



Delft University of Technology
Architectural History Thesis

Evolution of Ornamentations in
Madrasa Architecture in Anatolian
Seljuk Sultanate in Relation to
Economic and Political Context:
A Study on Façade Ornamentations

Name: Zeynep Naz Yelken
Student Number: 5724716
Name Supervisor: Catja Edens
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Abstract

Within the Mesopotamian region and Anatolia, one of the most important periods was during the Anatolian Seljuk Sultanate. This is especially important due to its role in creating the foundations for Turkish architecture in Anatolia, which was later developed into the popular Ottoman architecture style. Anatolian Seljuk Sultanate architecture is highly valuable to its region, yet it does not have a recognizable amount of research done by foreign researchers. As an ancestor of the Ottoman Empire that is highly known, the information on the Seljuk Empire, cultural evolution, architectural implementation, and technologies is unknown outside Turkey. As a result, this creates the intention of performing a thesis on the topic to introduce Anatolian Seljuk Empire architecture to fill a research gap. The Anatolian Seljuk Sultanate was a settlement that gained its independence from the Great Seljuk Empire that was established in the 1050s and collapsed in the 1300s, which proceeded with the establishment of the Ottoman Empire. This Sultanate consisted of people who originated from central Asia, belonged to nomadic Oghuz Turks, and settled in Anatolia.

The Seljuk rulers used madrasas to reinforce their political legitimacy and cultivate an educated class of scholars and bureaucrats. For the Seljuks, the construction of madrasas was a way of showing the value of education as well as investing in raising knowledgeable citizens that could govern the state effectively. This eventually benefited the country by expanding the Turkish culture and developing strong economic dominance in Anatolia. These institutions were often financed by the state and by donors and played a key role in shaping the intellectual and cultural landscape in the Sultanate. Therefore, within the Sultanate, education and economic systems were intertwined and worked together to expand and create cultural and political dominance in the region. Knowing the value of madrasas and their representation of economic and political influence, the architectural expressions of these structures can also carry symbolic meaning concerning political situations. This was present in various uses of ornamentation that originate from central Asia, Islam, or a synthesis of these two.

Therefore, the research focuses on diving into the ornamentation of madrasah (school or university) architecture in Seljuk Empire architecture and analysing the evolution of ornamentation on the façades of three selected madrasas. This analysis is performed with the economic and political context of the Sultanate to determine a potential relationship between them. Therefore, the research question focuses on: How is the evolution of ornamentation in Madrasa architecture in the Anatolian Seljuk Sultanate in relation to economic and political context? This paper presents economic and political connections to ornamentation implemented in Sircali Madrasa, Karatay Madrasa, and Gok Madrasa. The madrasas are specifically chosen at several crucial moments in Sultanate history to strengthen the potential link between expressions of ornamentation and context.

INTRODUCTION

Expression in architecture has been impacted by values, culture, and events that occurred during the construction years. It does not only hold responsibility for hosting users but also takes an active part in portraying ideologies and beliefs. “Adding qualitative features to objects alongside their quantitative states is a practice that is as old as humanity” and can be an opportunity to understand the values, beliefs, and evolution of culture (Sağlam, 2014). The Anatolian Seljuk Sultanate (also known as Sultanate of Rum) has a valuable history that took part in further developing the Turkic culture in the Anatolian region and later developed into Ottoman Turkish architecture. Anatolian Seljuk Sultane is a Turko-Persian Muslim state seceding from the Great Seljuk Empire and located in the region of Anatolia, Türkiye.

As a civilization with complex backgrounds and origins that come from central Asia, it is valuable to see the evolution of culture and expression, which later created the foundations for Ottoman and Modern Turkish arts and architecture. According to historians, the economic stability and strength of the empire allowed an opportunity to express the importance of education through the construction of educational buildings (Düz, 2019, p. 4). This focus on education had a major impact on the Sultanate's cultural and intellectual landscape, as well as its economic and political dominance in the area. Madrasas were also financed by the state and were central to reflecting the Turkish education and culture in Anatolia. As a result, looking into the evolution of ornamentation in educational buildings is important to understanding the state of the empire throughout its existence.

Due to the diversity of backgrounds as well as religion, the ornamentation varies from geometric lines to organic or even a hybrid application. Several applications even suggest animal carvings that originate from Central Asian religions. Various events shaped the political and economic environment for Seljuks. One of these was the Mongols, which imposed heavy taxes on Seljuks and caused an eventual decline in power and economy. Therefore, understanding the political and economic environment also becomes an important element of the research. This raises the research question:

What is the evolution of ornamentation in madrasa architecture in Anatolian Seljuk Sultanate in relation to political and economic contexts?

Most of the academic research on the Sultane consists of architectural and artistic research on the plan and spatial composition of mosques, madrasas and caravanserais on a ratio, spatial experience, and materialization level. However, there is also recognizable research done on individual analysis of ornamentation in mosques and madrasas looking into their symbolism and composition. Although some academic sources suggest political influences on ornamentation-such as the Mongolian invasions-there seems to be no analysis on the evolution of ornamentation over the years. The academic context on this topic is heavily limited in English and mainly explored Turkish (and potentially in middle eastern countries). Therefore, this research shows an opportunity to introduce knowledge on architectural expressions of a culturally diverse Sultanate that later became the Ottoman Turkish Style – a style more researched and familiar to historians internationally.

The methodology is based on literature analysis from both Turkish and English sources. These sources are used as a catalogue to understand several types of ornamentation used in madrasahs and their connection to culture, religious, or political meaning. These ornamentations will be studied relative to their symbolic meaning and expression. Selected madrasa's construction times approximately correspond to valuable historic events that occurred in the empire's history. These events correspond to the economic strength period, the beginning of the decline of the economic strength period and the economic and political oppression period. These times have a 10-20-year difference between the construction years.

These madrasahs are:

1. Sircali Madrasa (completed 1242)
2. Karatay Madrasa (completed 1251)
3. Gok Madrasa (construction began in 1271)

After the individual building evaluation, a concluding comparative evaluation will be performed to further discuss the evolution of ornamentation over three buildings. The additional political and economic context will be kept within the scope of evaluation for potential conclusions.

This thesis will be divided into the following main five chapters:

Chapter 1 (History of Turks) creates a foundation for the research by introducing the history of the Sultanate, events, and civilizations around and cultural influences. As a topic of small knowledge in English, it is aimed to introduce background knowledge of Turkic History. This chapter also investigates the reasons behind the chosen three madrasahs concerning the cultural and political context.

Chapter 2 (Sircali Madrasa) shows the basic information on Sircali Madrasa with spatial qualities and economic & political situation. Afterwards, prominent ornamentations are analyzed.

Chapter 3 (Karatay Madrasa) proceeds to introduce the spatial qualities and the economic & political situation. Specifically, calligraphy ornamentation becomes a prominent feature of the analysis along with geometric lines.

Chapter 4 (Gok Madrasa) similarly introduces the madrasa and its complex political situation. Some of the prominent ornamentations on this madrasa are summarized as geometric lines along with the use of various animals and figures inspired by central Asian backgrounds.

Chapter 5 (Conclusion) finally investigates the progression of ornamentation and its symbolism throughout time. Not only symbolic meaning and cultural values are discussed but also the political situation is discussed to suggest potential links to evolution.

CHAPTER 1: HISTORY OF TURKS

Understanding cultures, civilizations, and their values has been made possible through architectural expression. The Mesopotamian and Anatolian regions are important places to see such developments because they have an extensive history and have hosted numerous civilizations. The history of many of this region begins with the Hittite Empire around 1900 BC to 1200 BC, and it continues with numerous other empires like the Byzantine and Ottoman Empires (Stephens, 1979, p. 39). The Ottoman Empire, one of the more recent civilizations, is a well-known empire that is praised for its artwork and architecture. The Suleymaniye Mosque and The Blue Mosque make clear how Ottoman architecture prioritizes the intricate use of ornamentation and spatial composition. As the forerunner of the Ottoman Empire, the Anatolian Seljuk Sultane played a crucial role in the advancement of Turkish arts and architecture as well as regional cultural fusion. Consequently, learning about Turkish architecture's ancestry is valuable.

1.1 CENTRAL ASIA, THE GREAT SELJUK EMPIRE, AND ANATOLIAN SELJUK SULTANATE

The Great Seljuk Empire, which was founded in 1037, ruled over a sizable portion of what is now Syria, Iran, Iraq, and Türkiye between the 11th and 13th centuries. The empire expanded during this time to encompass a valuable and sizable territory, and it rose to prominence, particularly in Anatolia. The Seljuk Turks had been nomadic people who came from the Central Asian steppes (Ekrem Bugra Ekinci, 2016.) The acceptance of Islam as the main faith was later followed by immigration from East to West. As a result, the Seljuk Turks are culturally distinct from the cultures they encountered in the Middle East in terms of their ethnicity, culture, and their ancient religion. The primary religion back in central Asia was based on shamanism, which is "the conviction that all living things, including plants, animals, rocks, and other living things, have a spiritual essence." (Ekrem Bugra Ekinci, 2016.) The god (Kok Tangri) is a single entity that is connected to the sky in religion. Thus, the connection between the earth and the sky has always been significant to the ancient Turks. Perhaps having a singular god-like Kok Tangri also encouraged the adoption of Islam which has the same logic. Islam prevented the representation of faces, but it is acknowledged that Shamanistic expressions like stylized animal forms can be seen in some of Seljuk's architecture.

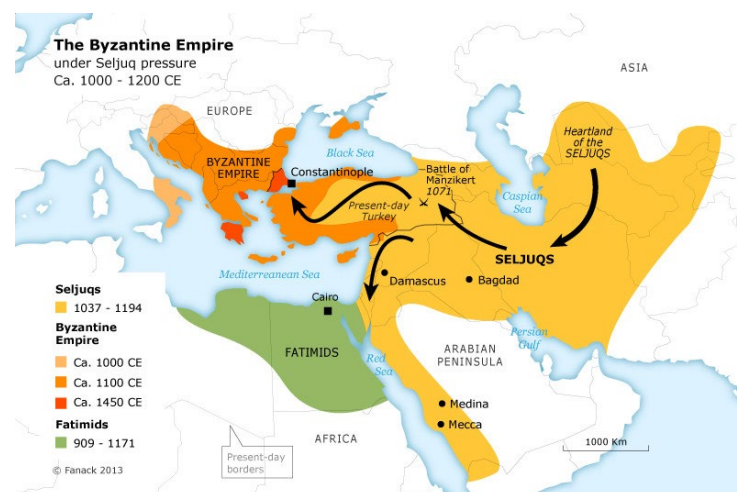


Figure 1: The movement of Seljuks between 1000 to 1200 CE (Quartz Ceramics, n.d.)

In the early 11th century, Turks invaded a Byzantine city, Sivas (Sebastia), as one of the least populated and developed cities, which later progressed into an important spot for Seljuks (Bekmez, n.d., p. 1). After the victory of the Manzikert Battle in 1071 between the Seljuk Empire and the Byzantine Empire, the slow migration was the major step in the Turkification of Anatolia – modern-day Turkey. This resulted in an economic collapse of the Byzantine Empire in Anatolia, which was later replaced by economic growth by Seljuks (Renda et al., 2004, p. 17). The economic and political strength resulted in declaring independence from the rest of the empire located in modern-day Syria, Iran, and Iraq (Also known as the Fertile Crescent) and became the Anatolian Seljuk Sultanate.



Figure 2 Anatolian Seljuk Sultanate (orange) with The Great Seljuk Empire (pink) and Byzantine Empire (green) (Buyuk Selcuklu Devleti Haritasi, 2021)

The Anatolian Seljuk Sultanate became a dominant power in Anatolia and had various successful battles between the Byzantine Empire and the First Crusades. This wealth resulted in the construction of iconic madrasas (along with mosques and caravanserais¹), which reflected the importance of education in the Sultanate. During the Great Seljuk Empire, the construction of madrasas has been introduced as a funded government organization, which was a “*first-time formal systemization of education in Islam*” (Düz, 2019, p. 4). Therefore, the importance of education in the Seljuk Sultanate was visible not only in a physical way but also within the government systems. The use of madrasas was also versatile in their teaching so not only religious education but also mathematics, law, medicine, and astronomy were taught. The expression of knowledge along with economic strength was a dominant way to show power and stability. The value of education and educational institutions also promoted citizens from other nations to be aware of the Turkish culture which was important for the Sultanate. Therefore, the sultanate believed that eventually, educated citizens could stimulate the wealth, economy, and cultural dominance of the Seljuks. Madrasas were utilized by the Seljuk authorities to establish a well-educated class of scholars to enhance their international strength.

As part of the architectural expression, ornamentation in the Anatolian Seljuk Sultanate consisted of various backgrounds. Settlement in Anatolia meant three types of

¹ Trade & accommodation centers for travelling merchants.

backgrounds to be synthesized: central Asian Turkic background, Islamic background, and existing culture in Anatolia left from previous settlements. This resulted in a synthesis of the new Turkish arts that took Islam and Turkish culture as a basis and built on that.

1.2 THE THREE MADRASAS: SIRCALI, KARATAY & GOK MADRASA

Selected madrasas are chosen at crucial moments in Sultanate history. The Sircali madrasa (1242) is built in a period with economic and political stability and focused on legitimizing power in the area. Constructing religious educational buildings like the Sircali madrasa was a way of showing how Seljuks were successful Muslim rulers. In other words, “the Seljuks saw themselves as the defenders of Sunni Islam against Shi’ite Iran and Christian Byzantine, which was expressed through buildings like Sircali Madrasa (Redford, 2000, p. 65). However, this was also a time when the Seljuks peaked in their economic stability, embracing their background, and reflecting religion.

During the construction of the Karatay Madrasa (1251), economic stability was at risk due to several battles and encounters with the Mongols. After the Battle of Kosedag, the Seljuks were defeated by the Mongols and lost their political independence by paying tribute to the Mongol Empire (Düz, 2019). Therefore, during this time, the Karatay madrasa became a location for the self-expression of Seljuk culture and provided economic opportunities/trades to occur. Karatay madrasa reflects a time with dualities - struggles with political frictions and attempts at economic trade opportunities.

The Gok Madrasa (1271) also dates to a period when it was evident that the sultanate would collapse. The Mongols' influence over the administration and economic sway over the Sultanate led to their cultural domination. During this period, Mongols wielding economic power over the Sultanate influenced the types of constructions and their stylistic expressions. Gok Madrasa is an effort to effectively express Turkish-Islamic culture against cultural oppression. Therefore, this madrasa is built to perform a monumental duty within the context and carries a nationalist role for the Seljuk government (Bekmez, n.d., p. 8).



Figure 3 Sircali Madrasa – Façade (Okur Yazarim, 2017b)



Figure 4 Karatay Madrasa - Façade (Düz, 2019)



Figure 5 Gok Madrasa – Façade (Ince, 2019)

CHAPTER 2: SIRCALI MADRASA

2.1 POLITICAL AND ECONOMIC CONTEXT

Sircali Madrasa is one of the madrasas that survived to the current day and shows an architectural example during a powerful time in the Anatolian Seljuk Sultanate. The madrasa was built between 1242-43 during the reign of Sultan Kaykhusrew II by a *Lala*² for Fiqh³ education in Konya (Cilasun, 2018, p. 55). Looking into the period before the construction of Sircali Madrasa can lay the groundwork for the political and economic context. Therefore, for Sircali Madrasa, 1200 to 1243 become a crucial time interval. Since their first arrival, Seljuks portrayed successful economic strategies which ensured their existence in Anatolia. A crucial step in spreading the geography was based on immigration towards lesser developed or abandoned Byzantine cities (Aksoy, 2019, p. 192). Byzantine Empire was shaken up economically after their encounters with the Crusades between 1202-1204 which resulted in various Anatolian villages being left without financial support (Aksoy, 2019, p. 192). Villages that were left without authority gained Turkish immigrants who were later supported by various battles. During this time, the Byzantine Empire was not capable of performing defense or successful battles against the Seljuks which resulted in the successful settlement of Turks in Anatolia (Aksoy, 2019, p. 193). These villages and cities later gained strong trading routes between them and recovered their economy with the tradesmen from Seljuk Sultanate. Throughout this expansion period of Seljuks, Rum⁴ and Kipchak Turk⁵ population in Byzantine slowly started to immigrate to Anatolian Seljuk Sultanate due to the high taxes applied to them due to ethnic backgrounds (Aksoy, 2019, p. 197). Laying the groundwork for joining the workforce regardless of “religion and ethnicity” was an essential strategy in speeding up the flow of talented workforce towards the Sultanate (Aksoy, 2019, p. 194). Therefore, the socio-political context created a comfortable environment for Seljuks to become an attractive immigration location. An increase in knowledge corresponded with the increase in trade that followed economic stability.

As a madrasa that was built during a successful period in Seljuk's history, the main political interaction was between the Byzantine and Mongolian Empires and the Crusades. The consequences of these interactions promoted Seljuks to further settle down in Anatolia and become a dominant power in the region. The threats from Mongol invasions not only put Byzantine Empire in a tense dynamic but also in Eastern Europe (Ozen, 2010, p. 52). During this time, having massive power from the East that caused recognizable pressure was not ideal for Europe. Seljuks however, acknowledged the danger of Mongols during their time of settlement. Therefore, strong relations with ambassadors and regular visits in 1237 created a safer environment for the Sultanate (Ozen, 2010, p. 51). The timeline of strong political relations with Mongols is also a closer time to the completion of the Sircali madrasa in 1242-43.

As a result, the economic and political context shows a strong sultanate with successful strategies that initially guaranteed the settlement in Anatolia. Later this was further developed

² Statesman who oversaw raising the princes were called Lala. They would educate the prince on law, s

³ Islamic Law

⁴ Ethnic Christian minority in Anatolia

⁵ Ethnic Turkic minority in Anatolia

into strong educational and trade-related regulations that strengthened the backbone of the Sultanate against the Crusades and the Byzantine Empire. Sircali Madrasa is a product of these events that created a profile for Seljuks as a highly attractive and strong opponent in the region. Therefore, this period reflects a strong sense of representation, culture, religion, and interconnected relations with education and trade.

2.2 SPATIAL QUALITIES

Sircali Madrasa is an important example of Anatolian Seljuk madrasa architecture especially due to its use of symmetry. From its plan to façade design, the sense of symmetry, balance and order is highly visible. The detailed stone ornamentations on the façade and blue-colored ceramic tilework on the interior give a rich feel to the building. Sircali madrasa is especially a special example of Anatolian architecture since it is “the only example of a madrasa in Konya that has survived to the present day, with an open courtyard, a three-sided cloister, two Iwans⁶ and a two-story plan.(Yildiz Kuyrukcu et al., 2020, p. 17)” As the capital of Anatolian Seljuk Sultanate, Konya played an important role in evoking a sense of religion and education. Even with political tensions, the priority of education in the capital promoted the development of both religious and non-religious fields and created a strong methodology of theory and order in architecture for buildings like the Sircali madrasa(Saman Dogan, 2010, p. 6). Stonework is a prominent material in this type of construction which is used all around the structure for intricate ornamentations.



Figure 6 Sircali Madrasa Facade & Open Courtyard (Okur Yazarim, 2017b)

⁶ In Islamic architecture a vaulted space, walled on three sides, with a monumental portal opening onto a courtyard.

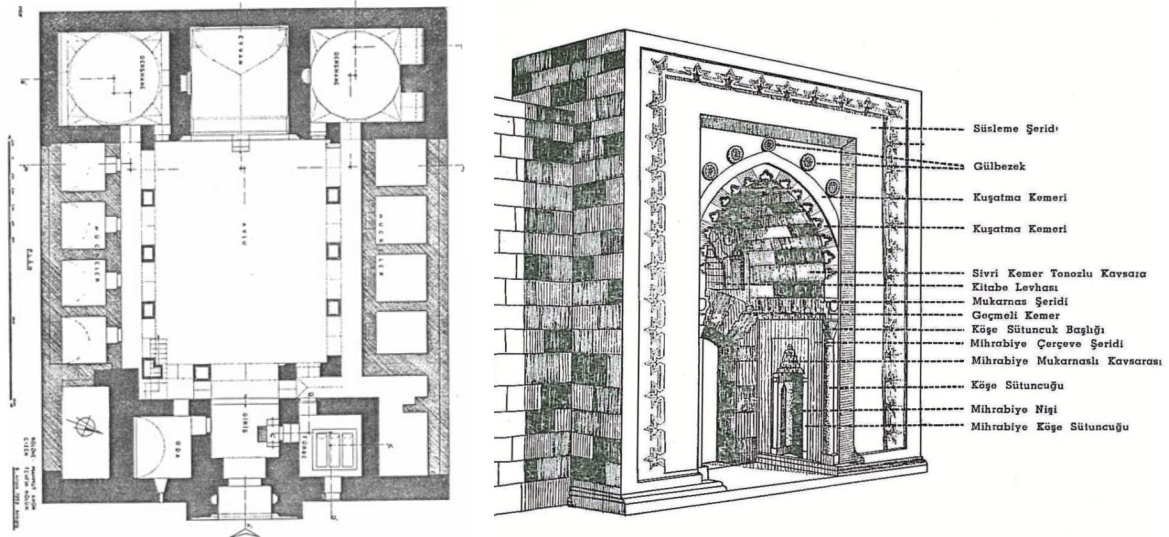


Figure 7 Sircali Madrasa Floorplan & Facade Visual (Cilasun, 2018)

2.3 ORNAMENTATIONS

Sircali Madrasa has the balance between simplicity and detail of ornamentation which is one of the most important features of its portal. The application of ornamentations is done as strips of ornamentation that create an overall centrality to the portal. However, looking into the façade, the use of ratios helps balance the presence of different shapes and doesn't allow an overpowered ornament in this context.

Some of the most prominent ornamentations used on this portal can create an overall understanding of what type of symbolism is displayed at the entrance. These ornamentations can have roots from various backgrounds and therefore might be related to the economic and political context of their time.

For the Sircali madrasa, one of the most noticeable ornaments is the star shape which is used as part of geometric ornamentation systems. The entrance has four main ornamentation strips and three of them are geometric compositions. The second layer (second from the right side of Figure 11) follows a series of minimalistic stars that frame the portal. The six-sided star (half of it applied) with three outer outlines gives the star a three-dimensional quality to the ornament. For the next layer (the third layer from the right side of Figure 11), the expression of stars is much more detailed and follows a complicated composition of geometric lines, flowers, and smaller stars. The 12-sided star is located at the center of the ornament and allows various geometric lines to create a 5-sided and 6-sided star along with flowers. The center of the star holds a spiral (also known as the wheel of fortune) and suggests even more complexity to the ornament.

Star as an element is used in different geometric compositions and might suggest “advanced knowledge in mathematics, astronomy, cosmology and philosophy” (Düz, 2019, p. 89). In combination with astronomical representation, stars have always been an important source of symbolism for various reasons. In this case, the star can symbolize “infinity” and “universe” which are also concepts heavily discussed in Islamic texts (Düz, 2019, p. 15) The complexity of the ornament also suggests a centrality to the observer. Having the “wheel of fortune” in the middle surrounded by various stars circularly can suggest a planetary

movement idea. Centric planetary movements, rotating order, and cosmic entities (stars, planets, and the sun) have been mentioned in Islamic texts and have been used as proof of God's existence when observed in the night sky (Resul et al., n.d., p. 8). So various compositions of stars with the idea of centrality can suggest things like the centrality of cosmic order, god's power, and singularity of God.

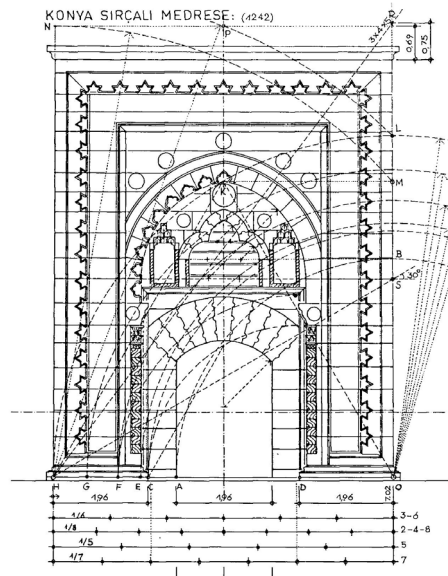


Figure 8 Sırcalı Madrasa - Symmetry, Scale & Ratios (Cilasun, 2018)

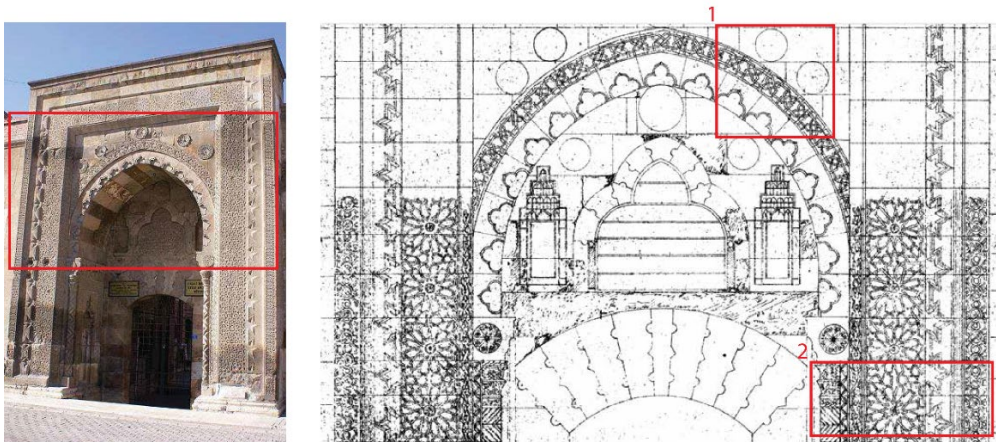


Figure 9 Sırcalı Madrasa – Façade Selected Ornamentation Locations (Saman Dogan, 2010)



Figure 10 Selected Location 2 - Geometric & Star Ornaments (Cilasun, 2018)

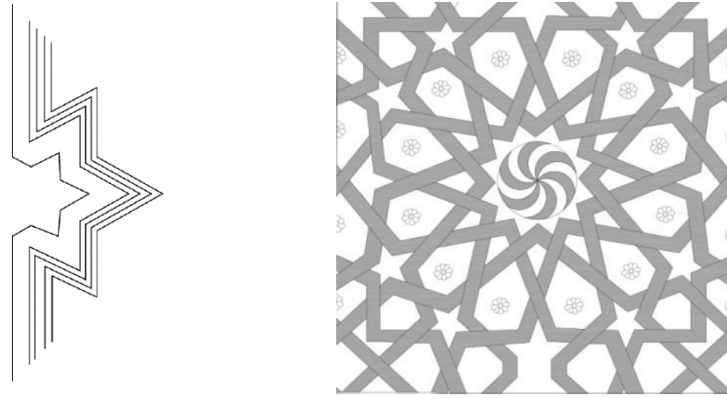


Figure 11 Star Ornaments- half Star (Left) & 12-SIDED Star with the Spiral (Right) (Saman Dogan, 2010)

So there seems to be attention to the symbolic meaning and construction of ornaments not only in a religious context but also with mathematics and astrology. Not to mention, the previous religion of Turks -shamanism/Tengrism – believed that the god resided in the Northern Star (Ekrem Bugra Ekinci, 2016.) So, star ornaments can become important for three types of meanings: Central Asian roots, science, and Islamic religion. Moreover, a higher number of sides for the stars can suggest an attempt to achieve “infinity” and a look of endlessness which would relate to the various types of stars used on this façade (Düz, 2019, p. 15).

Another geometric composition is based on circles and emphasizes centrality. Most of such ornamentations are continuous and applied along a strip around the portal. The continuous use of patterns that can be placed in various ways also suggests a sense of infinity to the viewer (Önkol Ertunç, n.d., p. 119). After the acceptance of Islam, the portrayal of living figures was not allowed so this stimulated a newer way of expressing meaning and ideology through patterns (Düz, 2019, p. 34). The locations of the circles and their composition suggests four directions and a central axis. This concept has been prominent in various cultures and religions. Central Asian Turks believed that the earth is a square with four corners holding the enemies and a circle that represents the sky (Peker, 1996, p. 101,105). In this ornament, it is possible to see such ideology since the ornament is a square tile that’s repeated along the strip. Not to mention, the main representation of shamanism/Tengrism also consisted of circles and diagonal lines (see Figure 13) like the ornament used on Sircali Madrasa. However, the sense of centrality and four directions was also a prominent concept in Islamic cosmology with the sun (Peker, 1996, p. 105). Therefore, this ornament holds values from both central Asian and Islamic cosmology and creates a synthesis of the two. Such compositions can also emphasize the singularity of God as being in the center which would correlate with the beliefs in central Asia and Islam.



Figure 12 Geometric ornament with astronomic symbolism

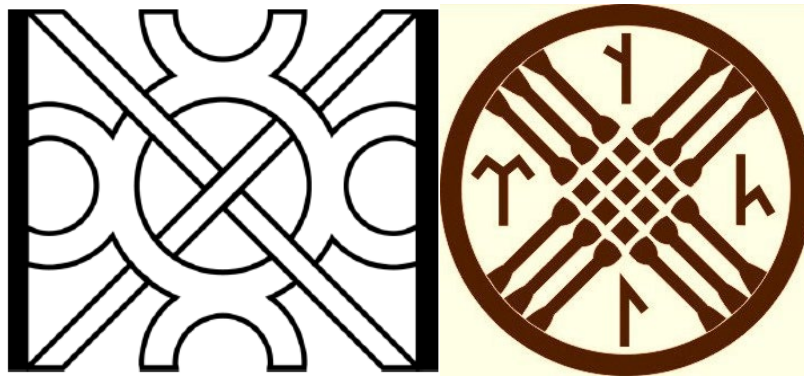


Figure 13 Geometric ornament used on Sircali madrasa (left) & Tengrism (originates from the nomadic yurts (tents) used in central Asia) symbol with connection to the sky (right) (Saman Dogan, 2010; Tengriism - New World Encyclopedia, n.d.)

Another type of prominent ornamentation is based on organic forms. These applications are either more subtle and used on rosettes⁷ or used as Rumi forms. Rumi motifs originate from Anatolia and “It is a Turkish decoration style in which the forms of animal figures stylized by the Anatolian Seljuks are changed and reinterpreted over time. (Düz, 2019, p. 46)” These forms are stylized in such a way that the original depiction disappears and becomes an abstract image. It is also possible to see this subtly used along the inner stripe. Rosettes hold mainly 2 different types of flowers and a main spiral that suggests a sense of infinity. According to historians, most of the floral patterns that resemble the flower expression ‘Hatai’ also have origins back in Central Asian culture which was later stylized by Seljuks in Anatolia.



Figure 14 Selected Location 1 – Flower (hatai) ornaments (Left) & Hatai flower drawings (right) (Alparslan, 2016)

⁷ Circular ornaments that resemble roses. In Sircali Madrasa they are also used in combination with the spiral (also known as the “wheel of fortune”).

2.4 EVALUATION

The ornamentations on Sircali Madrasa suggest a strong connection to the cultural background of Seljuks in Central Asia. However, the presence of the synthesis between religions and cultures is undeniably present in the ornament. This is a period where cultural dominance and acceptance in the region were essential for the survival of the Sultanate. Geometric forms not only connect to current and previous religious backgrounds but also portray a knowledge and science-based attitude for the viewer. This can be especially important when Byzantine immigrants were arriving in the Sultanate. Although the detailing of the ornamentations is overwhelming when looked at individually, the overall composition and style of the façade remain modest and inviting to the user. Uses of geometric lines and circles hold the singularity of God as a main concept all around the façade. The dominance of religious belief in combination with astronomy perhaps suggests a defense for the religious rivalry around. Considering the Byzantine Empire and the Crusades have been some of the major encounters of different religious backgrounds, the expression of religious beliefs has become important. Attention to façade proportions and strict use of symmetry can also suggest a sense of stability and reliance as a school of Islamic law. This suggestion would link with the stable state of the sultanate after various victories.

CHAPTER 3: KARATAY MADRASA

3.1 POLITICAL AND ECONOMIC CONTEXT

Karatay madrasa is a valuable architecture built by Emir Karatay bin Abdullah in Konya for law education and was completed in 1251 (Cilasun, 2018, p. 23). Perhaps one of the most important events for the Sultanate's economic and political stability is the Kosedag battle between the Mongols. After surviving against existing political powers in the area, the loss of Kosedag was the turning point for the Sultanate's dominance. Losing the battle left Seljuk Sultanate with a loss of authority, a loss of government leaders and the permanent presence of Mongol officials in political meetings of the Sultanate (Ozen, 2010, p. 67). So compared to the previous decade, the Sultanate was facing a major takeover by one of the powers in the area. Moreover, Seljuks had to go under taxes by Mongols who also established their economy governors in the area (Ozen, 2010, p. 57). Although there was a recognizable shake in the foundations of the Sultanate, the construction of madrasas and other buildings was still in progress.

Previously, the Karatay madrasa was intended to be constructed during the reign of Kayqubad I (by 1237) but due to battles it was completed during the reign of Kaykaus I years later (Cilasun, 2018, p. 23). Although the Seljuk Sultanate wasn't conquered by Mongols, there were major consequences for the economic and political context. Throughout this time however, cultural and education advancements were still in progress and have been supported by the government as a way of strengthening economic control (Ozen, 2010, p. 66). So, the political and economic context shows a time with struggles shaken up by a recent battle and an attempt to overcome this. As a result, it is possible to expect Mongol-related influence on buildings built around this time.

3.2 SPATIAL QUALITIES

The spatial composition of Karatay Madrasa suggests a symmetric layout but does not strictly follow that rule. Karatay madrasa becomes a unique application due to its spatial organization, material, and ornaments. Unlike various other madrasas, the main entrance is not centered in the middle of the façade and is in the left corner. After the main entrance, it is possible to see a separate hall before entering the main courtyard. In previous madrasas, after the main portal the user finds themselves in the main courtyard. However, here there is a secondary entrance hall integrated into the plan before the courtyard.

It is also one example of a closed courtyard madrasa with turquoise tiles as the main interior ornament. Due to the composition of the tilework, various historians suggest it *might be* the work of the same artist as Sircali Madrasa's tiles (Cilasun, 2018, p. 23). Another recognizable quality of the madrasa is the use of Turkish triangles (also known as *tromp*) that add tectonic quality to the space. Turkish triangles are "a transformation of the curved space of the traditional pendentive⁸ into a fanlike set of long and narrow triangles built at an angle from each other (Zelasko, n.d.)" As a result, Karatay Madrasa becomes an example of simplistic tectonic applications and offers an upgraded public-private composition.

⁸ One of the concave triangular members that support a dome over a square space (Merriam-Webster, n.d.).

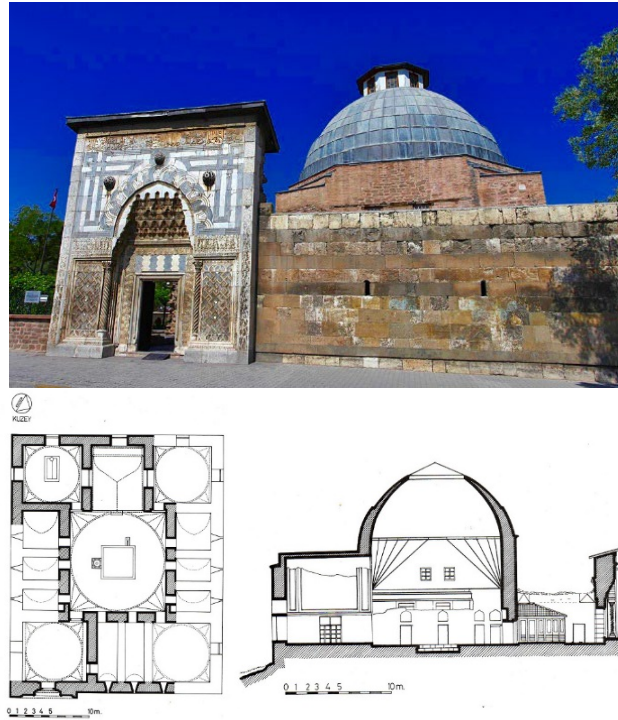


Figure 15 Karatay Madrasa Facade, Plan & Section (Okur Yazarim, 2017a)

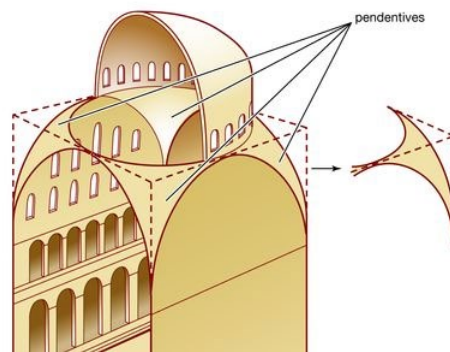


Figure 16 Penditive (Merriam-Webster, n.d.)

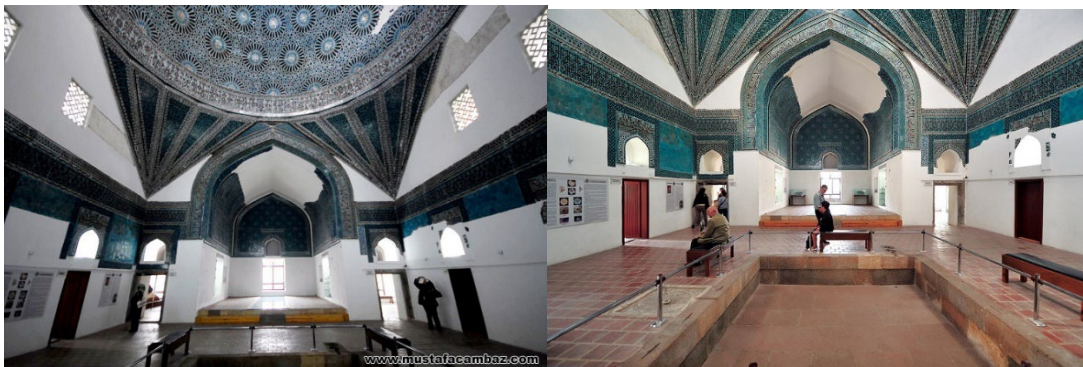


Figure 17 Karatay Madrasa Interior & Turkish Triangle (Angled Pendentives)(Okur Yazarim, 2017a)

3.3 ORNAMENTATIONS

Perhaps one of the first differences between typical madrasa architecture and Karatay madrasa is the positioning of the portal. The main entrance of the building is located on the left corner of the main façade and does not suggest symmetry as the main concept. Therefore, the Karatay madrasa becomes a unique expression of façade design for Anatolian Seljuks. The dual colors of white-grey marble give a more modern look to the portal and introduces a newer element for Seljuk architecture (Düz, 2019, p. 117). Many of the ornaments have a bigger scale impression and correlate with the massive portal. According to researchers, the façade composition and size follow a strict golden ratio and carry this to its ornaments as well (Cilasun, 2018, p. 38).

One of the most recognizable ornaments in the façade is the white-grey geometric composition located above the gate. This ornament follows a symmetric composition that curved around the muqarnas⁹ vault balancing the rigidness of the ornament. The muqarnas is resized from its typical ratio of conic application in Seljuk architecture to fit the golden ratio (Düz, 2019, p. 111). This is a geometric ornament commonly used in Islamic architecture called Kufic writing. Kufic writing is simply a product of not using facial depictions and instead using writings in stylized forms. In this case, it is written “Mohammad” in geometric Kufic writing. So, both sides of the piece write “Mohammad” and create symmetry. In many cases, this type of writing has been used to generate geometric forms and patterns that can be repeated around an axis.

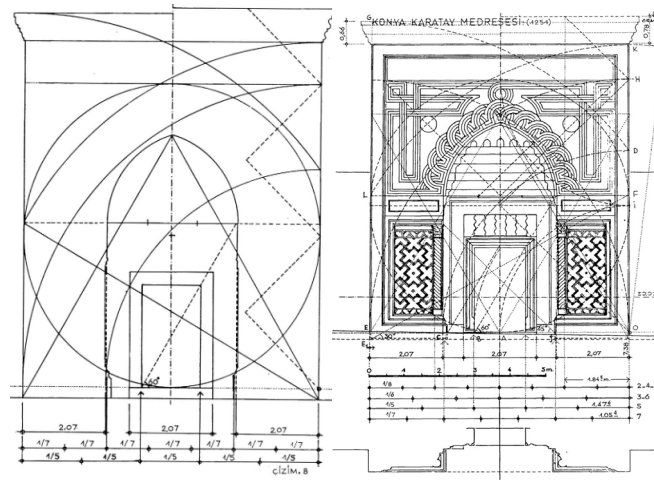


Figure 19 Karatay Madrasa - Golden Ratio & Symmetry (Cilasun, 2018)

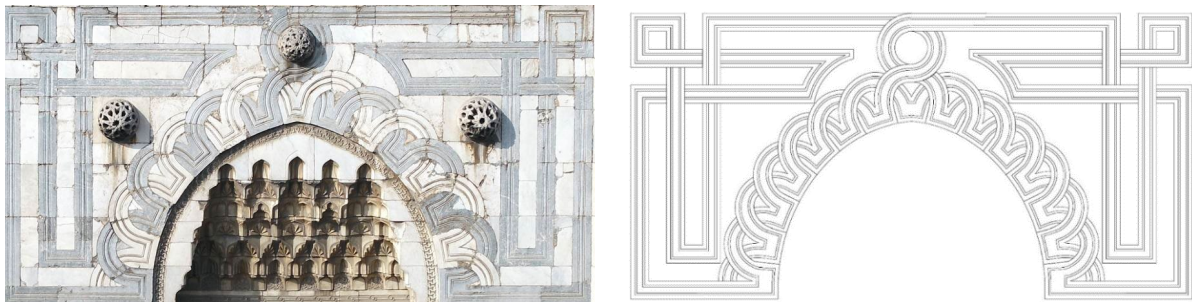


Figure 18 Karatay Madrasa Façade – Kufic (Cilasun, 2018)

⁹ Ornamented vaulting commonly used in Islamic architecture (Zelasko, n.d.)

As an art form, Kufic writing can hold value depending on the style it is written. The expression of kufic writing is sharp and “strong” angles symbolize “dominance and power” to the viewer (Düz, 2019, p. 22). The majority of the time, such writings can have dual meanings depending on which color the viewer might look at. Therefore, the centerpiece of Karatay madrasa tries to show strength (perhaps through belief due to Islamic context) as the main ideology. Since the pattern seems intertwined and looped, this can be a nod to the idea of infinity and the power of God.

Such geometric applications are also recognizable in the second most prominent ornament of the portal located symmetrically on both sides. This composition is based on a geometric shape that resembles the union of 6 squares with a white center. Although it is challenging to depict the meaning of such a shape, the white center and swastika are recognizable visuals. The white center around a geometric dark shape can suggest a connection to cosmic entities and the singularity of God. Whereas the swastika has been a symbol used back in ancient Mesopotamia (Britannica Editors, n.d.-b). Considering ancient Mesopotamia and Seljuks have settled around the same location, it can be a symbol carried from the existing context. Regardless, the swastika has been a symbol of “prosperity” and “good fortune” which were concepts previously used in Sircali madrasa through the spiral and the “wheel of fortune (Britannica Editors, n.d.)” The spiral (used previously in Sircali Madrasa with flowers) however suggests a softer image, so the intention of showing dominance and power could have transformed this ornament into a geometric (strong) expression in Karatay Madrasa.

Even in the composition of this ornament, the golden ratio is kept. The golden ratio is a value heavily based on mathematics and focuses on achieving “divine proportions” as the “most aesthetically pleasing proportion for a rectangle. (Britannica Editors, n.d.-a)” So design through mathematics is further developed with Karatay madrasa.

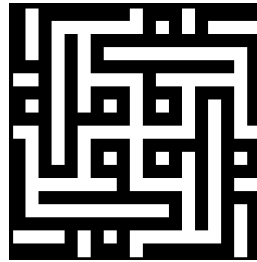


Figure 21 showing four instances of the name Muhammad (in black) and four times Ali (in white); often used as a tilework pattern in Islamic architecture (Wikipedia Writers, n.d.)

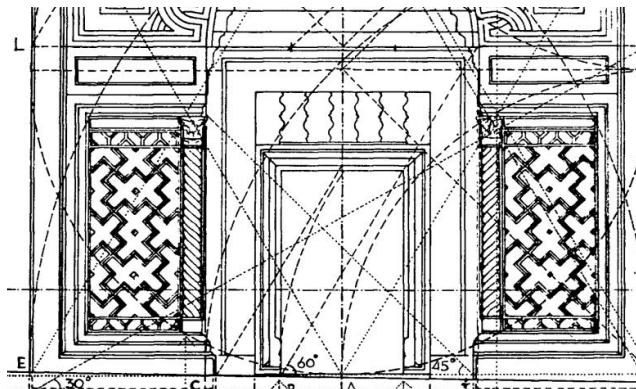
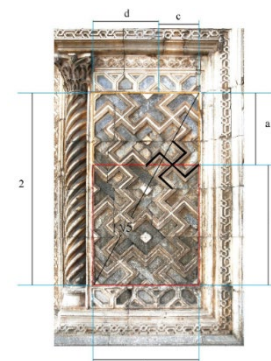


Figure 20 Karatay Madrasa façade with svastikas & Geometric patterns & w.



$$\frac{a}{b} = \frac{c}{d} = 0.617...$$

018)



Figure 22 Karatay Madrasa - Thuluth writing around the main gate about society, patience, and unity (Dincer & Duru, 2022)



Figure 23 Karatay Madrasa - Thuluth Writing (Cilasun, 2018)

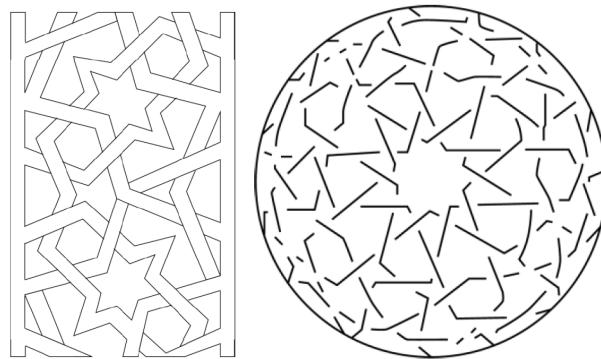


Figure 24 Other Geometric Ornaments Used on Karatay Madrasa (Cilasun, 2018)

A new aspect of the ornaments is the use of Thuluth writing and organic elements such as plants and Rumi motifs. In Seljuk calligraphy arts, it is common to include organic elements to soften the rigidity of Kufic writing (Düz, 2019, p. 35). This is especially prominent around gates as writings by Prophet Mohammad. The amount of Thuluth writings also classifies Karatay Madrasa as the most displayed writings from Prophet Mohammad in any Seljuk Architecture (Cilasun, 2018, p. 33). Most of these writings become subtle compared to the dominant colors and geometric forms on the façade. The writings' content primarily focuses on prophetic sayings that encourage "relationships within society, patience, unity in society, and intentions to encourage moral code, benevolence, and generosity." (Cilasun, 2018, p. 33)."

Other types of ornaments focusing on astronomic concepts are still present in Karatay Madrasa and play a similar role as Sircali Madrasa. The placement of strips allows continuous patterns to surround the gate and suggest infinity with the use of 6 and 10-sided stars.

3.4 EVALUATION

Looking into the political tension and economic restrictions, the ornamentations used on Karatay madrasa could symbolize resistance. Considering the Mongol influence on politics and paying gradual taxes that weakened the sultanate, the imagery of the ornaments tries to portray a sense of power, dominance, and unity for the locals. Although main religious concepts such as the singularity of God and infinity are still used in star forms, concepts like stability seem to diminish. Perhaps the biggest example of that can be the asymmetric layout of the spatial organization and the entrance. Although the strong image against oppressive power is clear through Kufic geometric writings, there seems to be a softer attitude towards the locals through thuluth writings. These writings suggest unity and strength in society which are highly relevant considering the state of the Sultanate. There is also a recognizable improvement in mathematical and structural applications such as the Turkish triangle and the repetitive use of the Golden ratio. These can suggest the commitment to education and knowledge even in difficult times. Overall, the composition of the ornaments suggests ideas like dominance, protection, religion towards oppressors and perhaps an invitation for the locals.

CHAPTER 4: GOK MADRASA

4.1 POLITICAL AND ECONOMIC CONTEXT

Gok Madrasa is one of the madrasas completed in 1271 in Sivas which was the very first capital of the Sultanate (Önkol Ertunç, 2016, p. 118). Historically, the time of 1255 to 1277 plays a crucial role in the fate of the Sultanate. Previously damaged political stability in the Kosedag battle was now in even more danger to the Mongols. Throughout this time, the economic situation was heavily damaged by the taxes that were paid to the Mongols and various battles didn't help with financing either (Ozen, 2010, p. 180). It was clear that the sultanate was destined to collapse.

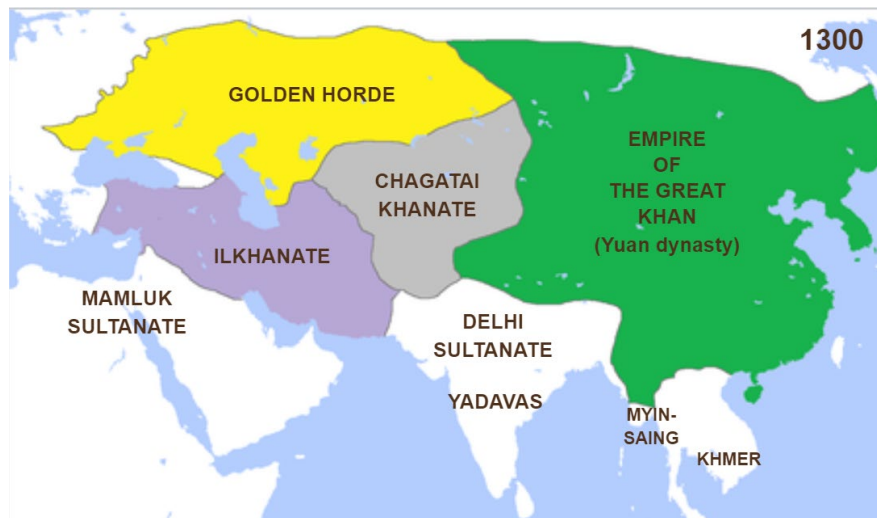


Figure 25 Geo-Political situation of the Mongol Empire in 1300 (Evans, 2021)

Especially trade routes were controlled by Mongols which limited the prosperity of the Sultanate. During such a complex context, Seljuks were still trying to hold power and resist. There were various buildings and trade routes (to Egypt) that were established to resist economically surrendering to the Mongols (Ozen, 2010). Therefore, even with major control over the state, the attempts in taking control by Seljuks have been recognizable. Frequent changes in the state leaders from initially Mongol influences like Baiju Noyan (1256) with *Mu'in al-Din Parwana*¹⁰ to later Turkish influences like Kayqubad II and Kaykaus II created an unstable dynamic in the Sultanate (Ozen, 2010, p. 145). In 1256 Mongols established the Ilkhanate which was simply a puppet state that turned Seljuk Sultanate into a vassal state and many other middle eastern territories (Ozen, 2010, p. 193). This strict influence in politics especially continued until 1277 (Ozen, 2010, p. 170). During this deterioration of power since 1243, several regions would politically state their independence from the Sultanate such as the Ottomans which later became the Ottoman Empire (Aksoy, 2019).

In this context, the Gok madrasa was built during the reign of Kaykaus II by his vizier and ensured control over the construction of the Turkish madrasa (Eser, 1998). Therefore, Gok Madrasa becomes Seljuk's attempt to not lose cultural independence during the influence of Ilkhanate. It plays an important role against other constructions that can suggest more

¹⁰ Leader in the Seljuk Sultanate that was supported by Mongol rulers.

Mongol influence. Especially built by the vizier, buildings like this hold important value in their representation of power (Eser, 1998).

4.2 SPATIAL QUALITIES

The spatial organization of Gok Madrasa follows a symmetric layout with few exceptions. This madrasa is an open courtyard with a smaller sub-hall before entering. All the classrooms are organized around this courtyard which provides privacy and a sense of community for the users. It is mentioned by several historians that various tectonic elements such as the Turkish triangle have been implemented for some corners of the plan (Tuncer, 2008, p. 54). The overall composition is typical for Islamic courtyard madrasa architecture. The materialization of the Gok madrasa consists of timber-stone hybrid construction which creates an inviting image for the viewer. No major ceramic tile ornaments are visible on the inside. So, the main character of the madrasa is shown on the outside. Therefore, the user on the inside is not ‘distracted’ by the monumentality of the exterior. Compared to the open courtyard constructions, the Gok madrasa has simpler materialization and provides a sense of security and privacy.

Although the plan follows a symmetric layout, towards the back it is possible to see several inconsistencies. Whereas in Sircali Madrasa, symmetry was applied to perfection.

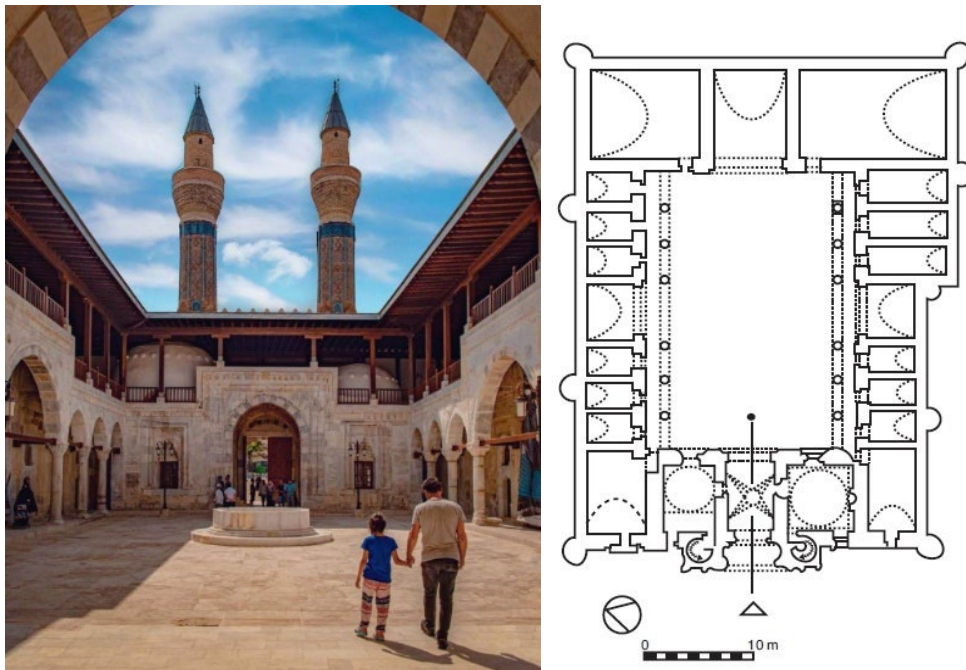


Figure 26 Gok Madrasa Open Courtyard & Plan (Ince, 2019)

4.3 ORNAMENTATIONS

Without a doubt, Gok Madrasa has several ornaments that immediately attract the eye to the portal. Although the typical Seljuk-style portal ornaments are still used, the overall character of the façade portrays a monumental image. The layout of the madrasa is symmetrically designed and shows a stable, powerful, and monumental image. The inner rings still hold typical ornaments such as stars and Rumi motifs although organic forms seem to be equally dominant. The appropriate proportions for the muqarnas are used in the center of the portal and hold a star-centric geometric style.

The use of blue tiles on the exterior also differentiates a typical madrasa from a Gok madrasa. “Gok” translates to “sky” which correlates to the use of blue-colored tiles used on the portal and the towers. Overall, it is possible to distinguish a sense of richness with the variety of materials and colors on the main façade. Some of the interesting ornaments consist of geometric lines composed of squares and diagonal lines that create a sense of centrality to the viewer's eye. However, the detail of these geometric ornaments seems to be significantly denser than in previous applications.

Additionally, the towers are embroidered with blue tiles that create a geometric composition like the ones observed in Karatay madrasa. This application adds dimension and depth to the tower and adds to the effect of monumentality.

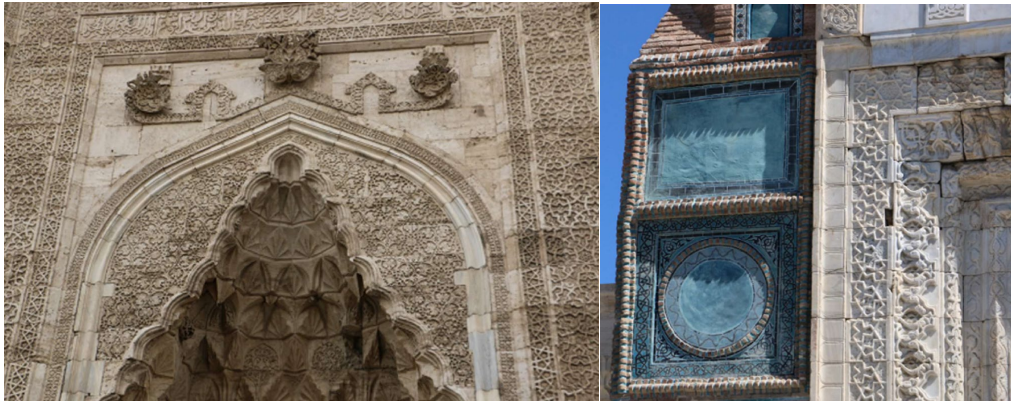


Figure 27 Gok Madrasa - Inner Ring (Left) & Outer Ring (Right) (Ince, 2019)



Figure 28 Geometric Ornament used on Gok Madrasa with similarity to Karatay Madrasa (Bekmez, n.d.)

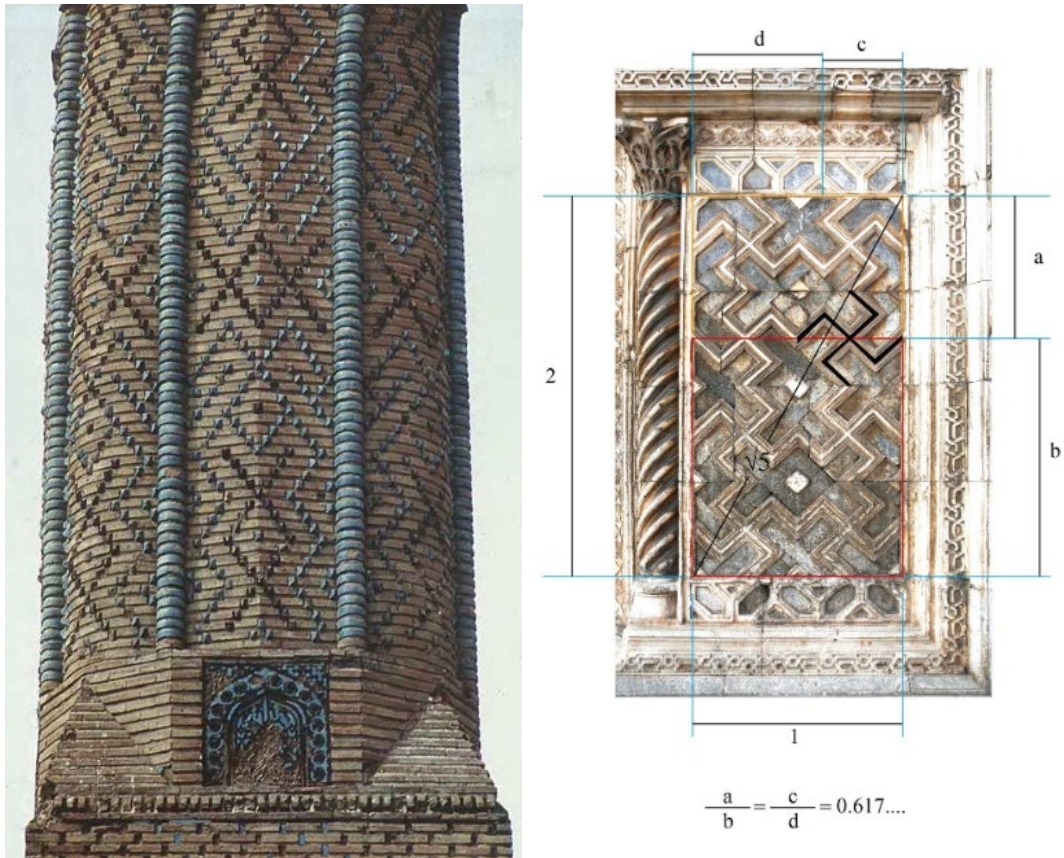


Figure 29 Geometric ornaments used on Gok Madrasa towers with similarity to Karatay Madrasa (Bekmez, n.d.)



Figure 30 Gok Madrasa Façade – Use of Dominant Ornaments on both sides of the Portal (Ince, 2019)

The most prominent part of the façade is the use of massive and dominant ornaments located on both sides of the façade. The thickness of the ornaments also allows a play of shadow and light and further pushes these forms towards the viewer. Starting from the top, various ornaments like Rumi and tulip forms, an 8-sided star (also known as the Turkish star) and the tree of life are used (Özkul, n.d., p. 60).

The first ornament uses Rumi motifs in combination with tulips (Özkul, n.d., p. 61). However, the use of symmetry also resembles the stylized coat of arms of the Seljuk Sultanate which has a two-headed eagle. Two-headed eagles have been also a type of symbolism that were used in nomadic Central Asian cultures. The combination of such form with tulips can also trace back to the central Asian culture since the origins of tulips have been central Asian steppes. The relationship between sky and earth has been a sacred relation for ancient Turks since they considered the God of the sky to reside there (Ekrem Bugra Ekinci, 2016). This type of symbolism seems to be highly dominant on the façade of Gok madrasa. It can also correlate with the heavy use of blue-colored tiles to strengthen the connection to the sky since Tengri in old Turkish translates to Gok (sky). The two-headed eagle for Tengrism was the protector of the gates of the sky (Peker, 1996, p. 44).



Figure 31 Gok Madrasa Main Ornaments - stylized Tulip with the Turkish star (left) & Tree of Life with the Turkish star (Right)(Özkul, n.d.)



Figure 32 Comparison of the Stylized Tulip Ornament with the Seljuk Empire Coat of Arms (Özkul, n.d.)

Next ornament is an 8-sided star-based form that has various meanings in Islam. In Islam, an 8-sided star symbolizes the “seal of the prophets” and is used in Islamic calligraphy art to mark the end of a chapter (Resul et al., n.d.). Although the religious meanings are significant for this context, the 8-sided star also has value in the Seljuk sultanate context. The 8-sided star is nowadays also known as the Seljuk star with each corner characterizing Seljuk culture (Resul et al., n.d.). These sides translate to mercy, patience, truth, secrecy, loyalty, kindness, generosity and thanking God. So cultural and religious imagery representing the character of Seljuks has been used significantly here. Additionally, the writing located inside the 8-sided star translates to “with permission from God” which could mean only having responsibility towards God (and no other government).(Peker, 1996, p. 44). This ornament can perhaps be the best symbol to represent Turks in Anatolia since the meanings are connected to both culture and religion.

The last most prominent ornament is a representation of the “tree of life” which has its roots back in central Asia (Bekmez, n.d., p. 8). The connection between the sky and the earth becomes especially important with the Tree of Life. The tree of life has been a recognizable symbol in various cultures and ancient Turks considered various species of trees sacred and believed to be in the center of the world (in Shamanism) (Arslan, 2014, p. 6). As the symbolic connector of the earth and the sky tree of Life also symbolizes various other things. Within the architectural context, the tree of life symbolizes that the building is a type of “center” for its context (Peker, 1996, p. 69). The tree of life on this ornament also has pomegranates and flowers included. Such ornaments can symbolize prosperity and wealth in this context(Peker, 1996, p. 71).

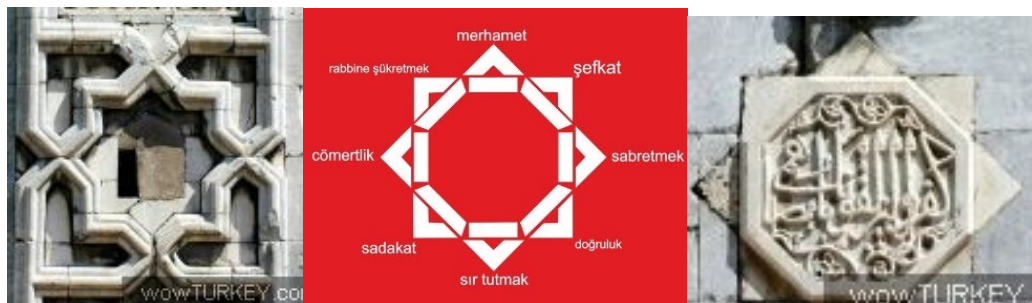


Figure 33 Use of Turkish Star On Gok Madrasa - Turkish Star (Left), Turkish Star with "with permission from God" writing (center) & Turkish Star explanation (right) (Özkul, n.d.)



Figure 34 Tree of Life with Pomegranates and leaves used on Gok Madrasa (Özkul, n.d.)



Figure 35 Animals of the months (From Turkic Culture) used on Gok Madrasa (Özkul, n.d.)

The overall content of these ornaments shows a deep-rooted connection to central Asian culture as well as a connection to Islam. Such use of central Asian symbolism, however, seems to be maximized compared to the previously analyzed madrasas. In the architectural context, the combination of eagle and tree of life is commonly used in Seljuk architecture and can suggest relations to Central Asian and Mesopotamian arts (Peker, 1996). Within the Seljuk context, the meanings show another significance. In Seljuk Architecture, the combination of the eagle and tree of life symbolizes the “order of the universe” and “path to the sky. (Peker, 1996)” So, the ornaments located on the sides are a type of synthesis of ancient culture, current religion, and current culture.

Although not as recognizable, a major symbolism from Tengrism is the use of animals associated with the months of the calendar in one of the ornaments. This further strengthens the intention to connect to the roots and show a strong image of the Turkic culture.

4.4 EVALUATION

The final madrasa shows a dominant image to the viewer, unlike other madrasas. The political situation of becoming a vassal state in Ilkhanate was resisted through façade symbolism. The composition of the façade is typical for Seljuk architecture, yet with recognizable additions on the sides, the building tries to send a political message. The dominance of culturally and religiously associated symbolism seems to fit with the oppressive political context. Some of these messages are even clearly stated in writings like "with permission from God." Considering the political situation and the resistance, this could mean "no other permission is needed but God's." This type of expression gives the impression of a non-submissive state against Mongol oppression. From the inclusion of the Seljuk star to the central Asian symbolism, the ornaments act as a proud manifesto for the viewer. Since Sivas was also an important location for the Ilkhanate, there seems to be a direct link between the ornaments and the political state. As a result, Gok Madrasa shows a recognizable sense of pride and a non-submissive attitude. This is done through an expression of the identity of Seljuk Turks plainly on the façade: ancient culture and current culture.

CHAPTER 5: CONCLUSION

The ornamentations on the facades of the Sircali Madrasa, Karatay Madrasa, and Gok Madrasa shows significant representations of the cultural, economic, and political contexts of Anatolia during the Seljuk era. The Sircali Madrasa reflects a time when both science and religion were of the utmost value. The early stages of stability and power resulted in the expression of roots to set themselves apart from the Western powers. Trying to fit in a complex geographical context resulted in expressing religion and roots through commonality (such as the stars) of symbolism. Doing this through a modest façade color palette and harmonious ornament composition perhaps gives the image of confidence and stability. Such an approach can show that there isn't a need for showcasing power because there is no need for it. The Karatay Madrasa reflects a time of authority, unity, and education. The ornaments show a sharp and "defensive" style which would connect to the tense political situation. The Mongol pressure, which was heavily rooted in a central Asian background, resulted in the expression of Islam as the main language of dominance. With pressure from Mongols and Byzantines, perhaps one of the only differentiating topics was the religion being Islam. It is possible that the Sultanate was shaken up by the previous battles and religion was the biggest source of comfort and power. A major difference between the surrounding powers became a tool for showcasing a stronger attitude. The Gok Madrasa embodies a non-submissive stance towards Mongol oppression and represents the Seljuk Turks' identity and sense of pride. Since Mongols and Seljuk originate from central Asia, here the use of Turkic symbolism is a clear message to the Mongol oppression. Ornaments become a tool for protection and pride against the oppressors of their time. This was not necessary during Sircali Madrasa since the Sultanate was at peak success, so the façade has a more peaceful and modest view.

These evolutions are recognizable in selected three madrasas. The façade ornamentation gives a message to the existing external powers. The ornamentations are used as if they are stamps of ownership over the property. The evolution of ornaments (and their meaning) strongly connects to the time it was built. Especially towards the later years, the ornaments become a way to communicate with the citizens and the governments.

The ornamentation found in these madrasas reflects Seljuk identity and values, as well as their responses to the various challenges of the time. Each struggle and time resulted in exposing a specific piece of culture that makes up Turkish history. Perhaps the three stages of the sultanate correlated with embracing a specific aspect of culture that was the most empowering or defending of the state and its citizens. Ideally, these aspects came from a place of pride, roots and religion which were the most impactful themes for Anatolian context and politics. During the times of stability, this was central Asian roots with a modest approach. After a defeat, this was a representation of religion. Finally, in one of the lowest stages of the Sultanate, this was expressing the idea of what it means to be a "Turk." There seems to be a recognizable sense of pride in all stages that respond to the context. Interestingly, from beginning to end, the central Asian roots have always been embraced and synthesized in such a way that they can become part of the culture. Perhaps having such a background resulted in a successful settlement in Anatolia as the main cultural difference because it also encouraged smarter economic, adaptation and political strategies in the early stages. Even in the next stage of the sultanate, in the Ottoman Empire Era, especially Seljuks roots have been embraced. The trances of central Asian traditions are still recognizable in

modern Turkish culture, so the synthesis is a continuous cycle. Perhaps what makes Seljuks a strong power in the area was their use of culture and history to implement strategies, embrace different backgrounds and communicate through ornaments. These ornaments are not only a source of artistic beauty, but they also provide insight into the Seljuk era's social, cultural, and political contexts.

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