Digital Interaction in Urban Structure

Reflection : Six years and still scanning

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The focus in our elective course for Master Students of Architecture is the following: in parallel to a more traditional way of analysing urban structures, how can the application of multimedia technology, networking and the integration of interactive computer applications lead to a different approach?
The objective of our teaching and research project is to find out in what ways urban structure and specific features of a city can be represented by interactive interfaces and the use of CNC technology. Our attitude is based on small-scale approach: the sum of these microanalyses gives us the broader picture, the system or mechanisms of the city. We do not dive into the city but emerge from it. This reflection leads to a new understanding in the organisation of complex urban structures, highlighting and revealing different connections and relationships, thus giving a different final image.

Keywords*: Abstract Types of Spatial Representation; Interaction – Interfaces; Innovative Integration of Multimedia Technology; Digital Design Education.*

Introduction and Context

Presented today are a series of interactive city documentations, spanning 6 years. These include different kinds of contemporary multimedia techniques, such as digital movies and photography, animations and game design. Given by the Chair of CAAD and Prof. Dr. Ludger Hovestadt to Master Students of Architecture, the result of each elective course is a hybrid multimedia DVD, integrating the different research projects of the students.

Looking back six years, the use of multimedia technology as an analysis tool for architectural students was rather uncommon. Initially the course goal was to teach students the use of technology as a tool to attain a certain goal: a digital photograph or video should be taken with an "architectural" intention in mind, combining what is artistically appealing with mature technological methodologies in processing digital information.

It is this synergy that is of importance to us, the combination of digital technology and conceptual requirements of interactive/multimedia projects, on how traditional urban analysis can be complement-

Figure 1
Cityscan°Helsinki (2003) – DVD interface

ed by new technological possibilities. Of interest to us was also the question of whether this new "technologically enhanced" approach would in fact modify the result of the analysis. Throughout the years, as the students got more and more familiar with digital technology, the focus of the course had to be shifted: today the main emphasis lies in the implementation of digital tools into the overall design process.

The purpose of our teaching and research project is to find out in which ways urban structure can be represented by interactive and/or multimedia interfaces. Our attitude is based on small-scale approach: the sum of these microanalyses gives us the broader picture, the system or mechanisms of the city. It is not an inward posture, but more an outward one: we do not *dive* into the city but *emerge* from it. This reflection leads to a new understanding in the organisation of complex urban structures, highlighting and revealing different connections and relationships, thus giving a different final representation of it.

Approach

Rotterdam - Barcelona – Warsaw – Helsinki – Sofia – Istanbul – and Belgrade in the year 2006, were focus of our urban experiences within the last years. The course is divided into three major parts:

Conceptual phase

At the beginning of the course the students are asked to research an aspect of the city in question and, if

Figure 2
Cityscan°Sofia (2004) – Ringsky project (left) & Cityscan°Istanbul (2005) – Monoshopping project (right)

possible, specific to that city. Theoretical approaches and projects of contemporary artists, such as Christoph Rótimann's "Handlauf" or Kevin Lynch's "The Image Of The City" are references to their concepts. This conceptual phase is complemented by an introduction to the different technologies (digital video) and software modules. Students have to get familiar with all the needed software for editing their digital data: Macromedia Director, Flash, Adobe Premiere, Apple Quicktime and FinalCutPro. CNC production methodologies (laser-cutting, 3-axis milling) are also investigated and implemented in the course.

Collecting data

The second phase consists of a one-week field trip to the city. On site and in cooperation with a resident Faculty of Architecture, students roam the city and gather the necessary data. This is collected with technical equipment provided by the school: digital camera, digital video camera, mobile phone, global positioning systems, audio recorders, and laptop.

This on-site verification of their project ideas (usually) leads to an adaptation or re-evaluation of the initial idea: local security regulations, site access, limited documentation, lack of data, etc.

Final product

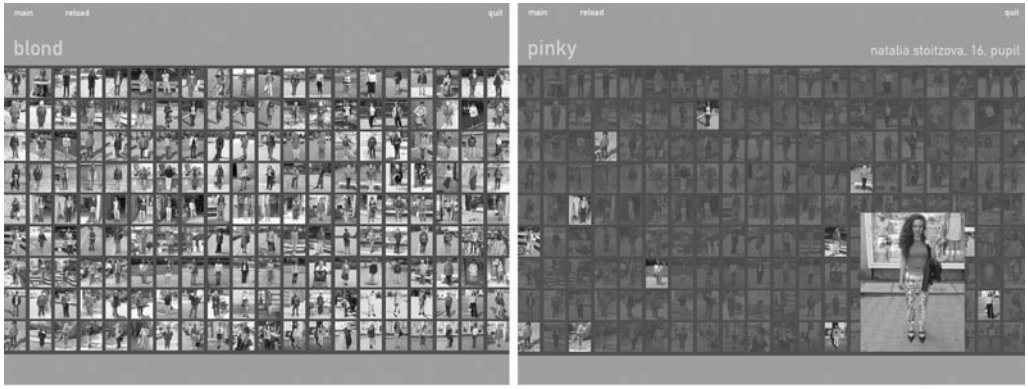
Upon returning to school, all the data has to be evaluated, sorted and analysed. The use of databases and servers allow for the exchange of collected data. In the previous years, each group was asked to finish their project in form of a Macromedia Director file. Students learn Lingo, the Director scripting language that allows for extensive use of interactivity and control inside the Director authoring environment. The group projects are then all combined into a single cross-platform multimedia DVD that is then sold or distributed.

Finally, to increase "artistic" freedom and to have a greater variety in the projects, the prior limitations given to the students have been lifted: the projects are not limited to a specific software package or medium. What is asked of the students is the best combination between idea and support, whether this is a DVD, internet-based or a CNC product.

Outlook

The strength of the course is a combination of pragmatic use of contemporary technology and theoretical urban investigation to reveal the structure of a city in an interactive way. In the first years of the course the technical approach was the main focus point, whereas today, with the ever-increasing assimilation of digital multimedia techniques by the students, the adequate integration of the technical equipment should be the priority. Our teaching experience shows that even though this technology is

Figure 3
Cityscan°Sofia (2004) – CityPeople project



perfectly assimilated by the students, its integration into their architectural studies is still rather traditional. This integration should be understood as an additional design and analysis tool and therefore have a greater influence on their approach of the project.

Concerning this, one current goal of the course is to encourage the students to work on a more experimental level with the given equipment and software.

In future the integration of GPS-Systems and exploring a city, not virtual with a DVD, but real through messages send to mobile phones, is one research aspect, which can be integrated into the series of the course.

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The interfaces shown as examples have been designed by:

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