

The sgraffito decorating the baroque chapel of Santa Barbara in the church of San Juan del Hospital in Valencia

Los esgrafiados que decoran la capilla barroca de Santa Bárbara en la iglesia de San Juan del Hospital de Valencia

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Abstract

The didactic unit manifests the programmatic structure of the teacher for the implementation of the teaching-learning process. Despite its relevance, it is a genre with little research on the difficulties of its production. Thus, through the application of a taxonomic tool of analysis, this study aims to analyze the variation of the difficulties and omissions presented by students of the Master's Degree in Teacher Training in the production of this genre, taking as variables the educational legislation (LOMCE and LOMLOE) and the previous training of the students. For this purpose, 96 didactic units produced by Master's students during three academic years (2020-2021 to 2022-2023) are analyzed. The legislative variable shows variations (lower difficulty index with LOMLOE than with LOMCE) and, likewise, so does the previous training (lower difficulty in Humanities compared to areas such as Psychology, Science or Mathematics). In conclusion, these two variables have implications that must be addressed from the didactic point of view within the teaching-learning process of the programmatic action.

Keywords: sgraffito, baroque architecture, decorative techniques and ornamental analysis, religious symbolism, architectural decoration of 17th century.

Resumen

La unidad didáctica manifiesta la estructura programática para la implementación del proceso de enseñanza-aprendizaje. A pesar de su relevancia, se trata de un género con escasas investigaciones en torno a las dificultades de su producción. A través de la aplicación de una herramienta taxonómica este estudio tiene por objeto analizar la variación de las dificultades y omisiones que presentan los estudiantes del Máster en Formación del Profesorado en la producción de dicho género tomando como variables la legislación educativa (LOMCE y LOMLOE) así como su formación previa. Método: Se analizan 96 unidades didácticas producidas por estudiantes del Máster durante tres cursos académicos (2020-2021 a 2022-2023). Resultados: La variable legislativa evidencia sufrir variaciones (menor índice de dificultad con LOMLOE que con LOMCE) e, igualmente, la formación previa también (menor dificultad en Humanidades frente a áreas como Psicología, Ciencias o Matemáticas). Discusión: Estas dos variables refieren implicaciones que deben ser respondidas desde el punto de vista didáctico dentro del proceso de enseñanza-aprendizaje de la acción programática.

Palabras clave: dificultades de aprendizaje, diseño curricular, formación previa, legislación educativa, unidad didáctica.

1. Introduction

The motivation behind the present contribution stems from the desire to provide a preliminary overview of the achievements obtained within the framework of a larger research project. The objective of this project is to conduct a comparative study of the ornamental motifs in the canvases of the religious buildings of the Valencian Baroque and the ornamental motifs found in silk industry fabrics to rediscover how these motifs respond to the cultural and social manifestations of an epoch characterized by a strong sense of identity.

In this contribution, we have chosen a case study with dimensions that allow us to cover the objectives of this first study, which will serve as a reference or model to be applied in other cases, both in architecture and in the silk-weaving craftsmen's trade.

The Chapel of Santa Barbara, situated within the church of San Juan del Hospital in Valencia, is a remarkable example of 17th-century Baroque architecture. According to the study conducted by the doctor and academician Llorca Díez (1930), this chapel was designed by the architect Juan B. Pérez Castiel, and its construction began in 1686. Likewise, the inscription with the date 1689 found on its ornamentation suggests that much of the decorative work was already completed by then. This architect, as detailed by Professor Gonzalez (2010), settled in the capital of Turia, Valencia, from an early age and collaborated in the workshop of Pedro Artigues, originally from Teruel, as recorded in the Patriarca protocol file. Additionally, Juan B. Pérez Castiel, the architect, became the leading master builder of the Cathedral between 1672 and 1707. During this period, he undertook one of his most significant projects, the Baroque cladding of the presbytery of the Cathedral.

He is considered the introducer of the baroque in Valencia. The space of the Cathedral's presbytery, in addition to its historical significance, is distinguished by the decorative richness of its

sgraffito. This ornamental technique finds one of its most elaborate and significant manifestations in the chapel of Santa Barbara.

Sgraffito, an ancient decorative technique that reached its outstanding development thanks to the work of Mudejar artisans (Rodríguez Fraga, 2015), consists of superimposing layers of mortar or plaster and selectively removing the upper ones to create ornamental patterns. This tradition, which primarily spread through southeastern Spain, gained significant prominence in the Valencian Baroque, where it was used to adorn walls with a combination of vegetal, geometric, and anthropomorphic motifs. In the chapel of Santa Barbara, the sgraffito work presents a simple but effective polychromatic palette based on the contrast between the white of the plaster and the black of the smoke, creating a visual effect of great delicacy and dynamism.

Regarding sgraffito in the region, it has been documented in the 17th and early 18th centuries, primarily in the provinces of Valencia and Castellón, with a few examples in Alicante. Additionally, there is a clear preference for using this technique in religious buildings rather than in secular architecture. In the Valencian case, Peñarrocha Altabella (2013) mentions that sgraffito was more commonly applied in interiors than exteriors.

Despite the historical and artistic significance of this chapel, the graffiti adorning its walls has received little academic attention. The main objective of this article is to analyze in depth the formal, technical, and iconographic characteristics of the sgraffito of the Chapel of Santa Barbara, placing them within the context of Valencian Baroque art, Ruiz Alonso (2015) and the Archivo de Protocolos del Colegio de Corpus Christi, (Real Colegio - Seminario de Corpus Christi (n.d.)), and exploring more deeply their connection with the decorative traditions inherited from the Mudejar after.

1.1. Pattern motifs

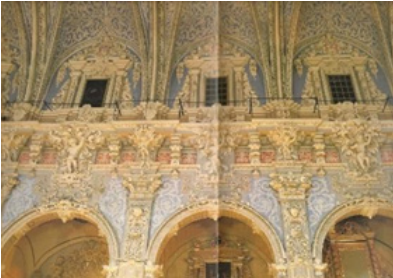
The geometric patterns of the sgraffito of the Baroque period in Valencia are characterized by the simplicity of their elements and their ability to generate visually complex compositions. As Ferrer Orts (2009-2010) describes, these patterns include parallel lines, circles and circumferences, squares, rectangles and rhombuses, six- and eight-pointed stars, Seba nets, interlacing, lobed medallions, four- and six-petaled flowers, wefts of hexagons and imbrications. In addition, their dynamic silhouettes have given rise to curious transformations, such as half moons, hearts, spirals, or fish, always schematic and stylized representations of predominantly Christian chronology, as taught in the book *Dictionary of the Decorative Arts* by Honour (1987). In the Chapel of Santa Barbara, elements that coincide with this description are identified, such as circles, diamonds, flowers, and fish, which confirm their connection with the traditional patterns of the time.

The historical context of these decorative motifs suggests an evolution in their meaning over time. Although in the early seventeenth century, these patterns may have had a symbolic meaning linked to the Counter-Reformation and early Christian architecture, from the second third of the century, they spread in a more standardized and imitative way, in many cases losing their original conceptual content, as Professor Gil Saura (2010) says. In this sense, the vaults decorated with scrolls, grotesques, baskets of fruit, pelicans, or bunches of vines, marked by an evident "horror vacui," were integrated as part of a decorative language typical of the Valencian Baroque. In the dome of the Chapel of Santa Barbara, there are clear examples of this trend, including fruit baskets, pelicans, and vine bouquets that enrich its ornamentation. Suppose one consults Gheerbrant's *Dictionary of Symbols* (1988). In that case, one can learn the meaning of these symbols and their cultural background, thereby gaining a deeper understanding of the meanings conveyed by the decorative motifs of Valencian Baroque architecture.

Another group of recurring motifs in Valencian sgraffito of the period includes anthropomorphic figures that merge with vegetal elements. According to Gil Saura (2010), it is common to find partially transformed human figures, such as bodies that, up to the waist, present human anatomy but end in scrolls or foliage. Also frequent are motifs of hunters with helmets, bows, and arrows, warriors on horseback, musicians with turbans, and wild figures with plumes holding shields. In the dome of the Chapel of Santa Barbara, several of these motifs have been identified, including savages and warriors with bows and arrows among foliage, as well as human figures whose lower bodies are merged into vegetal forms. These representations, typical of the style prevalent in Valencia at the time, reflect both the technical mastery and visual symbolism that characterized Baroque decorative art.

In the Renaissance, proportion, order, symmetry, and modest decoration were used, embodying classical rational aesthetics. Whereas, in the Baroque, which marked the beginning of the 17th century, dynamics, dramatism, contrasts of light and shadow, and more exaggerated and ornate decorations were pursued. As for the materials, on the one hand, the Renaissance used the traditional stone of the place. On the other hand, the more decorative Baroque style employed sculpture, stucco decoration, and gilding. The works of Jarque (1993) and Jarque (1994) contain numerous elements of Valencian Baroque architecture that are relevant to the analysis of the sgraffito of the chapel of Santa Barbara. For example, in Jarque's book (1993), the renovation of the church of San Esteban in Valencia is mentioned, where the arcades and the vault made between 1679 and 1682 are representative examples of Baroque architecture. In the church of San Miguel in Castellón, pilasters and sgraffito dated between 1679 and 1725 are on display, as are the decorative details of the church of Santa Ana in Segorbe. Specifically, as shown in Table 1. Valencian Baroque Architecture.

Table 1: Valencian Baroque Architecture.
Source: Own elaboration.

Number	Scanning photos from the book	Description	Source
1		Details of the renovation of the arches and vault of the church of San Esteban in Valencia.	(Jarque, 1993, pp. 220-221).
2		Detail of pilaster and sgraffito of the Church of San Miguel in Castellón.	(Jarque, 1993, p. 246)
3		Decorative details of the Church of Santa Ana in Segorbe.	(Jarque, 1993, p. 249)

In addition, according to Gil Saura (2010a, 2010b), the technique of decorative sgraffito carving used in Baroque architecture is explored, with a detailed analysis of its application, historical context, diffusion, and influence in Valencia.

This architectural context illustrates how the decorative principles of the Valencian Baroque are also reflected in the sgraffito. Finally, we have chosen the Chapel of Santa Barbara as the main object of our study due to its ornamental richness and its significance as a representative example of this artistic tradition.

1.2. General Objective

To analyze the decorative sgraffito of the Chapel of Santa Barbara through a technical, stylistic, and iconographic approach, understanding its relevance within the Valencian Baroque context and its relationship with the decorative traditions of the time.

1.3. Specific Objectives

Describe the technical and stylistic characteristics of the sgraffito present in the Chapel of Santa Barbara, including the analysis of the materials,

the application techniques, and the ornamental elements used.

Analyze all the decorative patterns present in the architectural elements of the chapel that incorporate sgraffito to identify similarities, variations, and their integration into the overall architectural design of the space.

Inventory and catalog the different sgraffito patterns present in the decorative elements of the chapel, generating cataloging cards for each one and providing detailed information on their visual characteristics, location, and possible variations.

To contextualize the sgraffito of the Chapel of Santa Barbara within the Valencian Baroque

art, this analysis examines its influences, its relationship with the tradition of Baroque decoration, and its symbolism within the religious sphere of the time.

The present work seeks not only to contribute to the knowledge of this ornamental technique in the Valencian Baroque but also to promote its valorization as part of the rich artistic heritage of the church of San Juan del Hospital. This analysis, focused on the sgraffito of the Chapel of Santa Barbara, presents an opportunity to deepen our understanding of the decorative traditions of the time and their evolution within the cultural context of the seventeenth century.

2. Methodology

The study of the sgraffito in the chapel of Santa Barbara has been carried out through a multidisciplinary approach that combines advanced techniques of digital survey, architectural analysis, and cataloging work supported by the discipline of historiography and classical treatise on the crafts of work and decoration, for example, the doctoral thesis of Professor Garcia Valldecabres, and the study of Professor Sanchez Muñoz (2016), entitled: How to catalog works of art and other artistic objects.

2.1. Surveying and Photogrammetry

For the precise documentation of the sgraffito and the architectural structure of the chapel, a 3D laser scanner was used, which enabled the creation of a detailed point cloud model. In the final master's degree work of engineer Mogená Sánchez (2018), 3D modeling and photogrammetry were performed. This technique provides an accurate representation of the chapel's geometry, facilitating the creation of architectural plans and sections. In addition, the laser scanning equipment provides detailed photographs of the sgraffito, which is crucial for analyzing its

patterns and preserving decorative details in high resolution.

2.2. Drawing the Different Patterns

With the data obtained in the first phase, we proceeded to represent the sgraffito graphically using AutoCAD software. Using the architectural plans generated from the survey and the photographs of the sgraffito, the decorative patterns present on the surfaces were drawn. This stage enabled the creation of accurate representations of the ornamental designs and the analysis of their formal characteristics.

2.3. Pattern Cataloging

In this phase, exhaustive cataloging of the sgraffito patterns was carried out, identifying those that are repeated and those that are unique in all the decorated architectural elements of the chapel. For each pattern, a cataloging card was generated that included information about its location, dimensions, visual characteristics, and possible variations. This process enables a detailed inventory of the decorative elements, facilitating comparison and stylistic analysis.

2.4. Analysis of Characteristics and Stylistics

Finally, the technical and stylistic characteristics of the sgraffito were analyzed. In this phase, the design, arrangement, and motifs of the decorative patterns were studied in the architectural context of the chapel. This analysis considers aspects

such as the relationship between the sgraffito and the architectural space, its symbolism, and how it is integrated into the overall aesthetics of the Valencian Baroque. The study also includes an evaluation of the materials and techniques used, which allows for a deeper understanding of the process of developing these strategies.

3. Results

The analysis enabled the identification and cataloging of the various decorative patterns present in the sgraffito of the Chapel of Santa Barbara. The results revealed a remarkable diversity of designs, among which geometric, vegetal, and some anthropomorphic motifs predominate, all characteristic of 17th-century Baroque ornamentation. These patterns include baskets of fruit, bunches of vines, stylized foliage transformed into animal forms, such as fish and pelicans, and anthropomorphic representations, including human figures integrated with vegetal elements. This set of motifs evidences a visual language charged with religious and cultural symbolism rooted in the ideals of the Counter-Reformation.

The distribution of the sgraffito was carried out strategically and systematically, decorating key architectural elements, including arches, pilasters, and vaults. In particular, the dome of the chapel stands out for its complex ornamentation, which reinforces the monumental character of the liturgical space. The harmonious integration between the sgraffito and the architectural structure not only enriches the aesthetic ensemble but also acts as a means of conveying messages linked to Christian values, such as the idea of transcendence and the unity between the earthly and the divine.

In addition, the comparative analysis allowed us to observe how the patterns of the chapel's ornaments share similarities with other manifestations of Valencian baroque, highlighting

recurring elements documented in different churches in the region, as mentioned in Jarque's book (1993), the church of Santa Ana in Segorbe and the church of San Esteban in Valencia. This highlights the influence of local workshops and artisans in the consolidation of a homogeneous and standardized style without compromising the expressive richness of each space.

A summary of the work carried out is presented in Tables 2 to 8 below;

- 2.- Sgraffito - dome-EC1;
- 3.- Sgraffito - dome-EC2;
- 4.- Sgraffito - dome-EC3/EC4;
- 5.- Sgraffito - dome-EB1/EB2;
- 6.- Sgraffito - vault-EB3/EB4;
- 7.- Sgraffito - pilaster-EP1;
- 8.- Sgraffito - mulo-EM1;

From Tables 2-8, the decorative patterns were identified, indicating their precise location, frequency, and main characteristics. This resource is essential for a more detailed understanding of the decorative and symbolic function of sgraffito in the liturgical context, highlighting its role not only as an ornamental element but also as a vehicle of religious and cultural meanings.

Table 2: The sgraffito of the dome sector EC1.
Source: Own elaboration.

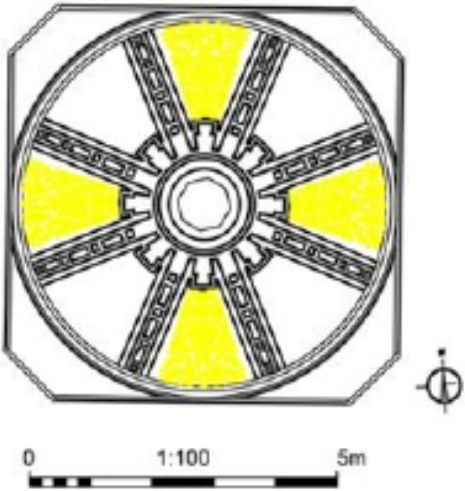
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
SGRAFFITO OF THE DOME	SGRAFFITO-DOME-EC1
Drawing	Photo
	
Location	Observation
	Decorative vegetal and foliage motifs, accompanied by stylized human figures, such as warriors wearing helmets and armed with bows and arrows, harmoniously integrated into the ornamental composition. Also visible are human figures whose lower bodies transform into plant-like shapes, enhancing the dynamism and visual richness of the decoration.

Table 3: The sgraffito of the dome sector EC2.
Source: Own elaboration.

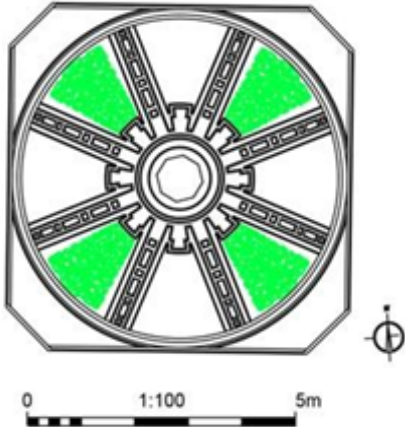
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
SGRAFFITO OF THE DOME	SGRAFFITO-DOME-EC2
Drawing	Photo
	
Location	Observation
	Decorative vegetal and foliage motifs, accompanied by stylized human figures, such as wild men, harmoniously integrated into the ornamental composition. Also visible are human figures whose lower bodies transform into plant forms, enhancing the dynamism and visual richness of the decoration.

Table 4: The sgraffito of the dome sector EC3-EC4.
Source: Own elaboration.

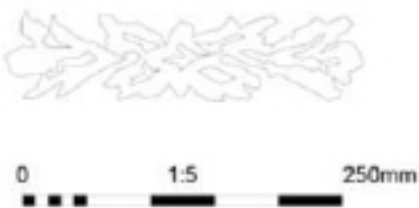
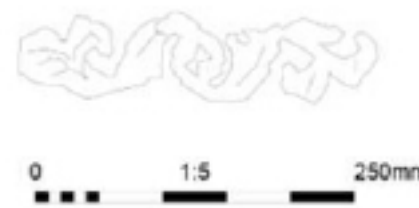
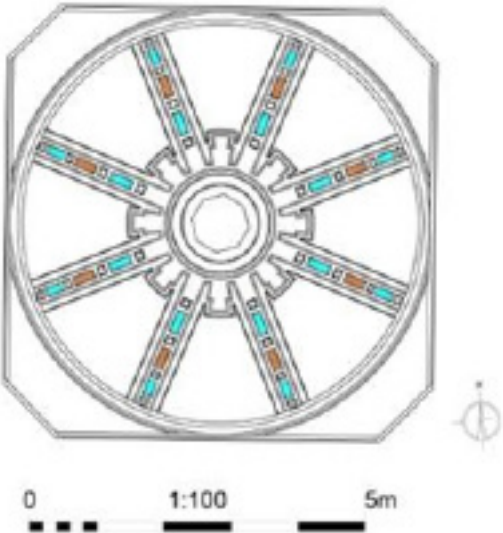
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
SGRAFFITO OF THE DOME	
SGRAFFITO-DOME-EC3	
	
SGRAFFITO-DOME-EC3	
	
Location	
	Observation EC-3 Design composed of stylized vegetal elements alternating floral motifs and leaves, forming a continuous linear composition. The harmonious arrangement emphasizes repetition and visual rhythm. EC-4 Intertwined vegetal motifs that exhibit organic fluidity in their design. The curvature of the forms evokes a sense of movement, integrating seamlessly into the overall decorative scheme.

Table 5: The sgraffito of the dome sector EB1-EB2.
Source: Own elaboration.

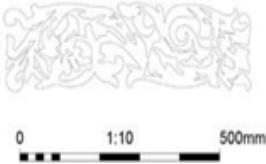
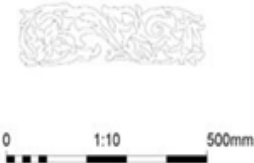
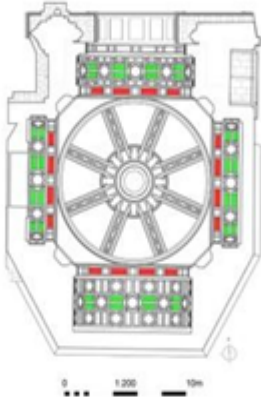
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
VAULT SGRAFFITO	
SGRAFFITO-DOME-EB1	Photo
	
SGRAFFITO-DOME-EB2	
	
Location	
	Observation EB-1 Vegetal motifs combining elongated, sinuous leaves with stylized flowers. The design exhibits a balanced and symmetrical composition, highlighting the fluidity and continuity of the forms. EB-2 Design with interlaced vegetal and floral elements, characterized by dynamism and ornamental complexity. Repetition and symmetry reinforce the integration within the overall decorative scheme of the vault.

Table 6: The sgraffito of the dome sector EB3-EB4.
Source: Own elaboration.

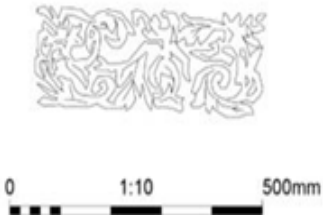
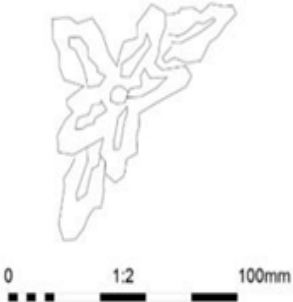
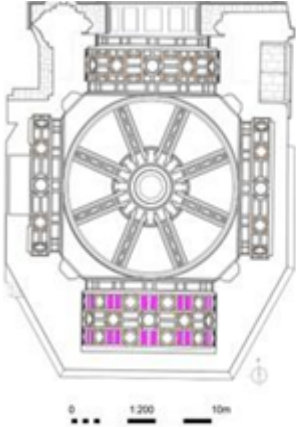
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
VAULT SGRAFFITO	
SGRAFFITO-VAULT-EB3	 
SGRAFFITO-VAULT-EB4	 
Location	 Observation EB-3 Design based on foliage with elongated and curved leaves intertwined in a harmonious way. The vegetal elements stand out for their fluidity and symmetry, creating an ornamental pattern rich in dynamism. EB-4 Decorative motif combining stylized flowers and vegetal elements framed in a triangular design. The composition stands out for its balance and the integration of the foliage on the borders, providing continuity to the overall design.

Table 7: The sgraffito of the dome sector EP1.
Source: Own elaboration.

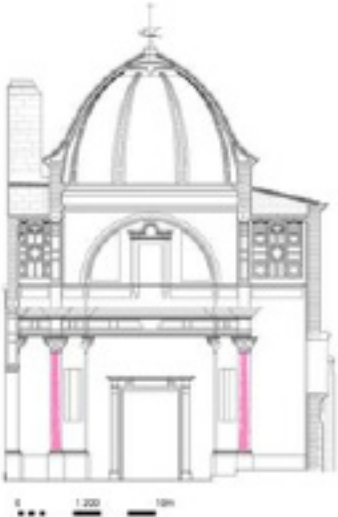
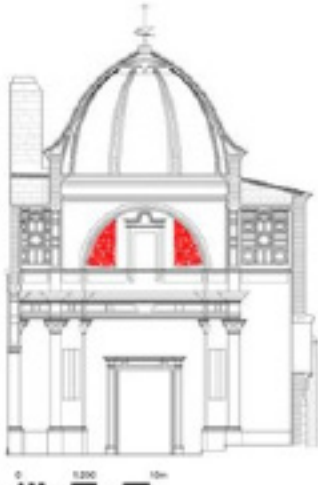
RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL		
SGRAFFITO OF THE PILASTER		
SGRAFFITO-PILASTER-EP1	Photo	Location
		
Observation Fruit baskets and vine bouquets are integrated into a stylized foliage that flows and transforms into forms of fish, flowers, and pelicans, located at the center of the decorative patterns.		

Table 8: The sgraffito of the EM1 sector dome.
Source: Own elaboration.

RECORD OF THE SGRAFFITOS IN THE CHAPEL OF SAINT BARBARA CHURCH OF SAN JUAN DEL HOSPITAL	
SGRAFFITO OF THE LUNETTE	
SGRAFFITO-MULO-EM1	Location
	
Observation	
	Vegetal motifs, fruit baskets, and vine bouquets are integrated with stylized foliage that flows and transforms into forms of fish, pelicans, and the figure of a young girl.

4. Discussion and conclusion

4.1. Discussion

According to Ferrer Orts (2017), during the second half of the 17th century, a "progressive theoretical assimilation formulated in the Renaissance" was

consolidated in Baroque architecture, resulting in a more homogeneous and standardized style. This period was characterized by the expansion of architectural elements, including barrel vaults, lunettes, and domes, accompanied by profuse

and meticulous decorative details. In the chapel of Santa Barbara, this stylistic development is evident in the sgraffito that ornament both the walls and the dome, integrating harmoniously with the architectural elements and reinforcing the sacred character of the space.

Likewise, according to Professor Giannotta (2023) and the group of researchers led by Mínguez et al. (2025), the Valencian Baroque decorative project features numerous religious symbols, mythological themes, floral motifs, and animals, among others. The chapel's sgraffitos stand out not only for their vegetal and geometric ornamentation but also for the incorporation of anthropomorphic motifs, such as warriors, hunters, and human figures fused with vegetal forms. These decorative elements reflect the baroque art of the time, which sought to convey a symbolic conception of unity between humanity and nature. The representation of human figures whose lower part is transformed into foliage or scrolls reinforces the idea of a divine order, where the human and the natural coexist as manifestations of divine creation.

In addition, the fruit baskets, pelicans, vine bouquets, and fish present in the chapel's decorative patterns not only serve an aesthetic function but also evoke Christian values associated with abundance, salvation, and spiritual communion. These motifs, integrated into the sgraffito in a dynamic and stylized manner, exemplify how the Baroque decoration of the Santa Barbara chapel served as a visual medium to convey the religious and cultural beliefs of the Counter-Reformation. In this context, the sgraffito technique reveals itself as an artistic language that not only embellishes architectural spaces but also reinforces the symbolic and spiritual narrative of the Valencian Baroque period.

4.2. Conclusion

The present contribution represents an initial advance, presenting partial results from a larger project that will be expanded upon as new findings are achieved and will be reported through subsequent publications. At the same time, the conclusions presented here will be further developed and expanded.

The originality of the present contribution corresponds to the singularity of the chosen case and the multidisciplinary participation, approaches, and techniques employed.

The analysis of the sgraffito of the Chapel of Santa Barbara has shown how baroque ornamentation became an effective means of transmitting the religious and cultural values of its time. The geometric, vegetal, and anthropomorphic patterns that decorate the walls and dome of the chapel are a testament to the symbolic and aesthetic richness that characterized Valencian Baroque art in religious spaces. These compositions, beyond their decorative function, are deeply linked to the beliefs of the Counter-Reformation, as they strengthen Christian ideals through an aesthetic rich in spiritual meanings.

Our study is the first to document, analyze, and catalog the baroque sgraffito in the Chapel of Santa Barbara, located in the church of San Juan del Hospital. This effort has enabled us to gain a deeper understanding of the symbolism and technique of sgraffito, highlighting its relevance in both historical and architectural contexts.

The participation of local artisans who mastered the sgraffito technique demonstrates how, from the second half of the 17th century, Baroque architectural decoration acquired a homogeneous and systematized character. However, it was still anchored in the Renaissance tradition. The ornamental elements present in the chapel, such as fruit baskets, pelicans, flowers, and anthropomorphic motifs, incorporate a visual language rich in Christian symbolism that reinforces the spiritual values of the time.

In conclusion, the sgraffito of the Chapel of Santa Barbara represents a perfect synthesis between art and faith, standing out as an emblematic expression of the power of baroque art to communicate religious ideas while embellishing architectural spaces. This technique, which was initially characterized by its simplicity, achieves in this work an expressive and symbolic dimension of great richness, consolidating itself as a historical and cultural legacy of incalculable value.

5. Recommendations

The following recommendations are the result of a review of the key issues identified, which reveal both opportunities and challenges for future research projects and conservation actions related to architectural heritage motifs or standards.

In the framework of studying patterns in Baroque architectural heritage, it is necessary to adopt more comprehensive approaches that allow us to understand not only the aesthetics but also the historical, technological, cultural, physical, and social contexts of these elements. Research on patterns in Baroque architectural heritage has revealed several interesting and fundamental approaches to understanding how sgraffito patterns are not only decorative elements but also symbolic representations of the culture, contemporary technology, history, and social values of communities over time.

Ferrer Orts (2017) highlights how it has become a significant element of Valencian architecture. Its unique style, the materials used, and the role it played in the decorative arts reveal the historical and artistic context in which it developed in Valencia, as well as how these factors contributed to its subsequent spread to other regions. In addition, Ferrer Orts (2017) demonstrates that the sgraffito technique, adapted during the Baroque period in Valencia, is still in use. Finally, ArchDaily (2022) examines the processes and methods of restoring historic buildings using modern materials.

In another order of procedures and techniques, García Moreno et al. (2024) propose creating a model of a heritage building protected in the twentieth century through HBIM models, which record, among other aspects, the decorative details arranged on the walls. On the other hand, Hou (2024) establishes that the application of carbon fiber composites can be used in the reinforcement engineering of buildings; simultaneously, the technology for restoring sgraffito allows the use of new materials. Furthermore, the results obtained are in line with the provisions of the ICOMOS

annual report (2021), which recommends the use of digital documentation, 3D modeling, and other technological innovations in cultural heritage conservation projects.

First, the main issues addressed in the research center on the analysis of the symbolic and social functions of the patterns. These elements are not merely decorative; they often convey cultural, religious, or ideological messages. For example, specific patterns may be related to spiritual beliefs or representations of power and status within a society. This approach offers a new perspective on architecture, viewing it not only as a functional space but also as a space of cultural communication, not only among the people of the historical moment in which it was created, but above all, as a space of intergenerational communication, encompassing past, present, and future.

Regarding the methodologies proposed, the research has highlighted the need to integrate traditional and modern approaches. Typically, the study of patterns has been based on historical and visual analysis, drawing on ancient sources and comparative studies. However, in recent years, the use of advanced technologies has opened up new possibilities. Tools such as 3D photogrammetry and digital models allow unprecedented accuracy in the documentation and analysis of architectural patterns. These methodologies provide a more accurate and accessible perspective on heritage. This not only facilitates its conservation but also enables a deeper analysis of complex details that were previously inaccessible, allowing not only its academic study but also its preservation for historical and tourist purposes.

Another essential aspect addressed in the research is the diversity of approaches to studying patterns, ranging from purely aesthetic approaches to approaches more focused on historical and cultural contexts. This multidisciplinary approach is fundamental, as it enables a holistic understanding of architectural patterns,

considering both their form and function within a specific social and cultural context.

However, problems and challenges also arise in the application of these approaches. One of the primary challenges lies in the difficulty of interpreting patterns without falling into subjective or overly general interpretations. Patterns can have multiple meanings depending on the context in which they are analyzed, which makes the interpretation process highly complex

and susceptible to variations in researchers' perspectives.

In conclusion, research on patterns in architectural heritage underscores the need for more interdisciplinary approaches and the use of advanced technologies to preserve and analyze these elements. Although there are challenges in interpreting patterns, the symbolic and cultural richness offered by these architectural elements justifies the effort to understand and preserve them for future generations.

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