

A COMPARATIVE STUDY OF OTTOMAN AND JOSEON CERAMIC ARTS: CULTURAL INTERACTIONS AND TECHNICAL APPROACHES^{1, 2}

Arş. Gör. Seren
ÖZER

Atılım Üniversitesi Mühendislik Fa-
kültesi Metalurji ve Malzeme Mühendisliği Bölümü
Ankara / Türkiye
seren.ozer@atilim.edu.tr

ORCID ID: 0000-0002-2001-0893

Öğr. Gör. Dr. Eunmi
YU

Ankara Üniversitesi Dil ve Tarih
Coğrafya Fakültesi Kore Dili ve
Edebiyatı Anabilim Dalı
Ankara / Türkiye
eyu@ankara.edu.tr

ORCID ID: 0000-0002-3297-7874

Prof. Dr. Jongee
PARK

Atılım Üniversitesi Mühendislik
Fakültesi Metalurji ve Malzeme
Mühendisliği Bölümü
Ankara / Türkiye
jongee.park@atilim.edu.tr

ORCID ID: 0000-0003-1415-6906

Abstract: This study provides a comprehensive analysis of the production techniques of ceramics from the Ottoman and Joseon periods, emphasizing the impact of cultural interactions with other dynasties. Both periods integrated knowledge from previous dynasties with their own cultural heritage. Early Ottoman ceramics reinterpret Anatolian Seljuk patterns, reflecting Islamic traditions. In contrast, Early Joseon Buncheong ceramics were inspired by Goryeo celadons but diverged from the Buddhist influences, adopting a minimalist design rooted in Confucian values. Over time, both dynasties were influenced by blue-and-white porcelain through their relations with China, adjusting their production accordingly. Ottoman blue-and-white ceramics, produced in Iznik and Kütahya, primarily used cobalt blue, alongside various color tones, while Joseon-period Cheonghwa Baekja ceramics combined patterns with blue-and-white palette. Both periods used similar production methods, but notable differences exist in materials and firing processes. Additionally, the Miletus and Sangam techniques represent distinctive artistic approaches specific to the Ottoman and Joseon dynasties, respectively.

Keywords: Ottoman Ceramics, Joseon Ceramics, Blue-and-white Porcelains, Cultural Interactions, Ceramic Production.

OSMANLI VE JOSEON SERAMİK SANATININ KARŞILAŞTIRMALI İNCELEMESİ: KÜLTÜREL ETKİLEŞİMLER VE TEKNİK YAKLAŞIMLAR

Öz: Bu çalışmada, Osmanlı ve Joseon dönemlerine ait seramiklerin üretim teknikleri ve diğer hanedanlıklarla olan kültürel etkileşimlerinin seramiklerin gelişimine etkisi ayrıntılı olarak incelenmiştir. Her iki dönemin seramik sanatçıları, önceki hanedanlıklardan edindikleri bilgileri kendi kültürel miraslarıyla harmanlayarak özgün eserler yaratmıştır. Erken Osmanlı seramikleri, Selçuklu desenlerini İslam kültürüne uygun şekilde yorumlarken, Erken Joseon Buncheong seramikleri, Goryeo Seladonlarından esinlenmiş, ancak Budizm etkisinden uzaklaşarak minimalist bir tasarıma ve Konfüçyüsçü değerlere yönelmiştir. Zamanla, her iki hanedanlık Çin ile kurdukları ilişkiler doğrultusunda mavi-beyaz porselenlerden etkilenmiş ve üretimlerini buna göre uyarlamıştır. Osmanlı Mavi-beyaz seramikleri, Iznik ve Kütahya merkezlerinde üretilmiş olup, kobalt mavisi başta olmak üzere farklı renk tonlarıyla zenginleştirilmiştir. Joseon dönemi Cheonghwa Baekja seramiklerinde ise, desenler mavi-beyaz paletle birleşerek sade bir estetik anlayışı yaratmıştır. Üretim teknikleri açısından, her iki dönemde de benzer yöntemler kullanılsa da, malzeme ve fırınlama süreçlerinde belirgin farklılıklar bulunmaktadır. Ayrıca, Milet işi ve Sangam teknikleri, sırasıyla Osmanlı ve Joseon'a ait özgün sanatsal yaklaşımlardır.

Anahtar Sözcükler: Osmanlı Seramikleri, Joseon Seramikleri, Mavi-beyaz Porselenler, Kültürel Etkileşimler, Seramik Üretimi

¹ The article adheres to the Research and Publication Ethics.

² This research was supported by the 2024 Korean Studies Grant Program of the Academy of Korean Studies (AKS-2024-R-104).

Genişletilmiş Özet

Bu çalışma, Osmanlı ve Joseon seramiklerinin üretim teknikleri, estetik anlayışları, kültürel etkileşimleri ve teknolojik gelişimleri üzerine kapsamlı bir karşılaştırmalı analiz sunmaktadır. Her iki seramik geleneği, kendilerine özgü tarihsel, toplumsal ve felsefi bağlamlar doğrultusunda şekillenmiş olup, kültürel mirasın önemli bileşenleri arasında yer almaktadır. Osmanlı İznik ve Kütahya seramikleri, Anadolu Selçuklu sanatı geleneğinin motiflerinden beslenmiş ve İslam kültürünün estetik ilkeleri doğrultusunda gelişim göstermiştir. Bu seramikler, kobalt mavisi, turkuaz, kırmızı ve yeşil tonlarını içeren zengin bir renk paletiyle karakterize edilmekte olup, floral ve geometrik desenlerin yanı sıra hayvan ve insan figürleriyle bezenmiştir. Bununla birlikte, sırlarda kurşun oksit (PbO) kullanımı, yüzeyde pürüzsüz ve parlak bir görünüm sağlarken, frit bazlı kil kompozisyonları mekanik dayanımı artırarak seramiklerin uzun ömürlü olmasına katkıda bulunmuştur. Benzer şekilde, Joseon seramikleri, Goryeo dönemi Seladon geleneğinin devamı niteliğinde olup, estetik ve teknik açıdan önemli dönüşümler geçirmiştir. Goryeo dönemi zanaatkarları tarafından geliştirilen ve Erken Joseon seramiklerinde de yaygın olarak kullanılan Sangam tekniği, zamanla yerini, süslemede demir oksitçe (Fe_2O_3) zengin pigmentlerin kullanımına dayalı Cheolhwa tekniğine bırakmıştır. Bu tekniksel dönüşüm, Joseon seramik sanatında Budist estetik anlayışından Konfüçyüsçü değerlere geçişin belirgin bir göstergesi olarak değerlendirilebilir. Bu doğrultuda, Joseon Buncheong, Baekja ve Cheonghwa Baekja seramiklerinde sade formlar, işlevselliğe verilen önem ve minimalist süsleme teknikleri belirgin hale gelmiştir. Her iki seramik geleneği, Çin ile yürütülen siyasi ve ticari ilişkiler doğrultusunda sanatsal ve teknolojik etkileşimlerden önemli ölçüde faydalanmıştır. Özellikle Ming Hanedanlığı'na ait mavi-beyaz porselenler, Osmanlı ve Joseon seramik estetiği üzerinde belirleyici bir rol oynamış ve dekoratif anlayışlarını şekillendirmiştir. Osmanlı ve Joseon devletleri arasında doğrudan bir kültürel etkileşim belgelenmemiş olmakla birlikte, her iki medeniyetin İpek Yolu aracılığıyla Çin ile kurduğu bağlantılar, sanatsal motifler ve üretim tekniklerinin aktarımını kolaylaştırmıştır. Ancak, bu etkileşimlere rağmen, Osmanlı seramikleri İslam sanatının etkisiyle zengin kompozisyonlar ve dinamik renk paletleri sergilerken, Joseon seramikleri Konfüçyüsçü estetik anlayış çerçevesinde sadelik, uyum ve doğallığı ön planda tutmuştur.

Ayrıca, bu çalışma, Osmanlı ve Joseon seramiklerine yönelik malzeme mühendisliği perspektifinden gerçekleştirilen karşılaştırmalı analizlerin sınırlı olması nedeniyle literatürde önemli bir araştırma boşluğunu doldurmaktadır ve bu alandaki akademik çalışmalara katkı sağlamaktadır. Osmanlı Milet işi ve Joseon Sangam tekniklerinin ötesinde, her iki gelenekte tek renkli sırlama, kazıma, slip ve damgalama teknikleri uygulanmış olmakla birlikte, kullanılan ham madde seçimi, pişirme koşulları, sırlama yöntemleri ve üretim süreçleri açısından belirgin farklılıklar gözlemlenmektedir. Örneğin, genellikle frit bazlı bir bileşime sahip olan Osmanlı seramikleri, yaklaşık 900°C'de pişirilerek dekoratif esneklik sağlanmış ve yüzeyde parlak, pürüzsüz bir doku elde edilmiştir. Buna karşılık, yüksek saflıkta kaolin kili kullanılan Joseon seramikleri, 1200–1300°C sıcaklıklarda redüksiyon atmosferinde pişirilmiş olup, bu süreç mekanik dayanıklılığı, kimyasal stabiliteyi ve yarı saydamlığı önemli ölçüde artırmıştır. Son olarak, Osmanlı ve Joseon seramiklerinde teknik uzmanlık ve kültürel sembolizmin incelenmesi yoluyla, her iki geleneğin sanatsal ve teknolojik yönlerinin daha derinlemesine anlaşılmasına katkıda bulunmaktadır. Ayrıca, kültürel etkileşimi teşvik ederek, Türkiye'nin sanatsal ve kültürel mirasına ilgi duyan Koreli akademisyenler ile Kore seramik sanatını keşfetmek isteyen Türk okuyucular için önemli bir kaynak niteliği taşımaktadır. Disiplinler arası yaklaşımıyla seramiklerin yalnızca işlevsel nesnelere değil, aynı zamanda kültürel mirasın ve sanatsal ifadenin taşıyıcıları olduğunu ortaya koymaktadır. Böylece, çalışma Türkiye ve Kore arasındaki akademik ve kültürel bağları güçlendirmekte ve sanat, tasarım ve malzeme bilimi alanlarında gelecekteki iş birliklerine katkı sunmaktadır.

1. Introduction

The Ottoman and Joseon periods occupy prominent positions in the historical development of ceramic art, each contributing rich and unique heritages in both production techniques and aesthetic principles. During these eras, both dynasties skillfully integrated technical knowledge and artistic influences inherited from earlier periods, blending them with their own cultural values. This synthesis led to the creation of distinctive works of art that reflect the unique identities of each tradition. Ottoman ceramics, for instance, were inspired by the floral and geometric motifs of the Anatolian Seljuk period but reinterpreted these designs through the strong influence of Islamic art, thereby developing their inimitable aesthetic style. Similarly, Joseon ceramics were formed by the sophisticated Celadon ceramics of the Goryeo period; however, they diverged from Buddhist influences and adopted a minimalist design approach rooted in Confucian values. Beyond their aesthetic appeal, the ceramics produced during the Ottoman and Joseon periods reflect notable technological advancements and material innovations. Ottoman artisans developed specialized techniques, such as Miletus ware, incorporating innovations like frit-based glazes and lead oxide (PbO) to achieve vibrant, glossy surfaces at lower firing temperatures. In contrast, Joseon ceramic production relied on high-quality kaolin clay and high-temperature reduction processes, contributing to the luminous appearance and structural integrity of ceramics.

Comparative studies on Ottoman and Joseon ceramics remain limited, particularly from a materials engineering perspective. This study seeks to bridge this gap by providing a comprehensive analysis of the production techniques, aesthetic characteristics, and cultural influences that define these ceramic traditions. By examining key categories, including Ottoman red- and white-clay ceramics alongside Joseon Buncheong, Baekja, and Cheonghwa Baekja, this research explores the intricate relationship between technological developments and cultural symbolism. In a contemporary context, the enduring legacy of these ceramic traditions continues to shape both artistic and academic discourse. The refined craftsmanship and symbolic depth embedded in Ottoman and Joseon ceramics remain a source of inspiration for modern artists and researchers. By revisiting these historical practices, current scholarship and artistic endeavors can foster innovative approaches that integrate traditional techniques with emerging technologies. This ongoing engagement with historical legacies has the potential to facilitate dynamic cross-cultural interactions, transforming traditional ceramic art into a medium for international collaboration and creative expression between Turkey and Korea.

2. Ottoman Period Ceramics

Beginning in the late 14th century, the political, economic, and cultural shifts accompanying Ottoman dominance in Anatolia led to major advancements in art and craftsmanship. The sultans' patronage of art, combined with the expertise of ceramic masters brought to Istanbul after conquests, introduced new techniques and broadened artistic perspectives in Ottoman ceramics. This exchange fostered a distinct identity in Ottoman ceramics, recognized within and beyond the empire. Ottoman ceramics were not confined to daily utensils or luxury decor but also became integral to architectural structures such as mosques, mausoleums, and palaces, gaining unique significance (Çobanlı and Kanişkan, 2013, p. 96).

Ottoman ceramics, initially influenced by Anatolian Seljuk pottery, shared similarities in decoration, techniques, and aesthetics. Rooted in Islamic culture, both traditions incorporated floral and geometric motifs with inscriptions in blue, turquoise, green, and white (Bedel Özek, 2024, p. 682-684). However, as Ottoman art evolved, these ceramics developed a distinct style. A key early example is the tilework of Bursa Green Mosque, which marks a transition from the Seljuk mosaic tile technique to the colored glaze method. This innovation enhanced the vibrancy of ceramic surfaces and allowed intricate detailing in motifs (Ağdemir, 2019, p. 20). The elegance of Green Mosque tiles extended beyond architecture, influencing Ottoman painting and linking traditional and modern aesthetics. Osman Hamdi Bey's painting *The Tortoise Trainer* visually embodies this cultural synthesis, as shown in Figure 1 (Özçelik, 2020, p. 15).



Figure 1. (Left) Osman Hamdi Bey, 1907, *Kaplumbağa Terbiyecisi*, *The Tortoise Trainer*, Pera Museum, Suna and Inan Kiraç Foundation, URL1 (Right) a photograph showing the corresponding section of the Green Mosque tiles, URL2.

2.1. Red Clay Iznik Ceramics

Red-clay ceramics, primarily made for daily use, are categorized by production techniques into single-color glazing, sgraffito, slip, stamping, and the uniquely Ottoman Miletus ware style (Uçar and Uçar, 2018, p. 18; Canibek, 2020, p. 7).

In single-color glazed ceramics (Figure 2(a-c)), the shaped body is first coated with an engobe and undergoes initial firing. Without decorative patterns, a glaze in brown, green, or mustard yellow is applied before a second firing (Kenar, 2015, p. 123). The sgraffito technique (Figure 2(d, e)) involves applying a layer of differently colored slip onto the surface of the body, which is carved using fine tools to reveal the underlying clay. This method creates detailed patterns with contrasting textures. The incised surface is then coated with a transparent glaze to enhance vibrancy and ensure durability before high-temperature firing (Polat, 2019, p. 97). In the slip technique (Figure 2(f)), designs are applied to the surface using a brush and slip, followed by an initial firing. The

surface is then glazed in vibrant colors like turquoise or green before a second firing (Canibek, 2020, p. 10). The stamping technique (Figure 2(g-i)) involves pressing geometric or stylized plant motifs onto leather-hard clay using heated molds. These ceramics, often for daily use, exist in both glazed and unglazed forms (Demirsar Arlı and Kaya, 2018, p. 63).

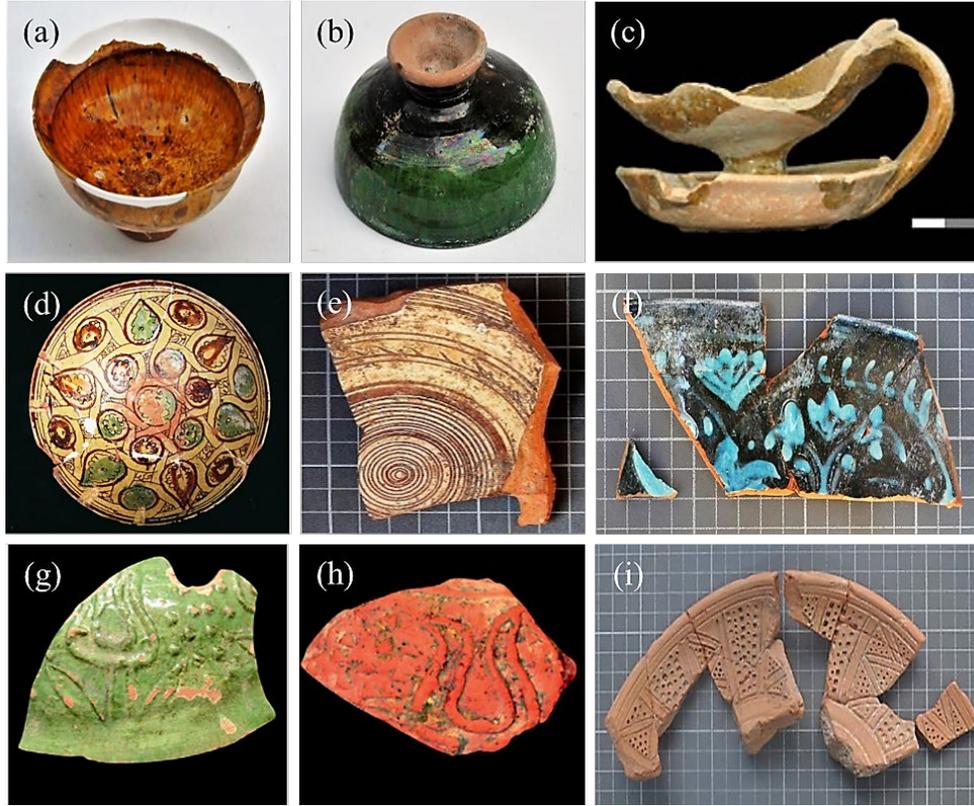


Figure 2. Ottoman-era Iznik red clay ceramics produced using different techniques: (a, b, c) single-color glazing, (d, e) sgraffito, (f) slip, and (g, h, i) stamping. (a, b, d, e and f) Canibek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 7-10. (c) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi, p. 125. (g, h) Uçar, H., Uçar, A. (2018). Tire Kutu Han Kazısı Beylikler ve Osmanlı dönemi seramikleri. Sanat Tarihi Dergisi, p. 21. (i) Demirsar Arlı, V. B., Kaya, Ş. (2018). İznik çini fırınları kazısında ortaya çıkarılan pişmiş toprak kalıp parçalarının değerlendirilmesi. Sanat Tarihi Dergisi, p. 41.

The final group of red-clay ceramics, Miletus ware, was developed by early Ottoman ceramic masters and produced from the mid-14th to late 15th century (Demirci, 2006, p. 29). Production begins with applying a white slip over red clay, followed by painting floral and animal motifs, and occasionally human figures, mainly in cobalt blue, with some black, turquoise, purple, or green (Figure 3). After completing the patterns, a transparent glaze is applied before firing (Kenar, 2015, p. 119). Miletus ware was first identified by Friedrich Sarre in 1935 as Beylik Period Ceramics. However, excavations by Oktay Aslanapa (1963-64) at the Iznik Tile Kilns confirmed Iznik as the production center. Later excavations at the Miletropolis bath (1975) and by Wolfgang Müller-Wiener (1982) found no ceramic remnants, ruling out Miletus as a production site. Nevertheless, examples of Miletus ware

found in regions such as Kütahya, Bursa, Çanakkale, Istanbul, Antalya, Konya, Malatya, Eskişehir, and Mersin indicate that these ceramics were produced across a wide geographical area (Demirci, 2006, p. 25-37; Canibek, 2020, p. 11-13). It is worth emphasizing that these ceramics played a key role in shaping Iznik blue-and-white ceramics and classical Ottoman tiles (Ağdemir, 2019, p. 143).



Figure 3. Miletus wares from the Ottoman Period, 15-16th century, featuring floral and geometric motifs, along with human figures. (a, b and c) Canibek, Fatih. (2020). *Osmanlı dönemi sırlı seramikleri*. Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 12, 13. (d) Burlot, J., Waksman, S. Y., Bellot-Gurlet, ve diğerleri. (2020). The glaze production technology of an early Ottoman pottery (mid-14th (?)-16th century): The case of 'Miletus Ware'. *Journal of Archaeological Science: Reports*, p.2.

2.2. White Clay Iznik Ceramics

2.2.1. Blue-and-white Ceramics

By the late 15th century, blue-and-white ceramics gained renown for their refined patterns and advanced production techniques, shaping Ottoman ceramic art. Iznik became the primary production center, with Kütahya as a secondary hub (Canibek, 2020, p. 14). Their emergence was influenced by political and socio-economic ties between the Ottoman Empire and Chinese dynasties. Silk Road trade facilitated the influx of Chinese porcelain, profoundly shaping local artisans' aesthetics and techniques. China's Ming Dynasty blue-and-white porcelains were highly prized in Ottoman palaces, driving substantial demand (Demir, Yu, and Park, 2024, p. 94). Diplomatic exchanges and war spoils further contributed to their development (Figure 4(a-c)).

The underglaze technique, widely used by Anatolian Seljuk artisans, played a key role in Ottoman blue-and-white ceramics. Patterns were painted on a pre-fired white clay body with heat-resistant pigments, mainly cobalt blue, along with turquoise, purple, black, green, and red, then coated with a transparent glaze and re-fired at about 900°C. A major innovation was adding frit to the white clay body, enhancing durability and aesthetic

quality by increasing heat resistance and color vibrancy. Additionally, PbO, commonly used in Seljuk-era ceramics, remained essential in Ottoman ceramics, facilitating glaze melting at lower temperatures and ensuring smooth, glossy surfaces (Arisoy, 2018, p. 19).

2.2.2. Damascus Wares

Another group of ceramics using the underglaze technique is Damascus wares. Unlike blue-and-white ceramics, they feature sharper pattern outlines in black and a richer palette with manganese-purple and olive-green (Ağdemir, 2019, p. 31). Patterns are meticulously applied, often covering the entire surface with precision (Figure 4(d-f)). The intricate and expansive designs distinguish Damascus wares apart from other ceramic types.



Figure 4. Ottoman-era white-clay Iznik ceramics, 16th century: (a, b, c) blue-and-white ceramics and (d, e, f) Damascus ware ceramics. (a, b, c, e and f) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). *Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi*, 1, p. 128, 129, 134. (d) Canıbek, Fatih. (2020). *Osmanlı dönemi sırlı seramikleri*. Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 18.

2.2.3. Golden Horn Wares

Golden Horn wares, produced for special commissions, are distinguished by intricate designs featuring classic Ottoman motifs like rumi and hatayi. They are also characterized by the Helical Tuğrakeş Style, with spiraling branches intertwined with small floral patterns, reflecting technical mastery and aesthetic sophistication (Ölçer, 2018, p. 285). Figure 5(a-c) highlights the diverse motifs and decorative features of Golden Horn wares.

2.2.4. Rhodes Wares

Rhodes wares are distinguished by their prominent use of coral-red in decorations. The black contouring technique, also seen in Damascus wares, enhanced pattern sharpness. Ottoman floral motifs like tulips, carnations,

and roses were common, often depicted in a naturalistic style (Figure 5(d-f)). However, historical records indicate a decline in quality by the late 17th century, leading to production ceasing in the 18th century (Demirci, 2006, p. 24).



Figure 5. Ottoman-era white clay Iznik ceramics, 16-17th century: (a, b, c) Golden Horn ware ceramics and (d, e, f) Rhodes ware ceramics. (a, d and f) Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 19, 20. (b, c) Ölçer, Sevcin. (2018). 15 ve 16. yüzyıl Mavi-beyaz seramikleri: Osmanlı, Safevi ve Çin Hanedanlığı örneklerinin üslup bağlamında karşılaştırılması. Sanat Tarihi Dergisi, p. 286. (e) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi, p. 136.

2.3. White Clay Kütahya Ceramics

With the emergence of white clay ceramics, Iznik and Kütahya became major production centers, as confirmed by archaeological and historical records. Excavations in both cities reveal extensive ceramic production, showcasing diverse techniques and evolving styles. Iznik ceramics marked the golden age of Ottoman ceramic art (late 15th–17th century), but their prominence declined in the late 17th century due to reduced quality and slower trade. As Iznik’s dominance waned, Kütahya quickly emerged as the new center for tileware and ceramics. The region’s abundant clay deposits, used since the Roman and Byzantine periods, reinforced its historical role in ceramic craftsmanship and contributed to Ottoman ceramic art (Bilgi, 2006, p. 9).

Early Kütahya ceramics featured cobalt blue as the dominant color, alongside turquoise, green, earth-red, and manganese-purple. Though similar to Iznik ceramics (Figure 5(a, c)), they are distinguished by unique motifs, such as central double-ring designs, stylized plant patterns, and sawtooth-edged medallions (Çakır, 2024, p. 223). Another defining trait is the depiction of human figures, offering insights into the era’s social life. Kütahya ceramics also introduced yellow in decorations, absent in earlier Ottoman ceramics, symbolizing prestige among royal and aristocratic circles (Canıbek, 2020, p. 22), as shown in Figure 5(b, d) and Figure 6.



Figure 6. Ottoman-era white clay Kütahya ceramics: (a, c) various pieces, produced in the early 18th century, displaying similarities with Iznik ceramics, and (b, d) produced in the mid-18th century with the use of yellow in decorations. (a-d) Bilgi, Hülya. (2006). Kütahya çini ve seramikleri. Suna ve İnan Kıraç Vakfı, Pera Müzesi, p. 48, 53, 70, 73.

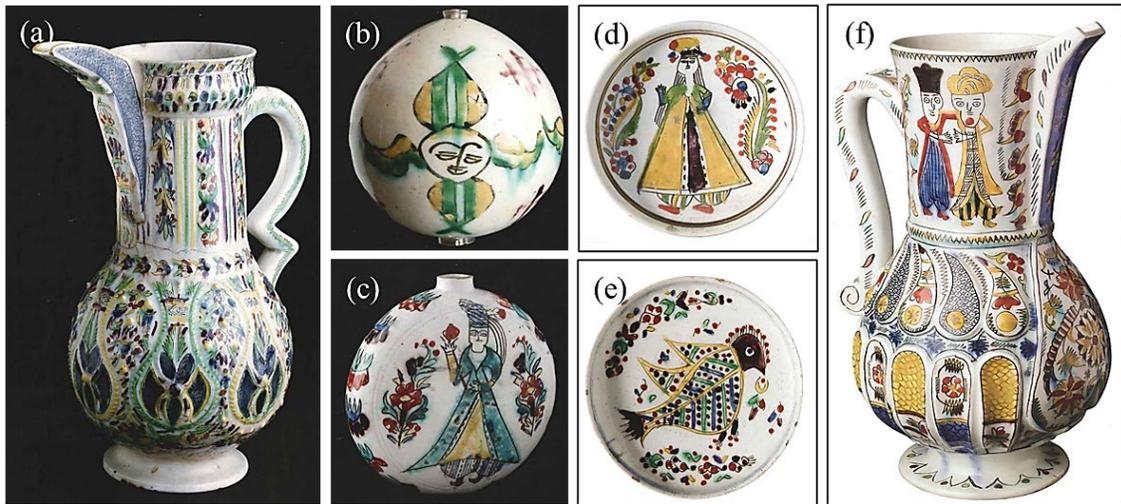


Figure 7. Ottoman-era white clay Kütahya ceramics, 18th century: (a-f) various pieces adorned with green and yellow tones and intricate motifs, along with animal and human figures. (a-f) Bilgi, Hülya. (2006). Kütahya çini ve seramikleri. Suna ve İnan Kıraç Vakfı, Pera Müzesi, p. 59, 81, 96, 106, 114, 118.

During the Ottoman period, Iznik and Kütahya ceramics displayed diverse patterns and colors. Tulip, rose, carnation, hyacinth, pomegranate, and lotus were prominent botanical motifs, while fish and crane motifs were favored among animal representations. Cloud, çintemani, hatayi, and rumi motifs were also widely used. The tulip held special significance in Ottoman culture, symbolizing the unity of *Allah* due to its letter arrangement aligning with “*Allah*”. Similarly, the rose symbolized *Prophet Muhammad* in Ottoman art and Islamic culture (Yıldız and Canbaz, 2021, p. 263-264). The fish represented luck and abundance, while the crane signified longevity and loyalty (Yücel and Sanal, 2021, p. 542-543).

Mythological creatures like the double-headed eagle, dragon, sphinx, and siren, common in Seljuk-era ceramics due to Central Asian and Iranian influence, were rarely used in the Ottoman period (Zorlu and Erođlu, 2023, p. 1789-1797). The *çintemani* motif, originating from Central Asia, symbolized strength and protection. Once a Buddhist symbol in Chinese and Japanese art, it lost its religious meaning in Ottoman ornamentation and became a symbol of sovereignty (Hayırsever, 2020, p. 11). Finally, geometric patterns reflected a core principle of Islamic art: eternity and order. Polygons and stars, frequently used by ceramic artisans, symbolized heaven and the infinite power of *Allah* (Eryılmaz and Selimgil, 2021, p. 240).

2.4. Red Clay Çanakkale Ceramics

Çanakkale ceramics, made primarily with red clay from the late 17th to the 20th century, are known for their distinctive patterns and stylistic variety. Influenced by Chinese and Islamic art, their motifs, nature, animal and geometric figures, carry meanings similar to those in Iznik and Kütahya ceramics. However, these motifs are simpler and less ornate, reflecting their everyday use (Figure 8). Economic hardships during the Ottoman Empire's decline led to a drop in quality, as material changes and simplified craftsmanship negatively impacted their aesthetics and durability (Öztürk and Önder, 2018, p. 64-66; Canıbek, 2020, p. 24).



Figure 8. Ottoman-era red clay Çanakkale ceramics, 19-20th century: (a-d) decorative objects featuring crude botanical and animal motifs, characterized by a restricted color range (Öztürk and Önder, 2018; Ağdemir, 2019). (a-c) Öztürk, M. Ü., Önder, A. M. (2018). Osmanlı döneminde üretilen seramik şişe biçimleri (İznik, Kütahya, Çanakkale örnekleri). *Kalemisi Dergisi*, p. 65. (d) Ağdemir, Banu. (2019). Selçuklu, Beylikler ve Osmanlı Dönemi seramiklerinde kullanılmış sırların özellikleri ve uygulamalar. *Dokuz Eylül Üniversitesi Güzel Sanatlar Enstitüsü*, İzmir, p. 41.

3. Joseon Period Ceramics

With the rise of the Joseon Dynasty, Confucianism became the dominant influence on society and art, encouraging minimalism and practicality. This shift gradually replaced the ornate Goryeo ceramic style with a more restrained and minimalist aesthetic (Özlü, 2017, p. 5).

3.1. Buncheong Ceramics

In the early Joseon period, Buncheong ceramics evolved from Goryeo traditions, adopting a more functional and restrained aesthetic than ornate Celadon ceramics, distinguished by a gray-blue palette. Key production techniques include Sangam, Inhwa, Bakji, Imgak, and Cheolhwa (Kalay, 2024, p. 389-394).

Sangam, pioneered during the Goryeo period, is a refined decorative technique. Patterns are meticulously incised onto the surface without perforation, then inlaid with white, black, or red clay (Figure 9). The final high-temperature firing (1200–1300°C) in a reduction atmosphere ensures complete glaze fusion, enhancing durability and visual refinement (Figure 10(a, b)) (Güneşer, 2008, p. 12).

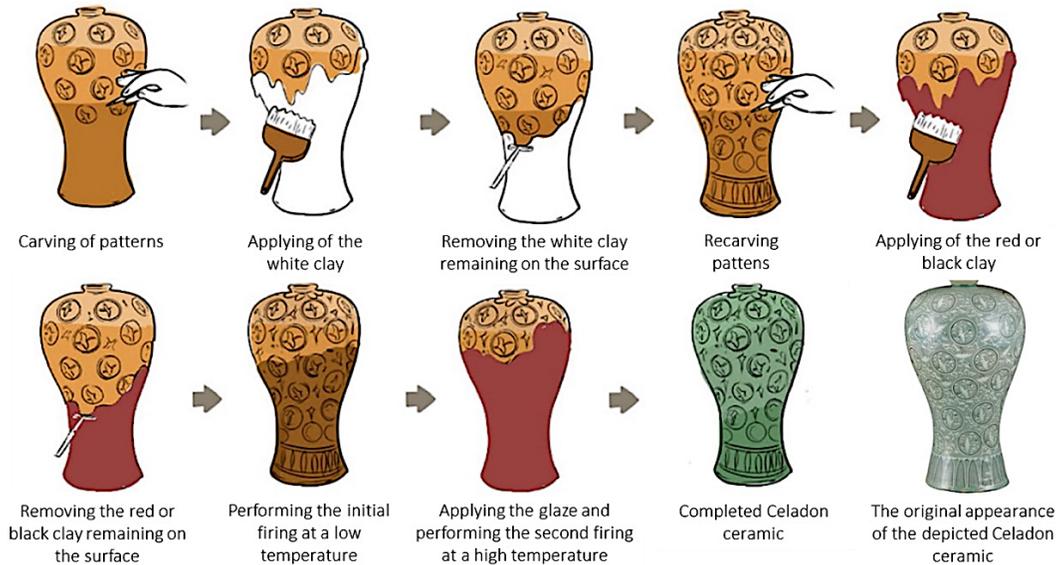


Figure 9. The details of the Sangam technique developed during the Goryeo period. Özer, S. Yu, E., Park J. (2024). 12. ve 13. yüzyıl Selçuklu ve Goryeo seramiklerinin üretim teknikleri ve sanatsal yaklaşımlarının karşılaştırılması, p. 135.

Inhwa technique (Figure 10(c, d)) involved stamping or imprinting patterns onto raw ceramic surfaces using templates or molds. After imprinting, the surface was coated with Bunjang, a white clay slip (Figure 10(k, l)), which was left to dry before excess residue was removed to reveal a white-toned pattern (Kim, Ro, and Kim, 2013, p. 73). Bakji technique (Figure 10(e, f)) applied a white clay layer to the ceramic surface, followed by incising patterns with cutting tools. This removed the white layer in carved areas, exposing the natural surface and creating contrast (Demir, Yu, and Park, 2024, p. 109). Imgak technique (Figure 10(g, h)) involved coating the damp ceramic surface with white clay, then adding patterns through carving, engraving, stamping, or brush strokes (Lee and Jeon, 2011, p. 55). Lastly, Cheolhwa technique (Figure 10(i, j)) involves decorating the ceramic surface by drawing or painting patterns with iron oxide (Fe_2O_3)-rich pigments after applying a white clay coating, resulting in brown-black tones that enhance the distinctive visual appeal of Buncheong ceramics (Lotis and Lee, 2010). Following the completion of the decoration across all techniques, the ceramic body was glazed and subjected to high-temperature firing.



Figure 10. Buncheong ceramics from the Joseon period produced using various techniques, 15-16th century: (a, b) Sangam, (c, d) Inhwa, (e, f) Bakji, (g, h) Imgak, (i, j) Cheolhwa, and (k, l) Bunjang. (a-l) Lee, S., Jeon, S. C. (2011). *Korean Buncheong ceramics* from Leeum, Samsung Museum of Art. The Metropolitan Museum of Art, New York, p. 5-73.

3.2. Baekja Ceramics (White Porcelain)

Baekja ceramics, among the most renowned of the Joseon period, are distinguished by their refined aesthetic and pure whiteness (Figure 11(a-c)). Produced in line with Confucian values, they embody cultural and philosophical ideals, reflecting naturalism and spiritual purity (Güler, 2019, p. 3523; Choo and Yeo, 2023). Despite their minimalism, Baekja ceramics often featured motifs symbolizing nature and the cycle of life (Figure 11(d)). High-quality kaolin clay from the Bunwon production center in Gwangju was used in Baekja ceramics. Fired in enclosed kilns at high temperatures, this method ensured even heat distribution, preventing surface imperfections while enhancing durability and aesthetic appeal (Kim, Kim, and Choi, 2016). Unlike Buncheong ceramics, designed for daily use with coarser forms, Baekja was produced in limited quantities for royal ceremonies and religious rituals (Lotis and Lee, 2010).

At this point, it is essential to consider the impact of the Imjin War (1592–1598), also known as the Tea Bowl War, on the ceramic traditions of both Korea and Japan. During this conflict, Japanese forces relocated Korean ceramic artisans and production techniques to Japan, a transfer that played a pivotal role in shaping Japanese porcelain and pottery. While this exchange advanced Japanese ceramic craftsmanship, it led to a decline in the quality of Korean ceramic production and compelled artisans in Korea to explore alternative techniques (Öney, 2022, p. 43).

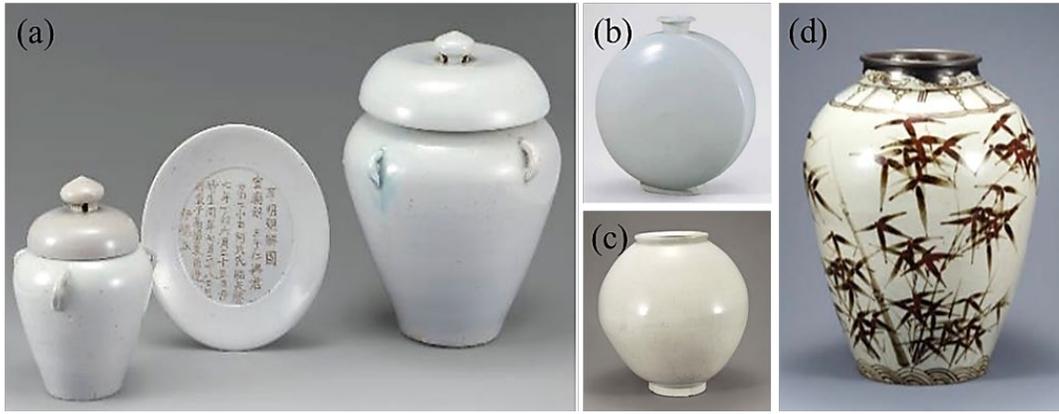


Figure 11. Baekja ceramics from the Joseon period: (a-c) Undecorated pieces and (d) Bamboo-patterned piece (Öney, 2022; Öney and Kösel, 2023; Demir, Yu and Park, 2024). (a) Öney, D., Kösel, A. T. (2023). Doğum geleneklerinde plasenta ve göbek bağı ritüelleri: Kore seramik plasenta kavanozları örneği. *The Journal of Social Science*, p. 198. (b) Öney, Dicle. (2022). İmjin Savaşı sonrası Koreli çömlekçilerin Japon seramik kültürüne etkileri. *Social Science Development Journal*, p. 49. (c, d) Demir, H., Yu, E., Park, J. (2024). Integrating cultural heritage into Korean studies: A comparative study of Turkish and Korean traditional ceramics. *The 7th International Academic Conference of Korean Studies in Central Eurasia*, p. 115.

3.3. Cheonghwa Baekja Ceramics (Blue-and-white Porcelain)

In the 15th century, Cheonghwa Baekja ceramics, or "blue-and-white porcelain," faced production challenges due to political and economic instability. A major limitation was the scarcity of cobalt oxide (CoO), essential for blue decorations, valued at nearly twice the price of gold. Disruptions in its supply, mainly imported from China, led to a decline in production. However, in the 18th century, with political and economic stability restored under the Joseon Dynasty, CoO became accessible again, reviving ceramic production. During the Ming Dynasty, Chinese blue-and-white porcelain gained prestige and high demand, particularly among nobles and aristocrats. Its refined craftsmanship ensured continued prominence in royal courts and daily life (Lotis and Lee, 2010, p. 62-63). While Baekja ceramics embodied Confucian simplicity, Cheonghwa Baekja displayed a more elaborate artistic style (Figure 12(a-e)) (Demir, Yu, and Park, 2024, p. 118).

Moreover, the crackle glaze technique, extensively employed in Goryeo-era celadons, was also incorporated into Cheonghwa Baekja ceramics. This method involved precise control of the cooling rates of both the glaze and the ceramic body, producing intentional crack patterns that enhanced the visual appeal of the surface, as shown in Figure 12(f, g) (Yeşilay, Çakı and Çakır Arianpour, 2018, p. 26).



Figure 12. Cheonghwa Baekja ceramics from the Joseon period, 19-20th century: (a-e) Decorative objects and (f, g) objects produced using the crackle glaze technique. (a-g) Lotis, C., Lee, M. D. (2010). Symbols of identity Korean ceramics from the collection of Chester and Wanda Chang. Asian Cultural History Program, Smithsonian Institution, p. 88-117.

Joseon ceramics often featured floral and animal motifs in brown-black or blue-and-white tones, creating a refined, nature-inspired aesthetic. Common floral motifs included bamboo, plum blossoms, orchids, and chrysanthemums, known as the "Four Noble Plants (Sagunja)" in East Asian art, especially in Buncheong and Cheonghwa Baekja ceramics. These plants, symbolizing Confucian virtues, were also prevalent in Goryeo celadon ceramics influenced by Buddhism (Erkin, 2022, p. 133-138). Bamboo represents wisdom and longevity; plum blossom, purity and renewal; orchid, inner peace and beauty; and chrysanthemum, longevity and adaptability (Philadelphia Museum of Art, 2014; Erkin, 2022, p. 134; Kent and Suwolsky, 2014). Peony motifs symbolized success and happiness, while lotus motifs represented purity, enlightenment, and rebirth (Eberhard, 2000). Among animal motifs, dragons and tigers signified strength, courage, and nobility, often associated with royalty; fish symbolized success and happiness; and cranes represented wisdom and good fortune (Erkin, 2022, p. 153-156; Lee and Jeon, 2011, p. 68; Kim, 2022, p. 41).

4. Comparison of Ottoman and Joseon Period Ceramics

Ottoman and Joseon ceramic artisans integrated inherited techniques with their unique cultural heritage, developing distinctive decorative and production methods. Early Ottoman ceramics continued Anatolian Seljuk traditions, maintaining strong Islamic influences in colors, motifs, and decorative elements. Dominant colors like blue, turquoise, green, and white were prominent, with floral and geometric patterns carrying religious and artistic significance. The underglaze technique became a defining production method, alongside single-color glazing, sgraffito, slip, stamping, and the uniquely Ottoman Miletus method.

Similarly, early Joseon ceramics-maintained continuity with the production techniques of the preceding Goryeo period, preserving artistic legacy. The elegant and distinctive celadon ceramics of the Goryeo period, renowned for their jade-like green tones, served as both a technical and aesthetic inspiration for Joseon ceramic art. Notably, the Sangam technique was extensively employed in Buncheong ceramics, which are classified as early Joseon-period ceramics. Cheolhwa technique, utilizing Fe_2O_3 for decoration, became more prevalent. With the Joseon dynasty's establishment and Confucianism as the state ideology, artistic expression shifted from Buddhist

styles to simplicity and functionality. Unlike the intricate carvings and elaborate patterns of Goryeo, early Joseon Buncheong ceramics embraced gray-blue tones, expressive brushwork, and asymmetry. Ceramics for the royal court embodied refined simplicity, aristocratic ceramics reflected intellectual refinement, and those for the general populace prioritized durability and practicality.

The Ottoman and Joseon dynasties' relations with Central and East Asian states significantly influenced their ceramics. Ming blue-and-white porcelain inspired both traditions, though direct interaction between the cultures is unrecorded. The Silk Road facilitated artistic and technological exchanges, with Chinese porcelain reaching Ottoman territories via Central Asia and Iran. Ottoman conquests introduced ceramic artisans and blue-and-white porcelain, refining local techniques. In contrast, the Joseon dynasty maintained direct trade with China, adapting ceramics from Jingdezhen to local aesthetics. While both traditions were influenced by Chinese blue-and-white porcelain, Ottoman ceramics, shaped by Islamic art, featured intricate, vibrant designs, whereas Joseon ceramics reflected Confucian simplicity and harmony.

An analysis of ceramic patterns reveals that shared motifs exhibit variations in meaning, affected by each culture's distinct beliefs. For instance, the lotus carried deeper spiritual significance in Joseon ceramics, reflecting its Buddhist associations, while the pomegranate, representing paradise in Ottoman ceramics influenced by Islamic art. Similarly, both cultures used geometric patterns to convey harmony and continuity, yet their aesthetic interpretations differed. Moreover, in both periods, color served not only an aesthetic purpose but also functioned as a vital expression of cultural and religious ideologies. Ottoman ceramics prominently featured cobalt blue, yet a wide range of color palettes, including black, turquoise, green, purple, red, and yellow, were also frequently employed. Conversely, Joseon ceramics, particularly Cheonghwa Baekja, prioritized blue-and-white tones, whereas Buncheong ceramics featured a more restrained palette of black and brown. Specifically, white, symbolic of purity and spirituality, was frequently employed as a foundational color in both traditions. In Korean culture, white acquired special significance in Baekja ceramics, where it was closely linked to Confucian ideals of modesty and virtuous living. Similarly, cobalt blue, widely adopted in both traditions under Chinese influence, represented the sky and water, conveying tranquility, infinity, and spiritual purity.

A comparative analysis of production techniques indicates that, aside from the Ottoman Milet and Joseon Sanggam methods, both dynasties utilized similar approaches. Nevertheless, these methods differ in terms of materials and firing techniques. Unlike Joseon ceramics, which are made using high-quality kaolin clay at temperatures between 1200-1300°C in a reduction atmosphere, Ottoman ceramics typically contain frit and are fired at lower temperatures, around 900°C. Additionally, a distinctive feature of Ottoman ceramics is the addition of PbO to the glazes, which facilitates the dissolution of other oxides and helps achieve a glossy, smooth surface on the ceramics. In contrast, Baekja ceramics, distinguished by their unadorned surfaces, reflect the period's emphasis on naturalness and spiritual purity. Moreover, the crackle glaze technique, applied to both Buncheong and Cheonghwa Baekja, represents a defining characteristic of Joseon ceramics.

5. Conclusion

This study examines the production techniques and decorative features of Ottoman and Joseon ceramics, highlighting the influence of cultural and commercial interactions with other dynasties, particularly the Chinese Dynasties, in shaping these elements. Both dynasties combined the knowledge inherited from their predecessors with their cultural heritage, creating unique works of art. Ottoman ceramics reinterpreted the floral and geometrical motifs of the Anatolian Seljuk period in a style unique to Islamic culture. Early Joseon Buncheong

ceramics, on the other hand, drew inspiration from Goryeo Celadon, but instead of Buddhist influences, they adopted a simpler and more minimalist design philosophy shaped by Confucian values. Over time, interactions with China influenced both traditions, particularly through the blue-and-white porcelains produced during the Ming dynasty. Both ceramic traditions reflect the artistic ingenuity and technical expertise of their cultures, shaped by distinct historical and social contexts. These distinctions not only underscore the aesthetic development of each tradition but also lay the groundwork for contemporary cultural and academic exchanges between Turkey and Korea, fostering stronger bilateral cooperation. Future initiatives such as joint ceramic exhibitions featuring artists from both nations and interdisciplinary research collaborations among scholars have the potential to foster deeper cultural engagement. Additionally, special exhibitions showcasing national treasure-level ceramics through governmental partnerships could open new avenues for mutual appreciation and innovation.

References

Ağdemir, Banu. (2019). Selçuklu, Beylikler ve Osmanlı Dönemi seramiklerinde kullanılmış sırların özellikleri ve uygulamalar. (Yayımlanmamış Yüksek Lisans Tezi). Dokuz Eylül Üniversitesi Güzel Sanatlar Enstitüsü, İzmir.

Arısoy, Yağmur. (2018). Selçuklu dönemi seramiklerinde simgeler ve semboller. (Yayımlanmamış Yüksek Lisans Tezi). Selçuk Üniversitesi Sosyal Bilimler Enstitüsü, Konya.

Bedel Özek, Serap. (2024). Anadolu selçuklu döneminde cam üretimi: Teknikler ve ürünler. *Sanat Yazıları*, 51, p. 680–696.

Bilgi, Hülya. (2006). Kütahya çini ve seramikleri. Suna ve İnan Kıraç Vakfı, Pera Müzesi.

Çakır, Dilek. (2024). Kütahya Ali (Alo) Paşa Camii' nin çini süslemeleri. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 54, p. 213–232.

Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. (Yayımlanmamış Sanat Tarihi Kuramları Ödevi). Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa.

Choo, H.J., Yeo, H.S. (2023). A Study on the contemporary expression and reinterpretation of Joseon White Porcelain. *Journal of Art & Design Research*, 26/1, p. 1–12.

Çobanlı, Z., Kanişkan, E. (2013). Osmanlı çini ve seramiklerinde giyim kuşam kültürü ve özellikleri. *Sanat ve Tasarım Dergisi*, 4/4, p. 95–108.

Demir, H., Yu, E., Park, J. (2024). Integrating cultural heritage into Korean studies: A comparative study of Turkish and Korean traditional ceramics. *The 7th International Academic Conference of Korean Studies in Central Eurasia*, p. 87–125.

Demirci, İnan. (2006). 2004-2005 yılları arasında İznik Roma tiyatrosunda ortaya çıkarılan erken Osmanlı dönemi Milet İşi seramikleri. (Yayımlanmamış Yüksek Lisans Tezi). Çanakkale Onsekiz Mart Üniversitesi Sosyal Bilimler Enstitüsü, Çanakkale.

Demirsar Arlı, V. B., Kaya, Ş. (2018). İznik çini fırınları kazısında ortaya çıkarılan pişmiş toprak kalıp parçalarının değerlendirilmesi. *Sanat Tarihi Dergisi*, 27/1, p. 35–51.

Eberhard, Wolfram. (2000). Çin simgeleri sözlüğü. İstanbul: Kbalcı yayınevi.

Erkin, Sedef. (2022). Kore kültüründe sembolizm ve “Joseon dönemi” kadın giyim kuşamı üzerindeki etkileri. (Yayımlanmamış Yüksek Lisans Tezi). Dokuz Eylül Üniversitesi Güzel Sanatlar Fakültesi, İzmir.

Eryılmaz, H.İ., Selimgil, B. (2021). İslam eserlerinde kullanılan kare tabanlı geometrik desenlerin çözümlenmesine yönelik yeni bir yaklaşım. DEÜİFD LIII, p. 237-286.

Güler, Ayşe. (2019). Güney Kore mutfağında yaşayan seramikler. *Journal of Social and Humanities Sciences Research*, 6/44, p. 3520–3543.

Güneşer, Birsen. (2008). Geleneksel uzakdoğu seladon sırlarının araştırılarak, özgün porselen tasarımlarına uygulanması. (Yayımlanmamış Yüksek Lisans Tezi). Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.

Hayırsever, Bengütay. (2020). Geleneksel el sanatlarında kullanılan çintemani motifi ve seramik sanatına yansımaları. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* L, 3, p. 9-22.

Kalay, Leman. (2024). Sonsuz güzellik: Buncheong seramiklerinin geçmişten günümüze yolculuğu. *Sanat Yazıları*, 51, p. 386–399.

Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). *Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi*, 1, p. 115–154.

Kent, D., Suwalsky, J. (2014), 100 thimbles in a box, the spirit and beauty of handicrafts. USA: Seoul Selection.

Kim, Hyeon-Jin. (2022). The significance of Korean ceramic patterns: Exploring historical changes, symbolic meanings and development directions. *Journal of Digital Media & Culture Technology*, 2/1, p. 35-43.

Kim, H. J., Ro, H. S., Kim, W. S. (2013). Analysis of Korea Buncheong ware by Bunjang (white slip) technique. *International Journal of Contents*, 9/2, p. 70–76.

Kim, H. S., Kim, D., Choi, D. W. (2016). Geological characteristics of the Gangwondo Yanggu terra alba used for a major raw material of the Joseon white porcelain. *Journal of the Geological Society of Korea*, 52/6, p. 815–827.

Lee, S., Jeon, S. C. (2011). Korean Buncheong ceramics from Leeum, Samsung Museum of Art. New York: The Metropolitan Museum of Art.

Lotis, C., Lee, M. D. (2010). Symbols of identity Korean ceramics from the collection of Chester and Wanda Chang. Asian Cultural History Program, Smithsonian Institution.

Ölçer, Sevcan. (2018). 15 ve 16. yüzyıl Mavi-beyaz seramikleri: Osmanlı, Safevi ve Çin Hanedanlığı örneklerinin üslup bağlamında karşılaştırılması. *Sanat Tarihi Dergisi*, 27/1, p. 265–301.

Öney, Dicle. (2022). İmjin Savaşı sonrası Koreli çömlekçilerin Japon seramik kültürüne etkileri. *Social Science Development Journal*, 7/33, p. 43–56.

Öney, D., Köseleler, A. T. (2023). Doğum geleneklerinde plasenta ve göbek bağı ritüelleri: Kore seramik plasenta kavanozları örneği. *The Journal of Social Science*, 10/67.

Özçelik, Nuri. (2020). Osman Hamdi Bey’in portrelerinde anlam. *Tarih ve Gelecek Dergisi*, 6/2, p. 449–458.

Özlu, Gökçen. (2017). Konfüçyüsçü yönetim düşüncesi: Joseon Hanedanlığı. (Yayımlanmamış Yüksek Lisans Tezi). Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Öztürk, M. Ü., Önder, A. M. (2018). Osmanlı döneminde üretilen seramik şişe biçimler (İznik, Kütahya, Çanakkale örnekleri). *Kalemisi Dergisi*, 6/11, p. 55–69.

Philadelphia Museum of Art. (2014). *Treasures from Korea arts and culture of Joseon Dynasty 1392-1910*, New Jersey.

Polat, Turgay. (2019). Marmaray projesi kazıları (Yenikapı, Üsküdar, Sirkeci) Osmanlı dönemi sırsız seramikleri. *Sanat Tarihi Dergisi*, 28/1, p. 93–117.

Uçar, H., Uçar, A. (2018). Tire Kutu Han Kazısı Beylikler Ve Osmanlı dönemi seramikleri. *Sanat Tarihi Dergisi*, 27/1, p. 1–33.

Yeşilay, S., Çakı, M., Çakır Arianpour, A. (2018). Kalsiyum oksit (CaO) çatlaklı sır bileşimindeki etkilerinin araştırılması. *Gazi Mühendislik Bilimleri Dergisi*, 4/1, p. 25–38.

Yıldız, Ş., Canbaz, F. (2021). Osmanlı kumaş motiflerinin minimalist bakışla aşif tasarımlarına yansıtılması. *Hars Akademi Uluslararası Hakemli Kültür-Sanat-Mimarlık Dergisi*, 7, p. 256-580.

Yücel, M., Sanal, Ş. (2021). Selçuklu dönemi eserlerinde hayvan sembolleri: Ahlat müzesi örneği. *Lokman Hekim Tıp Dergisi*, 11/3, p. 535-545.

Zorlu, İ., Eroğlu, A.A. (2023). Bazı hayvan figürlerinin Türk sanatlarına yansımaları. *Turkish Studies*, 18/4, p. 1775-1807.

Figure Sources

Figure 1. (Left) Osman Hamdi Bey, 1907, *Kaplumbağa Terbiyecisi / The Tortoise Trainer*. Erişim: 02.01.2025, <https://www.peramuzesi.org.tr/eser/kaplumbaga-terbiyecisi/1/40>. (Right) Bursa Yeşil Cami / Green Mosque of Bursa. Erişim: 02.01.2025, <https://www.rehbername.com/kesfet/kaplumbaga-terbiyecisi-ve-osman-hamdi-bey>.

Figure 2. (a, b, d, e and f) Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. (Yayımlanmamış Yüksek Lisans Tezi). Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 7-10. (c) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). *Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi*, p. 125. (g, h) Uçar, H., Uçar, A. (2018). Tire Kutu Han Kazısı Beylikler Ve Osmanlı dönemi seramikleri. *Sanat Tarihi Dergisi*, p. 21. (i) Demirsar Arlı, V. B., Kaya, Ş. (2018). İznik çini fırınları kazısında ortaya çıkarılan pişmiş toprak kalıp parçalarının değerlendirilmesi. *Sanat Tarihi Dergisi*, p. 41.

Figure 3. (a, b and c) Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. (Yayımlanmamış Yüksek Lisans Tezi). Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 12-13. (d) Burlot, J., Waksman, S. Y., Bellot-Gurlet, ve diğerleri. (2020). The glaze production technology of an early Ottoman pottery (mid-14th (?) -16th century): The case of 'Miletus Ware'. *Journal of Archaeological Science: Reports*, p.2.

Figure 4. (a, b, c, e and f) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). *Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi*, p. 128, 129, 134. (d) Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. (Yayımlanmamış Yüksek Lisans Tezi). Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 18.

Figure 5. (a, d and f) Canıbek, Fatih. (2020). Osmanlı dönemi sırlı seramikleri. (Yayımlanmamış Yüksek Lisans

Tezi). Bursa Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa, p. 19-20. (b, c) Ölçer, Sevcin. (2018). 15 ve 16. yüzyıl Mavi-beyaz seramikleri: Osmanlı, Safevi ve Çin Hanedanlığı örneklerinin üslup bağlamında karşılaştırılması. Sanat Tarihi Dergisi, p. 286. (e) Kenar, Ayşe. (2015). Marmaray projesi kapsamında Yenikapı kazılarında ortaya çıkarılan Osmanlı keramikleri (15-17. yüzyıl). Medeniyet Sanat, İMÜ Sanat ve Tasarım Fakültesi Dergisi, p. 136.

Figure 6. (a-d) Bilgi, Hülya. (2006). Kütahya çini ve seramikleri. Suna ve İnan Kıraç Vakfı, Pera Müzesi, p. 48, 53, 70, 73.

Figure 7. (a-f) Bilgi, Hülya. (2006). Kütahya çini ve seramikleri. Suna ve İnan Kıraç Vakfı, Pera Müzesi, p. 59, 81, 96, 106, 114, 118.

Figure 8. (a-c) Öztürk, M. Ü., Önder, A. M. (2018). Osmanlı döneminde üretilen seramik şişe biçimleri (İznik, Kütahya, Çanakkale örnekleri). Kalemisi Dergisi, p. 65. (d) Ağdemir, Banu. (2019). Selçuklu, Beylikler ve Osmanlı Dönemi seramiklerinde kullanılmış sırların özellikleri ve uygulamalar. (Yayımlanmamış Yüksek Lisans Tezi). Dokuz Eylül Üniversitesi Güzel Sanatlar Enstitüsü, İzmir, p. 41.

Figure 9. Özer, S. Yu, E., Park J. (2024). 12. ve 13. yüzyıl Selçuklu ve Goryeo seramiklerinin üretim teknikleri ve sanatsal yaklaşımlarının karşılaştırılması, p. 135.

Figure 10. (a-l) Lee, S., Jeon, S. C. (2011). Korean Buncheong ceramics from Leeum, Samsung Museum of Art. New York: The Metropolitan Museum of Art, p. 5-73.

Figure 11. (a) Öney, D., Kösel, A. T. (2023). Doğum geleneklerinde plasenta ve göbek bağı ritüelleri: Kore seramik plasenta kavanzoları örneği. The Journal of Social Science, p. 198. (b) Öney, Dicle. (2022). İmjin Savaşı sonrası Koreli çömlekçilerin Japon seramik kültürüne etkileri. Social Science Development Journal, p. 49. (c, d) Demir, H., Yu, E., Park, J. (2024). Integrating cultural heritage into Korean studies: A comparative study of Turkish and Korean traditional ceramics. The 7th International Academic Conference of Korean Studies in Central Eurasia, p. 115.

Figure 12. (a-g) Lotis, C., Lee, M. D. (2010). Symbols of identity Korean ceramics from the collection of Chester and Wanda Chang. Asian Cultural History Program, Smithsonian Institution, p. 88-117.