

## Exploring design in cyberspace: a teaching experience

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*Abstract. The use and evolution of information and communication technologies (TIC) are changing human's cultural, social, and material content. It regards not only the complexity of technology, but also the re-discussion of concepts concerning to several domains of knowledge, among them, architecture (theory, practice and teaching). The particular focus of this paper is to present an undergraduate teaching experience in a French School of Architecture (École d'Architecture de Toulouse). The course called FINC ("Forme, Information, Novation, Conception"), deals with new designers' attitudes exploring cyberspace. By concentrating on a critical approach of the "reciprocal contamination" between physical and virtual architecture, the aim of this course is to bring architectural students to face a new design experience: to explore the new cognitive and communicative environments of cyberspace, designing in a different conceptual and experimental environment.*

*Keywords. Architecture; cyberspace; design; teaching.*

### Introduction

Any discussion about a discipline - including a prospective approach - demands a greater understanding of its sharing concepts (vocabulary), processes and rules (grammar). These concepts and processes are not static, and their mutations are fundamentals to "re-build" the corpus of knowledge that will be transmitted to new generations. The use and evolution of information and communication technologies (ICT) is widening not only the process of communicating architecture but also it is changing the concepts of space and time, challenging what we design and also how we design. (Marques ; Goulette, 2001). These technologies became infrastructures in a world that has acquired a digital or virtual layer that are

affecting non only the professional practices of designers, but also, and more generally, the way we apprehend and represent space. Architecture (theory, teaching and practice) in order to adjust itself to this increasingly volatile world, is recasting its boundaries and its essential codes.

This paper focuses on the application of these ideas into the structure and methodology of an undergraduate course, taught by the authors, at School of Architecture of Toulouse (EAT), France. The course called "Forme, Information, Novation, Conception" (FINC), aims to familiarise students with cyberspace (here understood as a spatial metaphor for the globally-interconnected set of computer networks known as Internet) and the conceptual framework related to it. Students are invited to investigate new designers' attitudes in

cyberspace and to explore cyberspace as a new design environment. It is by no means suggested here, that this course is an exhaustive example of teaching this subject. On the contrary, it is seen as a work in progress, adapting its learning content, methodology and assessment criteria to the educational context it is integrated within.

## Context

It is well known that architects for a long time now, use different media in the process of designing and communicating spatial concepts. This process refers to a kind of mental activity for distributing knowledge that needs to be rationalized into forms and presented through adequate media. Traditionally, different architectural media (drawings, prints, models, photography, computer graphics) have been regarded by most of architects as automatic transcriptions of the architectural artifact (built work). This "static relationship" between media and architecture has its roots in the problematic genealogy of architectural representation (particularly in the plurality and complexity of perspectives theories and practices during the renaissance), which brought to the architectural realm new possibilities of representing and analyzing the visible.

At present, the use of generative and creative potential of information and communication technologies (ICT) has opened up new emergent dimensions in architecture. As seen by Zellner (1999) "instead of trying to validate conventional architecture thinking in a different realm, our strategy today should be to infiltrate architecture with other media and disciplines to produce a new crossbreed". The general context within the course "Forme, Information, Novation, Conception" (FINC) has been developed is based on this kind of strategy. Its central theme results from one of the research fields developed by the laboratory Li2a (Computer Science applied to

Architecture Laboratory) of the School of Architecture of Toulouse: "Space and Cyberspace: design and cross-contamination".

FINC's organization and teaching is ensured by the teacher-researchers of the Li2a. Among the disciplines involved there are architecture, visual arts, human-computer interfaces (HCIs), sociology and philosophy. The general objective of FINC is to try to answer certain interrogations (and undoubtedly to raise new ones) about the complex connections between Form and Information. These two concepts in the context of information and communication technologies allow us to re-interrogate the devices and the finalities of the operations of design. So, exploring the associations between Forme, Information, Novation and Conception, students can consolidate their knowledge of the contemporary environments of design and communication by the investigation of the new territories of cyberspace.

## Structure and contents

FINC is an annual and elective course held for undergraduate students of architecture in their fifth year of studies (overall 6) at School of Architecture of Toulouse. The number of students attending the course is about 15, each one having one computer connected to the Internet. FINC's 200 hours (total by year) are divided into lectures, tutorials and the development of individual projects (dissertation + the design of a "virtual architecture"). At the end of the second semester, students present their projects (oral presentation) to a jury composed by the research-teachers of FINC and eventually another research-teacher invited. These lectures are organized into two complementary groups of contents:

- Freedoms and constraints of virtual space (during the first semester)
- Structure, information and cyberspace (during the second semester)

These lectures start with the presentation of different concepts related to the design of virtual spaces. If freedoms and the constraints of virtual spaces are not those of "real" spaces, their modes and finalities of design are not necessarily completely distant. By identifying these differences and similarities the purpose of this first group of lectures is to re-interrogate the notions related to the development and organization of "inhabitable" spaces (physical and virtual). These theoretical aspects are associated to the acquisition of VRML basic developing skills. At his moment of their exploratory works, students are confronted to a design experience mainly based on textual description of spatial organization (word processor and VRML plug-in associate to a web browser). These operations are based on a constructivist principle: the exploration of the VRML language, which effects are checked by graphic visualization of the written scenes, is a source of surprises, hesitations and approximations which promote a process of a kind of empirical assimilation. The passage from the register of the formal language to the register of image, in the same file document, is accompanied by surprising and unexpected effects, with strong creative potential. This exercise, which draws aside the virtuosity and the exuberance of developments assisted by CAD software, induces the students to rediscover and to redefine the various possibilities to conceptually and verbally describe an architecture, and reinforces the aims of the design tasks.

During the second semester, lectures are centered on discussions about two main topics: "virtual architectures" and "the reciprocal contamination" between architecture and cyberspace. Theoretical presentations are accompanied by the screening of some contemporary "experimental architectures" that reveals the manner in which the issues discussed are implemented in architecture. Half way through the semester, students

concentrate their work on the production of their individual projects. Students, themselves select the theme of their projects (which normally functions as an extra motivation), and at the end of the course they orally present the results of their works. These final projects are presented into two forms: a dissertation and the design of a "virtual architecture" related to theme chosen by the student

### Discussion and outcome

The course described above is relative new, running for less than four years, and the authors are carrying out further researches. Some of difficulties that students face when following the course FINC are due to: 1. the subject matter in general (cyberspace and virtual architectures; properties and applications; to realize the implications of lack of gravity and materiality; the development of an architectural framework for the cyberspace; the mutual contamination between architecture and cyberspace; the esthetical patterns of the new paradigms and behaviors related to notions as hypertextuality, virtuality and interactivity unlocked by the use of information and communication technologies); 2. the available software tools for the virtual architecture design (these tools differ conceptually from the 3D modeling and CAD programs that students of architecture are used to work with).

We are conscious that even if we witness the generation of new organizational models (modes of production, work and knowledge) and new communication processes (associated to the use of electronic networks as Internet), their implications in architecture (theory, teaching and practice) are not so evident. On the other hand, the reciprocal contamination between physical and virtual environmental realms (architecture and cyberspace) has already brought some structural and semantics mutations in the way we mentally

and physically structure space. For the purpose of our assumptions (which can be verified in some contemporary architectural projects) that architecture and cyberspace are linked by a mutual contamination, it is important to emphasize that in the context of this paper, the discourse on cyberspace do not assume that the meaning of architecture (physical or virtual) can be reduced to information. On the contrary, we see architecture and cyberspace as a vortex of perceptions, meanings and transformations that reflects values that go beyond the instrumental boundaries of the design process, reaching psychics and somatic aspects of the human culture.

This context not only leads to reflections about the traditional assumptions concerning notions as space, place, materiality, appearance, and needs, but also allows the creation of innovative teaching tools and teaching configurations. New virtual and hybrid spaces (which results from the process of "reciprocal contamination") are gradually become part of these needs, demanding to architects new modalities of designing, and offering to them a new conceptual and experimental environment to be explored: the cyberspace

Taking in account that FINC course has not yet fulfilled the original intentions and goals set by authors, a co-operation between FINC's research group and the school of architecture of University of Laval, Quebec ("Atelier de design informatisé", coordinated by Pierre Côté), is in the course of installation and will be effective in November 2003. Through an Internet's collaborative workspace, students working in pairs (French/Quebecois) will carry out the design of a virtual architecture (the first step will be the design of the "atelier virtuel" – the virtual environment of communication that will make possible the future design of other virtual architectures).

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