THE USE OF COMPUTERS IN URBAN DESIGN PROJECTS AT SINT-LUCAS BRUSSELS-GHENT

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Abstract
Since a few years we use computers with the specific aim to augment the creative energy in the design studio. We discuss the results of an urban design project in which the use of 'multi-media' (abstract space model, scanned images, sound, real video and metaphors) was important in order to try to present the concept.

1. General aims

There seems to become an increasing distance between programmers and users of computers. Programmers are making a product, remote from people who use the software. We believe we have to bring them together in order to better understand the way software is working and be able to suggest and make the appropriate modifications such that the software is more architect-minded.

Nowadays, a lot of CAD-software for architects is available. Most of these programs are derived from general purpose CAD-software; they are advanced drafting programs to which architecture-specific tools and functions were added. Hence, these programs are created more for drafting than for designing. This is the reason why an architect can only use these software-packages in a later stage of the design process, as a production tool which assists him with his drawing work. The purpose of our teaching and research is to try to better understand and explain how a computer can be used as a conception-tool which helps the student/architect in his design thinking as early as possible in the design process.

We see the design process as an interaction between three important phases: a conception phase, analysis and a detailing phase (Medland 1992). Between these phases there is a lot of interaction and communication. Current CAAD-software is mostly used as an aid in the detailing phase. The purpose of our teaching is to try to let the student understand the computer can also be used in the other two phases. We are especially interested in the use of the computer in the conception phase (Verbeke 1995).

The ambition of the research group is to use the computer as early as possible in the design process (we call this ‘upstream’) on the one side and to make CAAD-software more ‘architect-minded’ on the other side, i.e. the operational structure should be as close as possible to the thinking of an architect and the dynamics of the creative design process.

Here, the most important question for the group is: in which way can the computer
play an important role in the design process such that it is a tool to improve architectural design.

The computer will never replace the architect. Therefore it is not our purpose to create an expert system which simulates certain tasks of the designer, but to create an instrument which stimulates the creativity of the architect (Beyls 1991). The current technology will not be used passively; i.e. as a mechanical aid to create drawings, but the computer has to give new possibilities of interaction for the architect. The computer has to be an intelligent tool which helps the architect to do his activities in a better way and to create better Architecture.

In the next paragraph we will discuss two urban design projects with this philosophy in mind.

2. Application in Urban Design projects

Since a few years we use computers with the specific aim to augment the creative energy in the design studio. The traditional tools like maps, plans, sketches, diagrams and models are supplemented by computer-generated materials. Our first aim is to broaden the process of reading and understanding of the environment, and to enrich the process of conceptualisation and development of ideas.

In the context of architectural exercises, CAAD is used to represent a direct three dimensional built reality. Computer explorations deal with concrete visible elements. Dealing with urban design problems, because of the large environments, different methods of handling the problems are necessary.

In the following paragraphs, we will describe the results of two design studio problems. The first is the city of Mechelen where the question was to create a path along the river crossing the city. One year later, the same students had to study the city of Kortrijk. With the experience of the first year, a different approach was possible.

a. City of Mechelen

This city was the first urban design problem the students investigated using computers. First, they built a very complex space model of the city. Then, they started from their project and tried to translate this as well as possible into the computer. The necessary abstraction during this phase, implied a reduction of information in the computer model compared to the initial design. The translation to concrete architectural forms in the computer space, resulted in not really satisfying results (see photo), although good use of colour gave interesting results.

b. City of Kortrijk

During the next year the same students tried to represent their initial ideas as well as possible on the computer. They tried to use a minimum of (architectural/concrete) objects to represent their ideas. They also tried to combine different media to formulate their concept and to communicate this to someone else. The use of the computer and ‘multimedia’ enabled them to offer a much broader scope of their concept and project. The final result was a video of ± 8 minutes.
The use of computers in urban design projects at Sint-Lucas Brussels-Ghent

Fig. 1 - Computer work of fourth year students focussing on the city of Mechelen

The following media were used:

- they used a very abstract space model to present their concept. It was a very simple model and only few important buildings were worked out. Little detailing was used. The main idea was to use the model for the general geography and to present the general concept. These were general guidelines and a general policy for future projects.

- to this simple model, scanned images were added in order to add as much as possible information to the initial model. It was some kind of collage. E.g. a picture of signalisation was used to express circulation, traffic and mobility. We make here reference to Mies van der Rohe who also used similar methods to create a certain atmosphere in a room.

- in the video that was created to present the concept, the students used sound and this added a new dimension to their presentation which is normally not used in classical presentations. It turned out the sound is a very interesting and important factor in the final result.

- real video was used to make the concept of the project more transparent. Although we believe there are interesting possibilities, the students did not manage to use it in a very useful way.

- finally and perhaps most important was the use of metaphors. They were used to translate and replace intentions, concepts and ideas to more recognisable things. So, a squirt is used to symbolize the injection of energy on a certain place, bridges symbolize the link between two parts of the city and the interaction and integration between these places.
3. Conclusion

The use of ‘multi-media’ enhances the possibilities to present a concept in a way which make possible a broader experience. We gave an example of the use of a combination of abstract modelling, scanned images, sound, real video and metaphors. This combination enables the architect to gain better feedback from everyone looking at the video presentation of his concept. The urban design concept was presented in a way future projects can be developed. It describes a policy for future developments.

References

