





Architectural Graphic Expression of Heritage in the Academic Training of Architects. The Exhibition of the Drawings

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Abstract. The teaching and learning experiences carried out during the 2017/18 academic year, in all the subjects of the Architectural Graphic Expression area that are taught at the School of Architecture of the University of Granada, were shown in the exhibition entitled “Architect Training in Architectural Graphic Expression”, held between 27 November 2019 and 29 January 2020. The main objective of the exhibition was to bring the student of architecture closer to the complex meaning of heritage, through a complete graphic immersion in the context of the buildings studied. In the methodology followed, heritage is used as a teaching-learning model, selecting historical or contemporary architectural landmarks for field or laboratory practices that, thanks to the cross-curricular aspect of the subjects of the degree in Architecture, the student will know in all their dimensions: graphic, project, historical and constructive. The graphic results, duly exhibited, were a valuable tool for knowledge and dissemination both for students and teachers, as well as for other professionals who visited the exhibition.

Keywords: Architecture · Heritage · Graphic expression

1 Introduction

Architectural heritage has been used as a teaching-learning model in the subjects of the Architectural Graphic Expression (EGA) area of the University of Granada since the beginning of its School of Architecture, more than 25 years ago.

The results obtained during the first years of the School's life could be verified in the unpublished exhibitions carried out years ago, in which the most significant works of the disappeared subject Drawing were selected, which, years later, would be replaced by those included in the new curriculum as a result of the adaptation to the European Higher Education Area (EHEA), also called the Bologna Process.

In these works, drawing by hand was manifested as the main and only tool that, together with a continuity of teaching during an academic year, allowed students to acquire a soundness with which to face the rest of the graphic subjects of the degree.

The aim of these exhibitions was to bring the tangible and visible graphic content of these subjects closer to the students, as a reference for the work to be carried out.

This experience was not repeated until, promoted by a group of professors from the Architectural Graphic Expression area, the idea of recovering the exhibitions arose. On this occasion it had to consist of an exhibition that would bring together the works carried out under the new Bologna Process in the same exhibition space. This initiative materialized in 2019 with the design and assembly of an exhibition, the result of a careful selection of graphic material from the different subjects of the EGA area, developed during the 2017/18 academic year.

The novelty introduced in the 2017/18 academic year consisted of drawing a unified, as well as cross-curricular view, with the aim of showing the results obtained in an exhibition in which all the subjects of the EGA area would be present: Graphic Ideation and Introduction to the Architectural Project (IGA), Architectural Graphic Expression 1 (EGA 1), Architectural Graphic Expression 2 (EGA 2), Architectural Graphic Expression 3 (EGA 3), Analysis of Architectural Forms 1 (AFA 1), Analysis of Architectural Forms 2 (AFA 2), Infographics and Heritage (IPAT) and Architectural Survey (LA).

2 Background: Exhibition of Learning Drawings

The tour of other exhibitions in which the drawings produced by the teachers of Spanish architecture have been exhibited directs us to the XVII International Congress of Architectural Graphic Expression at the University of Alicante [1] or to the one organized at the University of Zaragoza to mark the fifth anniversary of its School of Architecture [2].

Within the University of Granada, the EGA area had had few participations, but of inestimable value due to the heritage references studied, in exhibitions in which the graphic testimony of our students was included. It is worth mentioning “The drawings of the Faculty of Medicine” in 2009 [3], in which the results of the subject Drawing were shown during the 2008/09 academic year, and the exhibition and multidisciplinary seminar “Alhambra School” of great national repercussion in the one that the EGA area collaborated with the selection of drawings of the students, which contributed to the architectural dissemination of the Andalusian monumental complex.

Recently, on the occasion of the celebration of the 25th anniversary of the School of Architecture, a commemorative exhibition was held in which, among others, a selection of graphic works from the first promotions was shown, within the “Drawings and Projects Workshop” [4].

However, an exhibition was lacking and the seminar that was held in parallel, which collectively and globally collects the graphic representations as a result of the learning of the students of the EGA area, titled “Training of the Architect in Architectural Graphic Expression” started in the 2017/18 with the idea of being able to repeat the experience yearly, at the beginning of the academic year (Fig. 1), allowing to elaborate, as a result of said exhibitions, a documentary and graphic record, becoming a valuable reference material for teachers and, as a reference for students.



Fig. 1. Photograph of the central area of the exhibition (Molinero J.G. 2019).

The selected graphic material was erected as a valuable document, constituting a graphic catalog of the important architectural heritage of this city.

With this exhibition, the students discovered the importance of the continuous exercise of drawing as a technique, as a form of thought and knowledge. The need for the learning process of basic graphic notions was shown, making them aware of the importance of the proper balance between the freedom of expressive resources (hand drawing, watercolor, notes, models, collage) and the rigor and accuracy provided by other graphic languages (exact drawing, perspective...). They were able to learn about the intense relationship that exists between architecture and the place, with its history, with technique and with the plastic arts and culture in general.

3 Objectives and Methodology

The main aim of the exhibition was not only to show the results of the teaching-learning process, but to serve as a powerful, as well as reflective, teaching tool for learning and the dissemination of architectural heritage, through careful observation and reading of all the elements that compose it, in an architectural key.

In order to bring the architecture students closer to the complex meaning of heritage, a series of secondary objectives were proposed:

- The practice of drawing as a form of thought, communication and approach to the world that surrounds us, especially the heritage, due to its historical, cultural, architectural, semantic and formal values.
- Learning and progressing skill with the most expressive graphic resources: free-hand, collage compositions, physical and virtual models.
- The use of exact and rigorous graphic language, representation systems and graphic coding, that is, a universal system of rules with symbology and meaning [5].
- The analysis of architectural forms, through drawing, and the interpretation of the results, through the application of compositional guidelines and laws.

The methodologies followed in each subject had to respond to the objectives set and have as a model a heritage reference, which would add value and meaning to the learning obtained, the results of which would be reflected in the graphic works and models made by the students.

The approach to heritage is carried out in a progressive way, attending, among others, to the different scales, the materiality, the use, the transformations, the place, etc. This approximation is produced using different graphic means. On the one hand, drawing by hand as a common denominator in graphic subjects, and on the other, digital media, as a complementary tool to the previous one, providing students with sufficient resources to deal with soundness in the work to be carried out.

4 Results and Discussion

4.1 The Graphic Experience and the Heritage

The architectural drawing is one of the three languages –the graphic– available to the architect to express his ideas [6]. In a first classification of architectural drawing, we can differentiate the freehand drawing and the exact drawing, based on an existing or projected reference. The previous route traced through the different subjects of the area reveals the coexistence of hand drawing and rendering or infographic in the learning of the graphic skills of students, the analog and digital world.

In-situ sketch consists in apprehending what we see through its graphic formalization, by a process of identifying what should be graphed, discarding the accessory or dispensable (Fig. 2). Drawing always implies an analysis, which allows us to understand what is represented, whether they are built or projected architectural references (Fig. 3). There is an intimate relationship between the hand (tactile organ), the eye (visual organ) and the brain, which orders the processes of interpretation of the information received by the senses [7].

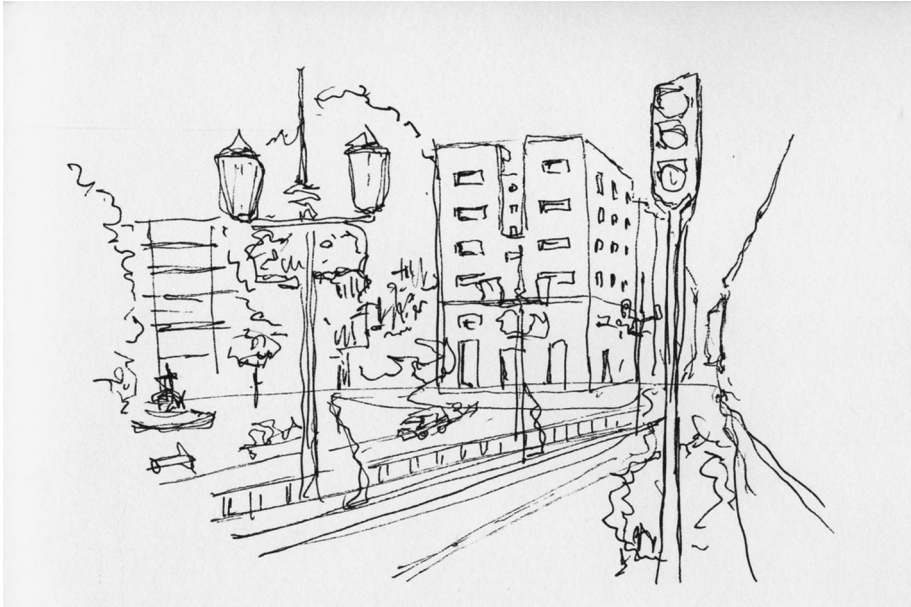


Fig. 2. Sketch of the Zaida building by Álvaro Siza, ink on paper (Student: Martín L.F. 2017).



Fig. 3. Aerial view of the surroundings of Puerta Real in Granada, colored pencil on paper (Student: Martín L.F. 2017).

The wide heritage catalog of Granada, among which the Alhambra territory stands out [8], with the buildings and spaces that make it up, is used by its proximity and accessibility on a recurring basis. Practices are also carried out in the vast architectural heritage of the University of Granada itself, which allows teachers to have accessible places of experimentation for teaching, learning and research in the field practices of the different graphic subjects. In addition, these works facilitate the student to enter into the knowledge of the patrimonial and architectural history of this city.

For the laboratory practices, architectural references of historical and contemporary heritage, of great national and international relevance, were also selected, such as the spherical dome of the Kresge auditorium by Eero Saarinen and the helical tower of the monument to the Third International by Vladimir Tatlin, in Architectural Graphic Expression 1 (EGA 1), or John Utzon's Bagsvaerd church (Fig. 4) and the No Gun Ri Peace Museum, in Architectural Graphic Expression 3 (EGA 3). The architectural historical heritage of which only archaeological remains are preserved, such as the Roman city of Volubilis, in northern Morocco, was even used as a model for the investigation and three-dimensional reconstruction of its domus, in the specialized subject Infographics and Heritage.



Fig. 4. Architectural analysis and infographics of Bagsvaerd church, John Utzon (Students: De Lacour J.Y Fernández J.M. 2018).

4.2 Exhibition of Drawings

The organization and assembly of the exhibition panels, the horizontal boards, on which the models and sketchbooks were placed, and the two video projectors, which showed suggestive images of the field practices, required a careful planning of the room. The exhibition space was organized around a large central nucleus, delimited by an ambulatory, in which drawings classified by subject or graphic resources were also exhibited (Fig. 5).

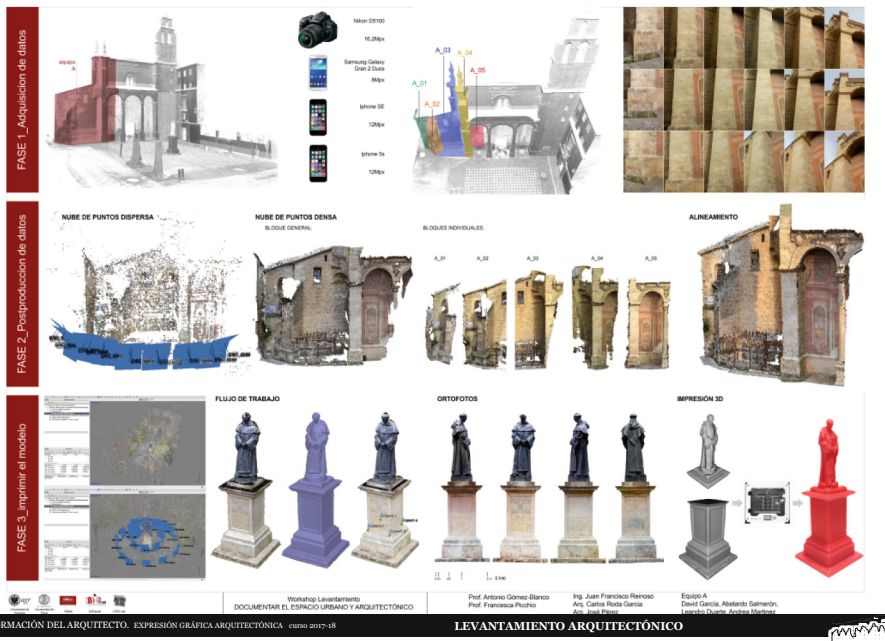


Fig. 5. Panel of the Architectural Survey subject: Plaza Santo Domingo and Fray Luis de Granada statue.

One of the most significant results of the exhibition are the discussion forums and collaborative learning, which were generated around the works exhibited. Students from the different courses of the degree, teachers from the area and other areas of knowledge and architecture professionals who came to visit the exhibition participated in them. These meeting points were strengthened by the seminar that took place alongside it, entitled “think with your hands”.

The compilation of the selected material, together with the teaching projects for each subject for the 2017/18 academic year (which included the following sections: introduction, considerations, objectives, lines of work, methodologies, results and conclusions), culminated in the publication of a book, which would be included in the collection of teaching activities of the Department of Architectural Graphic Expression

and Engineering, becoming a graphic memory of the subjects in the area, highly useful for students who access the subject for the first time, even for other teachers of architecture and related knowledge [9].

Among the selected material, the drawing books stood out, one of the pieces that attracted the most attention among the students. Its content, made up of free-hand drawings of a descriptive, analytical or synthetic nature, allowed, in addition to showing the versatility of this medium as a dynamic learning tool, to contrast the evolution of the student, being a tangible example of the results obtained as a result of continuity in work (Fig. 6).



Fig. 6. Sketch from Puerta Real, ink on paper (Student: Díaz A. 2017).

5 Conclusions

First of all, on completion of this project, we would like to highlight the need for all architecture schools to exhibit periodically in a dedicated space not only the results of the students' work, but also the entire teaching-learning process, including the teaching proposals and methodologies, registration of field work (photographic images, data collection, sketchbooks, drawings) and laboratory work.

In light of the results achieved, we value the importance of placing the different graphic ways of understanding and representing heritage, from the gaze of architecture, within the direct and easy reach of the students and the interested public. The works constitute a complete catalog of the different graphic techniques taught at the School of

Architecture of Granada, together with the tools used in each of them. We also include models as an essential resource to understand and analyze heritage references.

The exhibition experience provided a unique opportunity for interconnection between the different subjects of the area, full of thoughts and reflections that should guide the teaching-learning process of the students of the degree in Architecture, in Architectural Graphic Expression, with heritage being the main vehicular nexus.

Architectural heritage cannot be separated from the place to which it belongs, so its study must always be approached within the complex cultural landscape that makes it up, with its different architectural scales, and sometimes from disparate times, integrated into a specific place and environment (Fig. 7).



Fig. 7. Sketch of Lavadero Puerta del Sol, watercolor (Student: Blázquez A. 2018).

The exhibition allowed to verify that the approach to heritage can be carried out from different subjects that, even starting from different objectives and contents, have a common denominator, the analysis and knowledge of this heritage legacy from the graphic point of view, leaving, with this way of doing, an indelible record on students.

Drawing is the most immediate instrument for architecture students to get closer to the world around them. It allows them to “touch” the heritage on all its scales. It is the most natural way in which gaze and touch become one, there is a direct relationship between the hand that draws and the mind, where ideas are registered.

The graphic exhibitions held in the academic field, whose content is the result of the work carried out by architecture students, in the area of architectural graphic

expression, not only arouse great interest among the students, who see their work exhibited with pride or take reference from that of his colleagues, but also among the specialized public and other fields of university or professional knowledge such as Art History, Medicine, Mathematics, etc.

The graphic material, after being exposed, would become part of a publication, constituting a valuable didactic, consultation and research material, of a heritage, filtered under the neophyte gaze of the student still in the training and learning phase.

After all the accumulated experience, from the first meetings with the teachers of the area, the teaching given, the field practices with our students, the delivery, correction and selection of the works for the exhibition and the organization and assembly of the same, we highlight above all the need to repeat the exhibition experience in the future.

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