TEACHING OF ARCHITECTURAL REHABILITATION IN A GLOBAL SENSE: PHYSICAL REHABILITATION AND SOCIAL AND URBAN REGENERATION

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Abstract

The analysis of the social reality and the problems related to housing has become a necessary objective on the part of public administrations in recent years. Recent R&D contracts between the administrations and the university have shown the need to train professionals in crosscutting knowledge and provide them with special sensitivity to issues of social content (diversity, gender, etc.). In the case of teaching in Architecture in Barcelona, a new subject has emerged entitled "Housing and Sustainability: Physical Rehabilitation and Social and Urban Regeneration" in the framework of the public master's degree program that entitles to pursue the profession of Architect (MArq-ETSAB). This subject focuses on the provision of transversal knowledge that responds to a complex reality that covers both purely technological issues as well as social and management aspects. The present paper presents the innovative teaching methodology applied in this subject, which involves teachers from different areas, contact with the administrations and competence and skill training on fieldwork. In addition, the results obtained by the students are analysed.

Keywords: Transversal skills, crosscutting knowledge, architecture teaching.

1 INTRODUCTION

In recent years there has been a new need for professionals with knowledge and cross-cutting skills that can respond to the analysis and design of interventions in the built stock with a broader focus than the purely constructive. A new professional architect profile \[1\] \[2\] is needed. These professionals must be trained in the analysis of complex social realities and have special sensitivity to this type of issues. These needs become evident in assignments by public administrations for the design of rehabilitation policies. Therefore, it becomes necessary to update the contents of the present teaching programs in order to give answer to this need \[3\].

In the new design of the master MArqEtsaB \[4\], the public master's degree program that entitles to pursue the profession of Architect, the course “Housing and Sustainability: Physical Rehabilitation and Social and Urban Regeneration” has started to meet this need. MArqEtsaB is the one yearlong Architecture Master's degree that complements the degree formation and that is essential to practice the profession. This Master's degree is designed to complete the high-quality subjects done during the Architecture degree with the own and enough ripeness valid to exercise the profession, that demands a high level of integrity and innovation abilities, emphasizing in the project elaboration, the technology and the urban design \[5\]. It's focused on the interdisciplinarity of the different subjects, reinforcing its transversal knowledge. Most of the subjects have a format with workshop groups, where cooperative activities are key to the development of a suitable critical reasoning for each subject. Aspects such as territorial ties, sustainability or social impact, amongst others, are issues that are necessary to promote and influence the role of the architect in our society, in the search for a more human environment and for the environment, a better quality of life.

The subject is set up with a transversal approach, bringing together expert professors in topics focused on Rehabilitation of buildings and professors who are experts in management areas with a wide knowledge of Housing and Sociology. This paper presents the methodology designed for this subject and the main issues that have been emerging throughout four years of experience.

2 OBJECTIVES

Since the main contribution of this paper is the contribution of a transversal methodology for the teaching of urban regeneration and physical and social rehabilitation, the objectives presented here
are those that should be achieved by the students. Therefore, the objectives that should be achieved during the course are the following:

- To provide tools to characterize the current state of buildings and urban areas in order to diagnose them towards their improvement, regeneration and rehabilitation.
- To acquire competences in the subject related to processes of urban regeneration at the international level, with the application of new methodologies for the approximation and evaluation of the physical and social reality of neighbourhoods with social weaknesses.
- To acquire skills in addressing residential studies that deal transversely and in depth the multiple scales of its architectural, social, and urban conformation.

3 METHODOLOGY

This section provides the methodology followed in the course which stands out for its transversal nature. In the structure of the course, fieldwork on real cases takes special importance through the study of a concrete urban area of the city. Lectures alternate with workshop sessions where the students apply the acquired knowledge approaching the case study from different approaches.

3.1 Course planning

As it has been said previously, the course alternates classes with workshop sessions, the professors in charge of the subject come from different disciplines, which contributes to the transversal character of the subject. In its development, agents of the city council of Barcelona participate transmitting their experiences as well as providing accompaniment in the field work and required data.

The participants in the course are usually around 20 students, which is a usual number of students who take the MArqEtsaB Master’s degree. All of them have a degree in Architecture so they are familiar with construction and rehabilitation techniques and with urban planning concepts. However, it is necessary to provide them with knowledge about concepts of urban regeneration and urban renewal. In order to do
so, there is a first stage of the course planning which is focussed in the study of such concepts (see Fig. 1). The students work on a given bibliography [6] [7] and, after group presentations, a debate is held.

Afterwards, the field work begins, on which the students will have to carry out a characterization at the socio-urban, socio-residential level and an evaluation of the state of conservation of the buildings and then design proposals for improvement at different scales. At this point it is very important the participation of agents of the council who bring the real experience in similar cases to the classroom. During the four years that the subject has been carried out, each year a different study area has been chosen, always in coordination with the town hall (see section 3.2). In this phase, and also with the accompaniment of the agents of the town hall, a visit is made to the study area (see Fig. 1).

At this point it is important to say that the subject arises as a result of the collaboration between the multidisciplinary team that leads the subject with the City Council of Barcelona from the collaboration in several R&D projects. These investigations focus, on the one hand, on the elaboration of a conceptualisation and cartography of the socioresidential vulnerability with the detection of the most vulnerable areas of the city [8] and, on the other hand, on the pre-diagnosis of the state of the residential building stock in those areas [9].

After a first approach to the study area, the next block of the course is structured by alternating lectures on physical and socioresidential rehabilitation and urban regeneration with workshop sessions (see section 3.3 and Fig. 1). The class is divided into three groups, each one of these groups is going to focus in: social characterization, urban characterization and building assessment. The students work in parallel in the same area but with a different approach exchanging their findings and conclusions. They are asked to elaborate a final document that synthesises their analysis of the field area with their specific approach and provides guidelines for the improvement of the selected area. The final document aims to have the structure of a professional report with an approach similar to that which could have an assignment of similar characteristics from the public sector.

### 3.2 Study field area

Before the start of the course the study area is agreed with the city council. During the four years that the course has taken place, each year a specific study area has been selected that responds to strategic areas of improvement in the city where complex situations of vulnerability, real estate pressure, turistification, etc. are usually concentrated.

The areas studied in these years have been the following (see Fig.2):

- La Bordeta
- El sud del Barri Gòtic (South Gothic Neighbourhood)
- El Poble Sec
- La Barceloneta

![Figure 2: Location of the studied field areas within the city of Barcelona](image)
3.3 Workshop learning

As said before the workshop sessions alternate with lectures of different nature that give a transversal approach to Rehabilitation teaching, the issues are:

- Methodologies of approximation and evaluation of the physical-social reality of the neighbourhoods.
- Studies of residential spaces from multiple scales.
- Urban regeneration and social cohesion. Case review and action tools.
- Vulnerability studies
- Pre-diagnosis of the state of the building stock in vulnerable neighbourhoods
- Qualitative study approach: residential satisfaction.
- Constructive characterization and assessment of buildings in historic centres. Existing damage and rehabilitation possibilities.
- Recognition of habitability deficiencies
- Functional rehabilitation of historic centres. Improvement of habitability and energy efficiency conditions.

During the workshop sessions three groups are made and they work in parallel on the same area but from different approaches (see Fig.1), which are:

- social characterization
- urban characterization
- building assessment

The starting point data is provided by the city council as well as the contact with local entities. The group that focuses on the social characterization of the neighbourhood has access to databases that come from the census and from other municipal databases. The group that focuses on the urban characterization of the neighbourhood has access to the bases of computerized cartography (SIG). And, finally, the group that focuses on the building assessment has also access to the cartography and needs to complement it with data extracted from the various archives in Barcelona. All this information is complemented by the students by the data gathered from multiple field visits.

During the workshop sessions the students are asked to share information in their different approaches in order to obtain a vision from different points of view that offers a vision of the complex reality.

Three final documents, on each point of view, are developed. They have to be structured as a professional report likewise an assignment of similar characteristics from the public sector. To finish the course public presentations are made with city council attendants.

4 RESULTS

This section synthesizes the type of results obtained from the workshop sessions in the 4 years of the subject. As stated above, there are three types of approaches in the analysis of selected areas: social, urban and building assessment.

From the point of view of social or socioresidential analysis, the approach methodology to the area to be studied has had a very important start point in the available databases. These data have been complemented with data from field interview campaigns. Each year, students have designed an interview model focused on the social reality of the neighbourhood. Based on these data, students have been able to characterize each study area, obtaining social and demographic profiles of the population. Deepening, thus, in the knowledge of the social reality of the studied area. Figure 3 gives a glance at the type of results obtained in the socioresidential study of the Poble Sec neighbourhood with the demographic evolution of the neighbourhood in comparison to the city’s of Barcelona and the different profiles attending to a series of different factors of the neighbourhood occupants.
From the point of view of urban analysis, the observation of the reality of public space has been relevant. For this, students have had to conduct observation campaigns of the main events and uses that occur in the public space. The analysis has also taken into account factors such as mobility, connectivity with the rest of the city, the dimensions and proportions of the public space as well as the uses of the ground floors in buildings (see Fig. 4).
From the point of view of building assessment, each edition of the course it has been selected a specific area within the study area to deepen the knowledge its buildings in order to assess them from their state of preservation, safety and habitability conditions. The students have designed inspection sheets in which they have noted the main characteristics and deficiencies of the buildings. A starting point has been the building inspection protocol (ITE) existing in Spain [10][11]. The evaluation of the buildings has taken into account an external inspection and, in cases that have been possible, an interior inspection including the common areas of the building and some dwellings. The possibility of entering the dwellings has allowed an evaluation of their living conditions and a better knowledge of their users (see Fig.5).

After the analysis of the selected area with the three types of different approaches (social, urban and building assessment), the students were asked to give solutions to the detected shortcomings and present both the analysis and the improvement proposals to the City Council agents. In each edition of the course both the analysis and the proposals for improvement have been different, taking into account the unique characteristics of each neighbourhood.

5 CONCLUSIONS

It is noted that a transversal approach to teaching responds in a more realistic way to the type of work that an architect can perform once they have completed their studies. Then, subjects such as the one presented here where reality is approached from a plural and broad point of view with the participation not only of the university but of other agents are very well received by the students given their realism and applicability.

It is important to take into account the starting knowledge of students who take the course, they come from the degree in architecture. In their previous training, they have acquired knowledge about urban planning and building, but it is clear that they lack knowledge in analytical methodologies and practice in the organization of information and preparation of reports. It is precisely in these fields, among others, that the subject intends to complement their training.

During the four years, the work done by the students has had different depth in the analysis. It is noted that apart from the dedication of students, a factor that has changed the quality of the work has been the possibility of access to information. This has happened especially in the case of the groups that have focused their work towards building assessment and social characterization. In these cases, it has not always been possible for them to enter the homes of neighborhood residents and obtain all the desired information from neighbors; it has depended on their collaboration.
The collaboration with the City Council of Barcelona has proven to be a very positive experience. On one hand, city council agents have provided data and support in the realization of the workshop and, on the other hand and above all, it has allowed the consolidation of a very fruitful collaboration among the two parts and a knowledge interchange for the improvement of the city and the living conditions of its inhabitants.

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REFERENCES


