HOW TO USE BRAINSTORMING, MIND MAPPING AND STORY CREATION AS FLIP TEACHING PRACTICES IN THE SUBJECT OF ARCHITECTURAL RESTORATION

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Abstract

Technological advances mean that writing by hand is becoming less and less frequent, also at universities. However, handwritten items such as short sentences and keywords continue to play a major role in clarifying and transmitting basic ideas. The use of sticky notes is an excellent way to shape the relationships between ideas, using panels and posters with hubs and branches extending from the central topic to other ideas.

In fact, the practice explained below, based on the combined use of paper and three different didactic resources (brainstorming, mind mapping and story creation) aims to encourage critical analysis among postgraduate students, especially in the subject of Theory and History of Conservation within the Master's in Conservation of Architectural Heritage at the Higher Technical School of Architecture of the Polytechnic University of Valencia.

This has been made possible through collaborative classroom work examining the theories of the different masters in the discipline, spanning over a century, with various contributions from different sources. This practice, which truly refines intertwined concepts, is based on theoretical texts on selected points of reference carried out outside the classroom. Groups are later formed in class to discuss these, extracting, summarizing, putting into order and connecting the main theories of the different authors.

Keywords: groupwork, theory-practice relationship, flip teaching, postgraduate.

1 THE FRAMEWORK OF THE DIDACTIC EXPERIENCE

Flip teaching (FT) is an educational methodology which requires 'a supposedly traditional class to be flipped'. Teachers usually provide students with an initial approximation to the subject content in the classroom. Following this, students – either individually or in groups - further explore this content through projects and different tasks [1-2]. The application of the FT method inverts this process. This specific experience was carried out at the School of Architecture of the Polytechnic University of Valencia, within the framework of Theory and History of Conservation (an obligatory subject within the Master's in Conservation of Architectural Heritage).

It was made possible thanks to the theoretical nature of the subject and the level of maturity of the students. In this subject, students work on skills based on the critical development of cultural aspects linked to the theory of architectural restoration, covering different individual aspects. The main aim of this subject is the analysis and critical examination of the current restoration of architectural heritage, allowing students to adopt suitable criteria with which to approach their future professional and/or research activity in the field of architectural restoration [8] as the method used delves deeper into the analysis of the recent history of renovation, through theories and many different cases of contemporary restoration. The restoration theories of the 19th century and the first two thirds of the 20th century are used as starting points for an in-depth analysis of the current situation in Spain and Europe. The flipped class methodology, which encourages debate and confrontation, is essential in securing these skills.

2 DIFFERENT DIDACTIC RESOURCES AND A COMMON OBJECTIVE: TO SIMPLIFY AND CLARIFY COMPLEX IDEAS

As mentioned above, the advances in technology have made it apparent that within universities writing by hand is becoming less frequent, despite the power for connection of handwritten paper resources such as short sentences and key words. In this regard, the use of sticky notes is an excellent way to shape the relationships between ideas, using panels and posters with hubs and branches extending from the central topic to other ideas.

The practice based on the joint use of the medium of paper – and explained below ¬ enables reflection on the different expert theorists in the field, spanning over a century, with different contributions in terms of content and origin. This practice is a real challenge in polishing complex concepts[10] and is based on contact outside the classroom with texts by select figures of reference in modern debate (including E. Viollet le Duc, J. Ruskin, W. Morris, A. Riegl, C. Boito, G. Giovannoni, L. Torres Balbas, V. Lampérez…) and in contemporary debate (A. Bellini, P. Marconi, P. Torsello, I. Solà Morales , A. Jiménez, M. Dezzi Bardeschi…). Finally, following individual reading and analysis, groups are formed in class to reflect, extract, summarize, put into order and interconnect the theoretical ABC of the different authors [9]. This activity is carried out at the start of the subject, in the first few days of class, and serves as practice in 'levelling' for the students in the subject, who are from different countries and academic locations where the contents of theory of restoration are taught differently.

Figure 1. Brainstorming: identification of key concepts in the texts analysed (authors)

2.1 Brainstorming

In the classroom, students in small groups of 5 or 6 are in charge of freely and informally extracting all the ideas from a theoretical text – read individually beforehand - by a key author in theory of Architectural Restoration. In this exercise the paper medium of sticky notes is used to write down 3 or 4 concepts relating to the content of the text. In this case this restriction is necessary to ensure time and length of content are controlled [5].

Following these guidelines in the groupwork 45 minutes is long enough to summarize twenty key concepts relating to a given author, focusing on the line of thinking and the context within which they act (Fig.1). This process makes it easier to overcome any obstacles the group might encounter with very dense and convoluted theoretical content [4] especially problematic in the case of late 19th-century theorists in the field. In addition, this process allows different options to be established in terms of the priority of content of the authors, occasional inconsistencies and marginal concepts in the texts stated. Once the time is up, each member presents individual key concepts, also making it possible to ascertain whether any of these are repeated with other group members. In this case, the

teacher is a facilitator, introducing a 'seed' question which helps to untangle complex concepts as well as to re-energise the team with a given concept which has not been clearly identified.
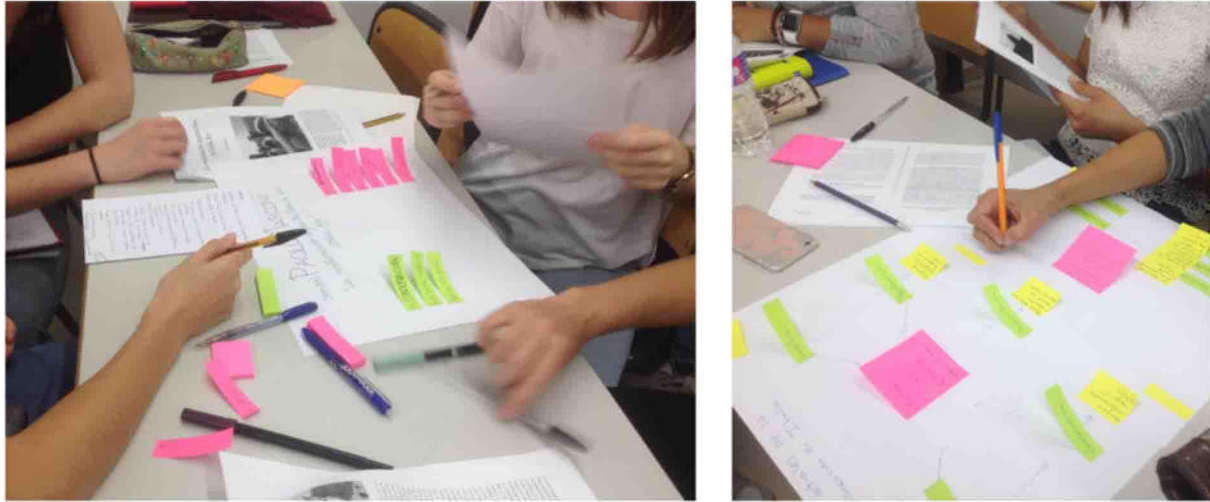

Figure 2. Mind map: summary and organization of key concepts (authors)

2.2 Mind mapping

Once the key points and major concepts for each author and text are identified they are organized using mind maps. Using a blank poster and sticky notes, one or more guiding threads are identified for the mind map. The aim is not to overload the poster, but to structure the concepts identified on the sticky notes over a 30-minute period. Grouping these finds makes it possible to explore emerging themes and patterns and effort is required to also identify concepts or parts to be emphasized.

Most mind maps use boxes or circles (also known as hubs) to establish a hierarchical structure connected using lines or arrows (also known as branches) to represent the ideas [6].

The main aim of this resource is to present a simplified global vision of heterogeneous concepts, also including occasional ideas or problematic items (Fig.2). The use of graphical connectors means that the sticky notes help in the understanding of links which can be easily seen. In this case the role of the teacher is to guide the groups so that posters are completed in an orderly - but not necessarily rigid or square – manner as the ideas of theory of architectural restoration are not always linear and sequential.

2.3 Story' creation

One of the most important elements in education is communication. Specifically, 'stories' are elements which can help guarantee this, as they are capable of generating multiple interactions between students and teacher [7]. This is why it is important for individual students to each take 10 minutes to explain the content of the finished poster to their classmates, identifying and highlighting the key points of the mind map (Fig.3). In turn, this allows debate to be generated between teams, aided by the teacher's role as facilitator, while helping to highlight and support key concepts and encourage debate and comparison of the different posters as a moderator.

Over a 20-minute period this process allows all the concepts to be examined, observing their frequency, features and differences over the centuries and in different authors (Fig.4). In addition, ideas can be lined up according to category/common groups, and despite ideological, cultural or temporal differences of theorists, numerous ideas are repeated throughout the theory of architectural restoration.

3 CONCLUSIONS

Thanks to these three sequential actions (brainstorming, mind mapping and story creation) students become active subjects in the classroom. The approach by task focuses on the work process, which is particularly interesting in a model like FC. By advocating that the classroom – and not the home – is the place for students to carry out their work [3], teachers can observe the progressive work process

of the students, while encouraging collaboration with other classmates in these tasks, with different roles (moderator teacher, facilitator, provocateur …) which encourage critical thinking in students. Therefore, the use of brainstorming, mind maps and story creation allows a critically profound learning of the theory of architectural conservation to be improved, using flexible, graphical means that make it easier to understand.
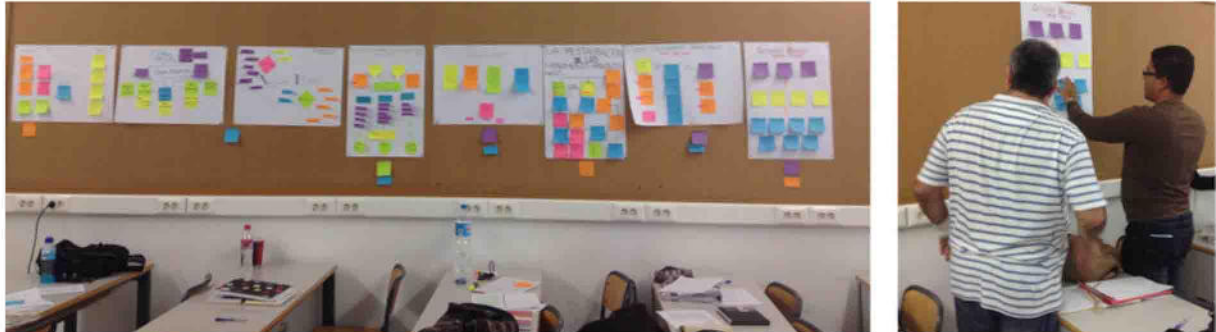

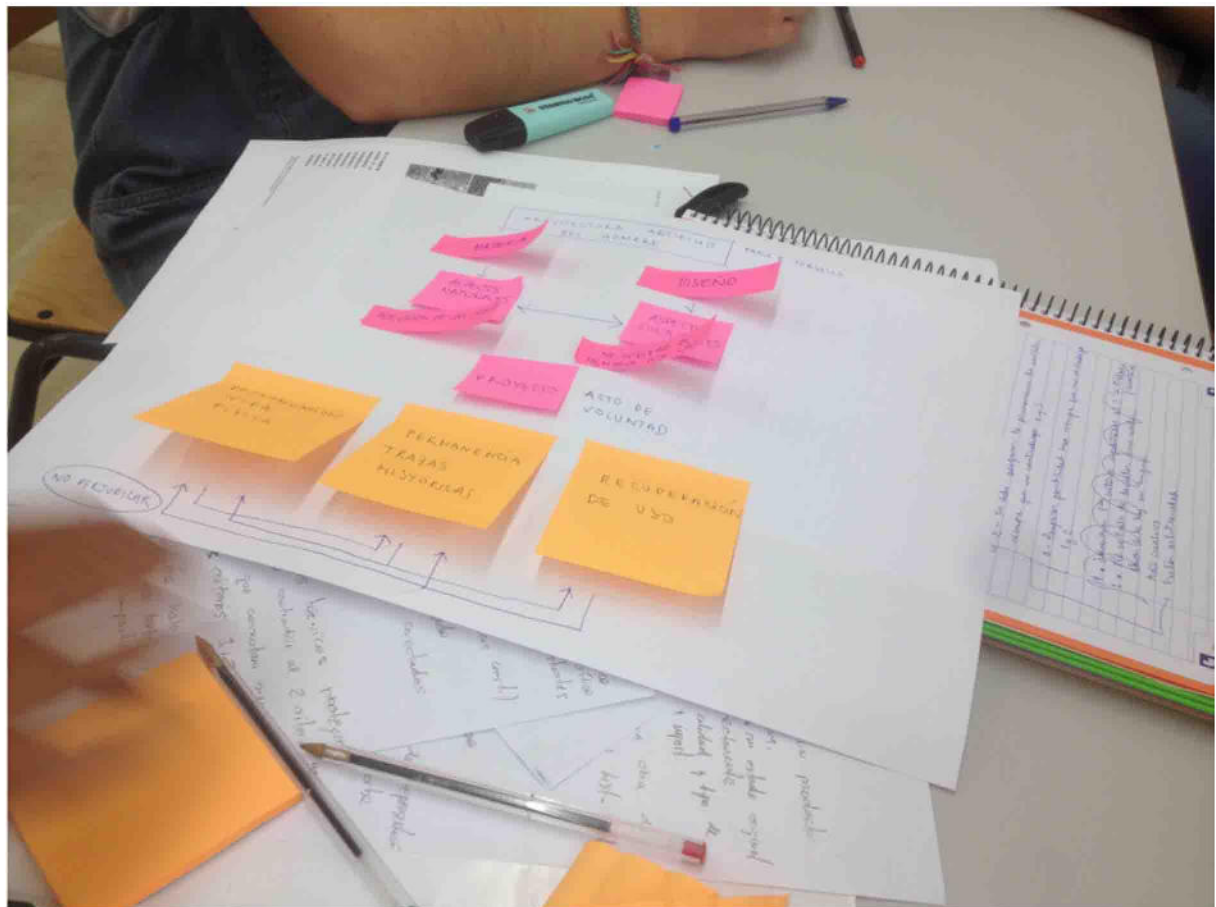Figure 3. Public exhibition to indicate the key points of the mind map (authors)

Figure 4. Final synthesis of concepts and identification of frequency, features and differences over the centuries and different theorists (authors)

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