

MAP-MAACC, DPEA, ENSAPLV

# Modeling of collective architectural conception

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Cooperation, coordination and collaboration via  
basic online tools

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## Summary

In my research, I am interested in different forms of collective work: collective actions, community initiatives, participative architecture, collaborative design, etc. In a general way, my objective is to understand, from a cognitive science point of view, how a group of people builds an architectural object.

Starting from the architecturological language (Boudon, 2004) as a base for the thesis, the question is: How do basic online tools assist architecture groups in the collective architectural conception process? The question is located at the intersection of different research fields: architectural research, CSCW (Computer Supported Cooperative Work) and cognitive ergonomics.

This question groups different scientific challenges. Firstly, it proposes to study what Thomas Kvan calls "rare collaborative moments" (Kvan, 2000). According to the author, the collaboration situations (where the exchange of information and ideas is done in a collective way) are produced with difficulty. Therefore, this research proposes to: study how this moments are produced, describe the collective work moments.

Secondly, Achten and Beetz talk about the need for research oriented towards the use of collaboration technologies (Achten & Beetz, 2009). They underline that most of the research produced in the field of CSCW are oriented towards the technical aspects and not the use aspects. According to the authors, too few of the papers study the "reality check" of these technologies, which is to verify how the technologies apply to the work process. What is more, the researchers observe that at present there is no commonly accepted definition of the term "collaborative design". If the various researchers define collaboration as a generally "desired" item, none of the papers define the obstacles or difficulties in obtaining collaboration. In consequence, this thesis proposes to study the use of online tools. This is because for the most part the technologies are already developed and used in real situations of collective work.

The paper on online activism by Earl and al. shows that the Internet opens the possibility for new social behaviour (Earl, Kimport, Prieto, Rush, & Reynoso, 2010). According to the authors, these findings are yet to be analysed by researchers. They explain that in order to analyse these behaviours new tools and research methods have to be invented in order to collect and interpret the data. In consequence, this thesis proposes to study the relationship between online tools and collective work.

My objective with the future thesis is to build a modeling of the collective architectural conception process. By this I understand a complexity that unites three entities: actors, tools and the architectural object. I have chosen to build this modeling within the language of architecturology because it offers specific knowledge of the architectural process, from a cognitive point of view. The knowledge and methods of architecturology would allow me to question the influence of technologies and collective work on the architectural object. Therefore, I could eventually measure the impact of these elements on the architectural practice.

This dissertation represents a first step of the thesis, an exploratory research phase. It consists in describing the subject of the thesis: definition of the research question, positioning the research within the existing fields, exploration of the research body, exploration of the research methods.

The content of the dissertation is divided into three parts: the state of the art, the exploration of the research body and a preliminary conclusion. First of all, through the state of the art I proposed to describe the notion of collective architectural conception in relation to existing knowledge. This part of the dissertation is further divided into two parts, associated to the notions of architectural conception and collective conception. By combining the two, I hope to build a starting point for a thesis that will give me the operating concepts and the analysis grid for the following empirical studies.

The research body exploration is a survey of the universe of architectural practice in order to identify the most pertinent situations to be analyzed in future stages of the thesis. Presented as a work in progress

within the dissertation, this exploration serves to identify recurrences according to selection criteria. The criteria are: the diversity of online tools used in the process, the frequency of collective conception situations, the diversity of actors involved, the size of the work team and the frequency of virtual collective conception situations.

The conclusion of the dissertation has the following objectives: synthesize the work done within dissertation and prescribe the future steps for the thesis. A particular attention is given to the different research paths open by this preliminary research.

#### Possible applications of the future thesis in architecture

The knowledge produced with the modeling of the collective architectural conception process assisted by online tools has the objective to make progress within the language of architecturology. What is more, it could bring complementary knowledge to the adjacent research fields: architectural research, CSCW and cognitive ergonomics.

In the same time, the knowledge could serve within various participative architectural projects or collaborative design moments. By understanding how collective work behaves in architecture, the modeling could be used to develop tools and methods that are adapted to the needs of each particular collective work situation, be it in co-presence or at a distance.

The modeling could be used as well for the development of future tools for the collective work. It could serve as an evaluation grid and/or as a resource on the use of tools in the project fabrication process.

Last but not least, the knowledge on the collective architectural conception could be used as a teaching instrument in the architectural formation. The tools that have been studied and the work situations that have been analyzed could serve as examples and as starting points for experiments within architectural workshops.

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