arches in the northeast, as well as the stone threshold and lintels in the same area. Although there is no information available on the condition of the courtyard, it is possible to assume the existence of a space surrounded by different spaces (porticoes, rooms) in the Silvan Great Mosque due to its close resemblance to the courtyards in the Mardin Great Mosque and the Latifiye Mosque. Similarly, although the Kızıltepe Great Mosque does not currently have a porticoed space, restitution projects related to the building indicate the presence of porticoed sections around the courtyard.

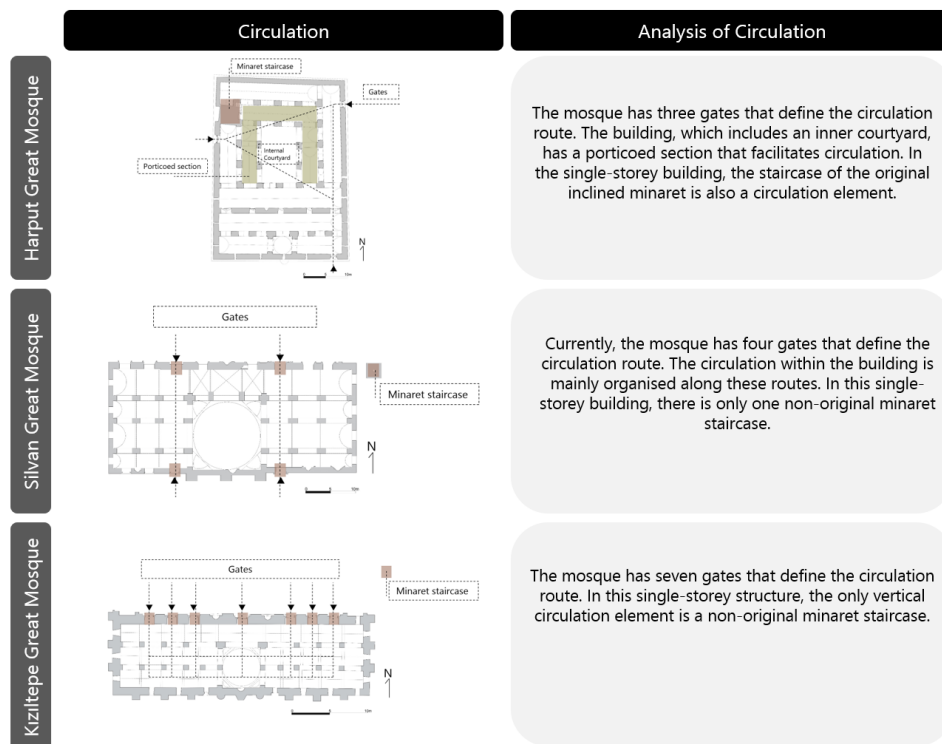


Figure 10. Circulation in spatial configuration analysis

Boundaries

Kevin Lynch defines borders as linear elements that serve as a transition between two regions. In this context, boundaries can serve as walls separating two regions that provide passage at determined locations (Lynch, 1960). For example, the portico pillar array creates a semi-open separation between the courtyard and the interior space, thus strengthening the spatial organization. Such boundary elements play an important role in the users' perception and experience of the space because they enhance the functionality and aesthetics of the space and support social interactions. Therefore, the design of boundaries becomes a critical element that determines the dynamic character of space, both physically and socially. In the mosque plans detailed in Figure 11, exterior walls, portico pillars, minaret base, and interior walls were included as boundary elements.

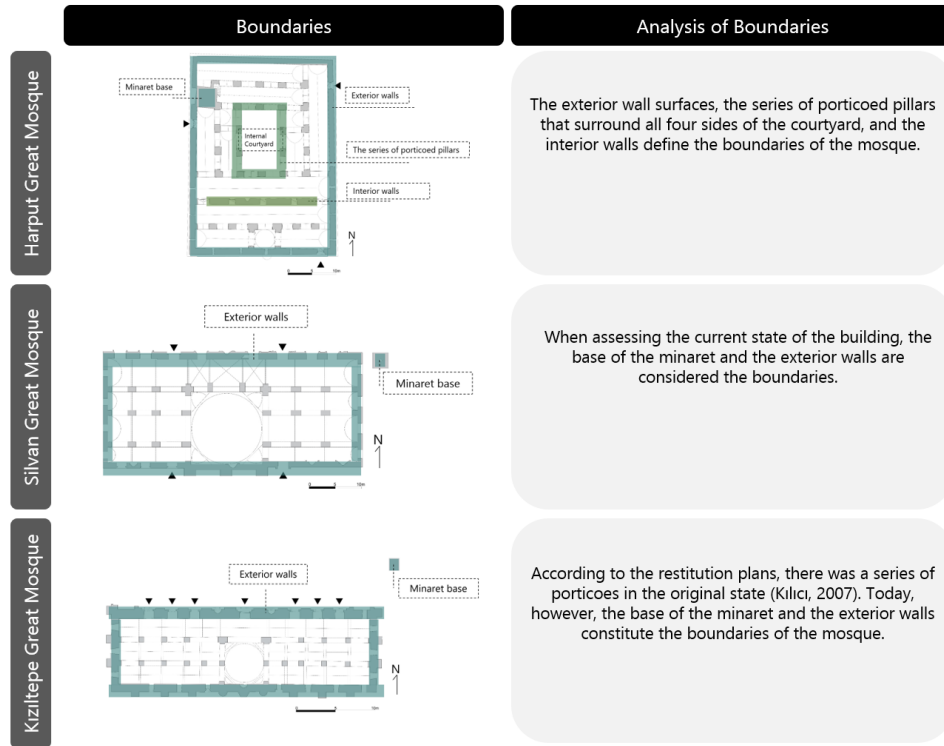


Figure 11. Boundaries in spatial configuration analysis

Districts

According to Kevin Lynch (1960), districts are parts of the city that share common characteristics and can be perceived when one is within them, forming medium to large sections. In this context, districts are relatively simple to define when you are inside them. If they are also visible from the outside, they create an urban image that can be used as an external reference. When analyzing mosques in terms of districts, it was found that these buildings have four main areas: interior/exterior space, primary/secondary space, public/private space, and open/semi-open/closed space. This classification was made to provide a better idea of the functionality and physical characteristics of the spaces. In Figure 12, the floor plans illustrate these districts in different colors, highlighting the characteristic features and functions of each area. This analysis allowed for the consideration of the spatial organization of the buildings.

In this spatial breakdown, the use of color-coded plans becomes particularly important in conveying how district typologies operate within the layout of the buildings. For instance, in the Harpur Great Mosque, the coexistence of an open courtyard, semi-open porticoes, and fully enclosed prayer halls reflects a deliberate sequencing of spaces that mediates environmental exposure, ritual progression, and user movement. This layered spatial gradation not only facilitates thermal comfort and social gathering but also strengthens the mosque's spatial legibility—mirroring the logic of urban districts at a building scale. Conversely, in the Silvan and Kızıltepe Great Mosques, the absence or partial loss of such transitional districts has led to a denser and more compact organization, where spatial zones are nested without intermediary buffers. This spatial compression may be interpreted as a response to evolving urban densities, restoration interventions, or shifting patterns of religious practice over time. The predominance of enclosed volumes in these mosques creates a more inward-facing architectural expression, reducing permeability and emphasizing internal ritual focus.

Classifying of districts into interior/exterior, public/private, primary/secondary, and open/semi-open/closed also reveals how spatial roles are encoded through form and access. These distinctions are not merely functional but also carry cultural and symbolic implications. For example, the semi-open portico in Harpur acts as both a physical threshold and a social interface—where communal gathering, informal teaching, and pre-prayer interactions historically took place. Its architectural articulation as a district blurs the boundary between sacred and civic space. Each district presents a distinct atmosphere shaped by light, sound,

temperature, and materiality. The prayer hall, often darker and acoustically enclosed, encourages contemplative focus, while the courtyard, open to the sky and breeze, fosters communal exchange. Such atmospheric contrasts reinforce the embodied perception of districts, aligning with Lynch's view that spatial legibility arises from visual cues and multi-sensory engagement. Applying the district concept at the building scale reveals that the Artuqid mosques are not monolithic entities but complex spatial organisms. Their internal structuring reflects both universal principles of Islamic architecture and specific regional adaptations.

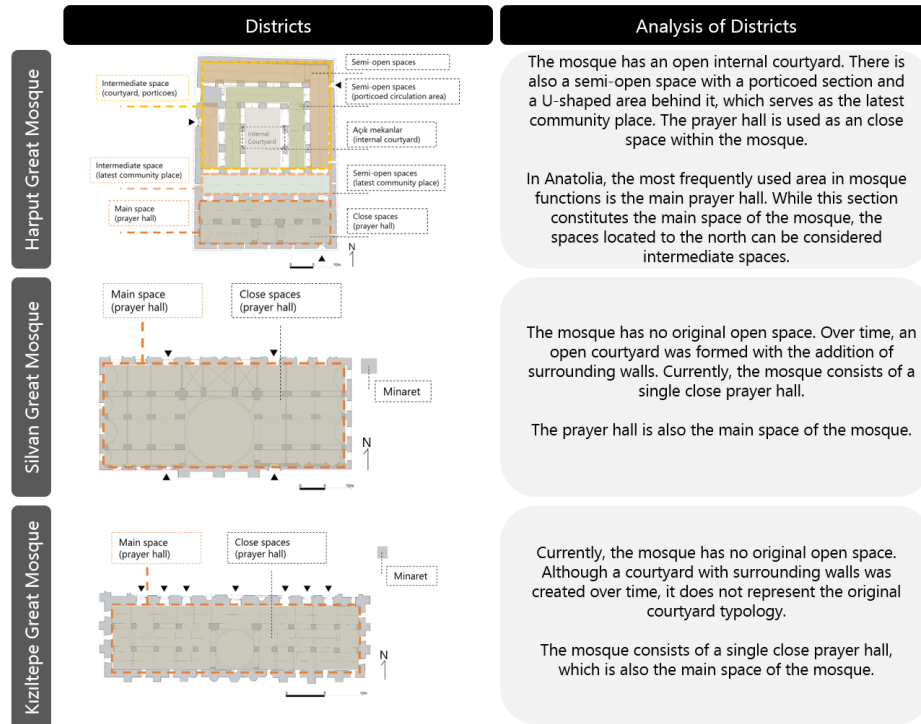


Figure 12. Districts in spatial configuration analysis

Nodes

According to Kevin Lynch (1960), nodes or focal points are strategic locations utilized by urban dwellers when moving from one point to another. Nodes can function both as intersection points and areas of concentration. Although they may be conceptually defined as small points, they can also manifest as large squares or extended linear spaces. The node point in the mosques analyzed in Figure 13 is the area where the primary axis and the secondary axis intersect. The primary axis is the entrance of the building, and the secondary axis is the dome in front of the mihrab. Entrances serve as the initial point of encounter with the spatial perception of the mosques. The domes in front of the mihrab are among the most significant features of Artuqid period mosques. These intersection areas have resulted in the internal courtyard for the Harput Great Mosque, the lateral naves for the Silvan Great Mosque, and the mihrab dome for the Kızıltepe Great Mosque.

In this context, the design and positioning of nodes emerge as a crucial element that profoundly affects the functionality of the space and the user experience. Nodes not only guide physical movement but also play a critical role in shaping social interactions and community dynamics. However, defining the nodes in mosques as “concentration areas” is an interpretable result and can be evaluated in different ways depending on the use of the space, user behaviors, and the cultural context of the period. Therefore, the analysis of nodes in the study is considered as a tool that contributes to a better understanding of spatial organization, but it should not be forgotten that these analyses provide interpretable results within a certain context. In particular, it has been accepted that the analyses conducted on the design and functionality of mosque spaces provide a framework for explaining spatial concentration and social interaction dynamics, but these dynamics may vary in different contexts.

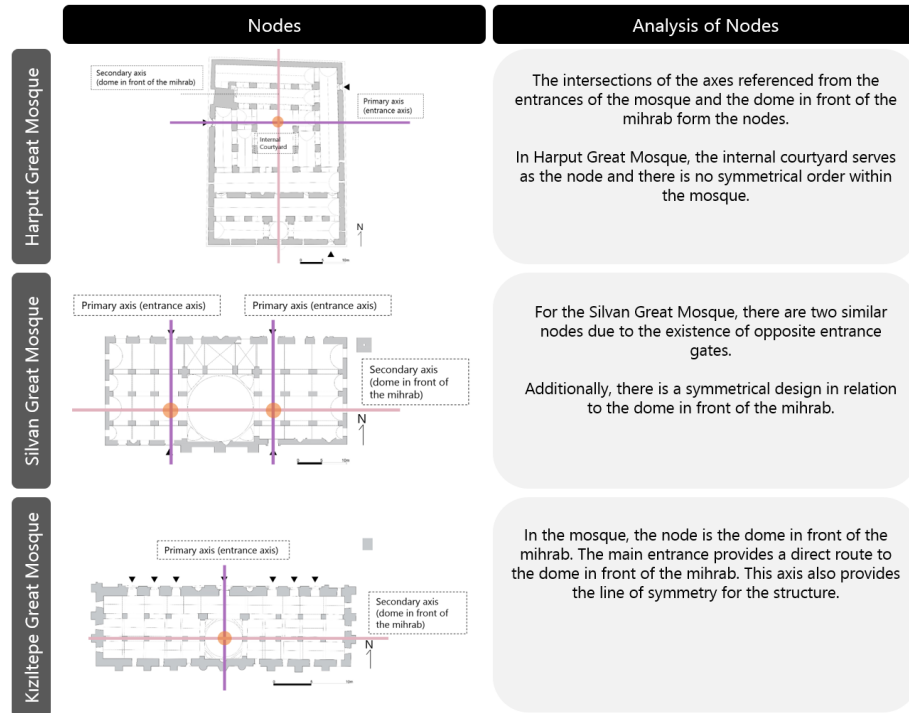


Figure 13. Nodes in spatial configuration analysis

Landmarks

According to Lynch (1960), landmarks serve as reference points within urban spaces. These elements can be identifiable physical formations such as a building, a sign, a shop, or a mountain. Consequently, the images associated with landmark elements provide a more distinct and clear perception compared to other elements. Landmark elements play a crucial role in helping users to understand and navigate their environment. In Figure 14, the analyzed mosques include elements such as the crown gate, the entrance façade, the minaret, and the dome in front of the mihrab, which are considered landmark elements. These features serve as significant reference points, both in terms of architectural aesthetics and functionality, and contribute to the orientation of users within the space. For example, the crown gate acts as a prominent marker for the entrance to a building, while elements such as the minaret and the dome in front of the mihrab improve the relationship with surrounding buildings and enrich the urban silhouette.

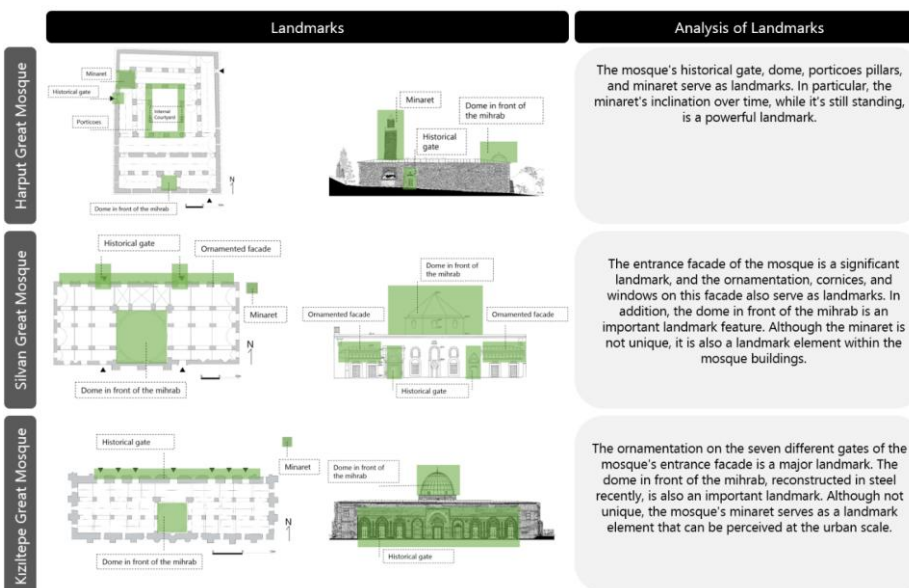


Figure 14. Landmarks in spatial configuration analysis

As a result, the common and distinctive features of the mosques were determined. While the mosques do not have a common circulation parameter, they have a similar boundary parameter. While Silvan and Mardin Great Mosques have similar district parameters, Harput Great Mosque is completely different. The nodes in all three mosques are diverse, and there are no common node points. It is seen that common features dominate among the symbolic elements. As a result of all these evaluations, Figure 15 was prepared.



Figure 15. Spatial analysis of Artuqid mosques

CONCLUSION

This study's investigations of the Artuqid period provide important data for understanding the unique characteristics and urban identity of each mosque. In this context, the study serves as a valuable example of how Kevin Lynch's concepts of urban analysis can be applied in practice, making a significant contribution to architectural research. During the analysis process, conceptual frameworks such as circulation systems, boundaries, districts, nodes/focal points, and landmark elements were used to identify similarities and differences between the selected mosques.

The headings of the urban analyses and evaluations on the characteristics of the buildings were evaluated. All the mosques investigated are single-storey structures. As a result, the staircases that facilitate vertical circulation are only located within their minarets. Each of the three mosques has minarets, although they are not original to the Silvan and Kızıltepe Great Mosques. The portico pillar is currently only found in the Harput Great Mosque. It is supposed that the original condition of the Silvan and Kızıltepe Great Mosques included porticoes surrounding their courtyards. With the destruction of the original courtyards, these porticoes have not survived to the present day. The entrance gates of these mosques, which are significant examples of the period, also play a role in determining circulation. It can be observed that all three mosques have a considerable number of entrances; however, it can be stated that there is no common organizational approach. Boundaries exhibit similar developments in all three mosques. The exterior walls allow us to perceive the building as a closed structure. In each of the three mosques, the exterior walls appear partially solid. In the Harput Great Mosque, the portico pillars and interior walls also contribute to the formation of boundaries. However, there is no evidence of these elements in the current state of the Silvan and Kızıltepe Great Mosques. Districts were examined under the categories of private/public, interior/exterior, primary/secondary, and open/semi-open/closed spaces. In examining their current conditions, it can be observed that Silvan and Kızıltepe Great Mosques have significant similarities within these criteria. The Harput Great Mosque, on the other hand, is different from these mosques. A common feature of all three mosques is the transverse rectangular plan of the main prayer hall. The nodes are determined based on the geometry of the building and the points where the axes intersect. These points are different for each of the three mosques. In the Harput Great Mosque, the node is located in the courtyard. In the Silvan Great Mosque, it is aligned with the side naves, and in the Kızıltepe Great Mosque, it is located under the dome in front of the mihrab. This situation can be considered to be due to regional differences. Although the mosques have unique characteristics, the ornamental entrance gates, minarets, and domes in front of the mihrab serve as common symbolic elements among the mosques. The ornate entrance gates of the Silvan and Kızıltepe Great Mosques are particularly noticeable, while the structure of the original minaret of the Harput Great Mosque is remarkable. Although all three mosques have minarets,

the minaret of the Harput Great Mosque is especially distinctive. The minarets of Silvan and Kızıltepe Great Mosques have been completely reconstructed over time. One of the most important features of the Artuqid mosques, the dome in front of the mihrab, is a prominent symbolic element in all three mosques. Over time, the dome of the Silvan Great Mosque was transformed into an eight-sided drum, while the dome of the Kızıltepe Great Mosque was completely reconstructed using steel materials. Compared to the other mosques, the Harput Great Mosque has a dome with a smaller span.

The findings of this study indicate that although the mosques are located in different regions, there are similarities in their spatial configurations. In particular, it is suggested that similar architectural decisions were made regarding elements such as the historical gates, the dome in front of the mihrab, the rectangular main prayer hall, and the minarets. According to the needs and changes in the social life of the region, it was noted that the Harput Great Mosque has an internal courtyard surrounded by porticos. This situation indicates a difference from the current spatial configuration of the Silvan and Kızıltepe Great Mosques, and studies suggest that these mosques also originally had a courtyard and portico. Therefore, it can be considered that the mosques built during the same Principality Period were partly inspired by the same decisions, even though they are located in different regions.

This study has produced a cultural inventory of the mosques in Elazığ, Diyarbakır, and Mardin, cities long ruled by the Artuqid in south-eastern Anatolia, and has attempted an innovative methodological approach that differs from the existing literature. This research is not limited to the Artuqid period and mosque architecture but aims to provide a foundation for future studies by proposing methodological suggestions. Thus, it intends to develop methodological approaches that can be applied to the analysis of similar structures, thereby contributing to the creation of more comprehensive strategies for the conservation and rehabilitation of urban heritage. Furthermore, it is expected that the data obtained will guide studies in architectural design and conservation, thus making a significant contribution to the existing literature. Consequently, this study has the potential to serve as an important reference source at both academic and practical levels.

Author's Contributions

The author contributed 100% to the study.

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Competing Interests

There is no potential conflict of interest.

Ethics Committee Declaration

This study does not require ethics committee approval.

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Figure References

Figure 1, 2b, 2c, 3d, 4b, 4c, 5d, 6b, 6c, 7d: Author archives (2024).

Figure 2a, 3a, 3b, 4a: The figures are adopted from Archive of General Directorate of Foundations in Malatya.

Figure 3c: Durukan, A. (1998). Thoughts of the Ulu Mosque of Harput. *Harput Symposium with Past and Present*, Elazığ.

Figure 5a: Bell, G. (1911). *Mosque of Salah Ed Din El Ayyubi - general view of n façade*. Newcastle University. <https://gertrudebell.ncl.ac.uk/p/gb-3-1-19-2-7> (05.08.2024).

Figure 5b-5c: The figures are adopted from Archive of General Directorate of Foundations in Diyarbakır.

Figure 6a: Tuncer, O. C. (1996). *Diyarbakır camileri, mukarnas, geometri, orantı*. Diyarbakır Büyükşehir Belediyesi Kültür ve Sanat Yayınları.

Figure 7a-7b: Gabriel, A. (1940). *Voyages archeologiques dans la Turquie orientale*. Institut Français D'Archeologie De Stamboul.

Figure 7c: Güler, M. (2019). Mardin-Kızıltepe (Dunaysir) Ulu Camii. 5. *International Congress on Social Sciences*, Skopje.

Author's Biography

İzzettin Kutlu started his academic career at Avrasya University between 2017-2018. Currently Working at Mardin Artuklu University since 2019. Graduated in 2016 from Hatay Mustafa Kemal University Faculty of Architecture with the first degree and started his post-graduate education at Gazi University in the same year. After completing master program in 2019, started PhD education in the same year and completed PhD research in 2023 with the thesis titled "Evaluation of the use of photogrammetric modelling technique in structural analysis of historical buildings on the examples of Melik Mahmut Mosque and Mardin Great Mosque of Artuqid Period". Research interests include historical environments, conservation and structural conditions of historical buildings.