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RESEARCH ARTICLE

THE PRESENCE OF THE ARCHITECTURAL MODELING WORKSHOPS AS TRAINING IN ARCHITECTURE SCHOOLS IN SPAIN

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ABSTRACT

In Europe, institutions have tried to promote the creation of educational laboratories at different levels of instruction with the aim of teaching by manufacturing. Since the 1960s, architecture schools have attempted to theorize practice, this teaching strategy has proven inappropriate for developing the professional skills of architecture students. Fabrication classrooms are actually educational labs that function as architectural modelling workshops. The European organization for this has instituted the Future Classroom Ambassador, which has the duty to monitor and create at the different educational levels the "Future Classroom Lab", a kind of production and creation classroom to develop training through the practice. The authors of this article will try to find out by searching for information on the Internet what is the current situation of architecture schools in Spain. Exists? What is its composition and distribution?

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INTRODUCTION

Model workshops were born in their day to show building developers the architectural ensemble that was intended to be made. Hence the need to instruct architecture students to learn to simulate buildings in miniatures to correct different aspects of the building, to this is added the objective of better understanding the operation, distribution and environmental impact. Today as before, on the one hand, it is considered a student stage that aims to show that everything that is drawn is built while in the world of work, models are responsible for limiting the use of graphic language as the only source of dialogue between the developer, the architect and the builder.

The objective is to pretend that whoever transforms the space is capable of understanding the building in all its facets to optimize resources and rectify, as far as possible, the aspects that most influence the sale. In Architecture schools it is a valid and versatile didactic strategy to the point that it is also used as an exercise for the development of creativity through compositional elements.

MATERIALS AND METHODS

We believe that the internet, through web research, is a suitable tool to understand if the Spanish structures that educate in architecture are equipped in the field of digital fabrication laboratory. With the help of research, we will search the Internet for all possible information to understand how architecture education and training uses digital fabrication labs and what these labs should have to support architecture education. Construction associations were already used in Roman times to train construction workers. We will try to find out how they should be and which one's suit teaching best.

RESULTS

Internet search: As mentioned above, modelling workshops for architecture schools are a fundamental space for the development of the skills of architects both in Europe and in Spain. The efforts at the European level that are being manifested in this regard are clear. For this reason, it has been proposed to investigate the material dumped in the network of Spanish architecture schools.

For the reasons described above, we have decided to limit our research to the active laboratories of architecture schools in Spain. The material on the web of public institutions does not provide us with exhaustive information in this regard, unfortunately the web pages of architecture schools, in general, only seek to clarify the rules of use and the tools available. The content downloaded from these web pages does not make us understand how the workshops work and if they have a didactic connotation since our interest is to know how architectural modelling is discussed and transformed in these modelling workshops.

There are few experiences in this regard, which are greatly reduced by the lack of material dumped online, although there are many architecture schools in Spain. However, it seems that although there are a considerable number of architecture schools in Spain, few have a space for the realization of objects related to architecture, although some advertise training courses without specifying how and where they are carried out. It would be very interesting to know the space where these activities take place. The following table summarizes the schools that have their own space for the development of their manufacturing-related activities.

SCHOOL	URL
ETSAM	https://tallerdemaquetas.wordpress.com/
UHA	https://arquitectura.uah.es/servicios/taller-maquetas.asp
ETSAB	https://etsab.upc.edu/es/servicios/laboratorio-de-maquetas
ETSA	http://www.maquetasarq.webs.upv.es/
ETSA URV	https://www.etsa.urv.cat/es/servicios/maquetear/
LA SALLE	https://www.salleurl.edu/es/taller-de-maquetas-y-representacion

From now on we are going to summarize in tables the basic content of the Web pages of the different schools that have assigned a space for the Model Workshop.

WEB CONTENT	ETSAM	UHA	ETSAB	ETSA	ETSA URV
Equipment TM	SI	SI	SI	SI	NO
Planimetry TM	NO	NO	NO	NO	NO
Teaching space	NO	NO	NO	NO	NO
Gallery Images	SI	NO	NO	NO	NO
Rules of Use	SI	SI	SI	SI	NO
Other services 1	NO	NO	SI	SI	NO
Other services 2	NO	NO	NO	NO	NO
Other services 3	NO	NO	MO	NO	NO

From the information collected in this table, carried out after an analysis of the internet content of the web pages of the Spanish architecture schools that have an Architectural Modeling Workshop, it is easy to deduce that no workshop is focused on teaching, since they appear in the web as spaces where it is manufactured autonomously complying with school regulations and where the student has at his disposal certain material or machinery to manufacture the models requested by the teachers in the career courses.

It is nothing new that the experimental workshops are conceived as group projects supervised by the teachers involved. The objective is to work together in solving problems avoiding the resolution scheme, Teacher (problem statement) - Student (autonomous solution) - Teacher (resolution evaluation) by Teacher's scheme (problem statement) - Elaboration of a solution group - Division of tasks for production - Discussion and critical reasoning of the solution.

DISCUSION

Of course, based on the information on the web, the model workshops linked to architecture schools are conceived as production workshops or a functional assembly on a smaller scale. The concept that architectural models must represent a project idea is still a current opinion that limits the use of workshops as a teaching center to transform them into a highly technological classroom. The learning typology of the architectural modeling workshops would lend itself perfectly to the development of solutions as a complement to the theoretical courses of the first courses of the degree, while the students who are finishing their degree and who have learned to operate with the machinery of The workshops have the possibility of practicing all the theoretical material studied throughout the degree to translate it into their final study works. The most advanced architecture schools have a space for digital manufacturing or production and use it to offer courses such as experimental workshops such as the ETSAM in Madrid. These courses are divided into modules and are usually validated as electives, almost everything is related to digitization and architectural modeling manufacturing workshops are offered, among others. The ETSAM offers the modules of Models and Image, Carpentry Assembly Workshops and Experimental Construction Workshop.

CONCLUSION

Well, the intention of the architecture schools is to improve the technology linked to architectural production that is still in the development phase, although the efforts made by the institutions invest enormous capital to link teaching to the prototype that will generate the discussion as part of the training strategy. Another problem is that the educational system that is made up of trained teachers and strongly linked to the theorization of architecture.

- The architecture schools do not consider the workshops as a technological classroom but as a production area.
- There is no typical layout or space that accompanies workshops on the web pages of schools that have architectural modeling laboratories.
- Today's architecture teaching system is based on the simulation of reality through CAD manufacturing and architectural product rendering.

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