Promise and Reality:
The impact of the Virtual Design Studio on the design and learning process in the architectural education

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In step with the popular trend of including virtual working methods and tools in the process of teaching, the Virtual Design Studio (VDS) has been developed by the Institute for Industrial Building Production (ifib), at the University of Karlsruhe over the past three years. [FOR99] Alongside the technical aspects of such a studio, the challenge persisted to incorporate computer based tools into the architectural design and planning process with the goal of enhancing the relationship between all participants. The VDS is being further developed and refined, experiencing regular changes in its organization and teaching methods. With the establishment of the Virtual Upperrhine University of Architecture (VuuA) and the introduction of the Virtual Design Studio into the curriculum of the Institute for Architectural Presentation and CAD (adai), BTU Cottbus, the VDS extended beyond the borders of a single architectural school, aiming towards a wide acceptance and use within architectural education institutions.

Starting off with a simple concept, the first VDS was based on elementary techniques such as typical Internet browsers, pure html, and some Plug-Ins as the display description language. The design exercises differed from those of regular design studios by demanding solutions for more complex design problems with the necessity of incorporating different teachers, consultants and sources of information (integrated planning approach). This philosophy hasn't changed, however the application of the HTML based techniques by the students has evolved to a very sophisticated level, sometimes though at the expense of the design quality of the projects themselves.

Supposedly, one of the early advantages of the VDS over a regular design studio was to be the use of the new media for an intensive communication with other partners and teachers outside the student's own University. This emphasized the requirement to use only Internet based presentation methods to ensure universality in accessibility. The goal was reached only to some extent, since the students had problems with the adaptation of this new opportunity of communication within the group and to the outside world. A further approach in later semesters of the VDS was the usage of the Internet to gain specific information that wasn't necessarily available in the local surroundings or in Germany itself. This opportunity was picked up

quickly by the participants and lead to design results that wouldn't have been possible without the incorporation of the new media.

In one VDS project, the studio schedule was split in two periods: the first was to gain and establish information through the Internet as a group process and making that diverse pool of knowledge accessible to all on the web. In the second period, the participants focused on the design of the building, using the specific information collected in the first stage for the development of their projects, a method that turned out to be very successful. Here at least, the goal to create a creative virtual workspace, through which information was aggregated and shared by all members, was reached.

The negotiation of the required technical knowledge was and still is secured through a three-day crash course at the beginning of each VDS. In terms of computer skills there is no minimum requirement stated other than that the students have at least a working knowledge of computers in general and of one or two mainstream programs. The crash course concentrates on the construction of html-documents and file-transfer only. Other knowledge in software such as PhotoShop, Java, Flash etc. has to be acquired by the students themselves, with only little support by the teachers. At the same time, the students have to develop the programmatic and design aspects of the projects and are to continually update their web sites. In addition to the already complex nature of the projects, the technical requirements are often near the limit of some students.

Assimilating the above-mentioned methodology, the developed knowledge acquisition procedure was tested during a seminar with a subsequent field trip to the United States. The studio was not a design studio per se, but a theory seminar with the goal to use the Internet to gain specific information. Work in progress, both on the theory papers and on the trip schedule, was continually displayed on the web site in order to arrange for consultation appointments, invitations and financial support. By using this method of 'real time project documentation', the seminar and its participants gained possibilities to present the project to third parties in order to receive all kinds of support. One of the student's main achievements during the seminar was their acquisition of the skills needed to develop a web-based presence and to use the web as a communication tool.

Encouraged through that positive experience, the organization of the following VDS was refined to separated and better define the technical and the design requirements in the beginning of the studio. During the first six weeks, the students received knowledge in html, graphical presentation, navigation, layout, specific web techniques, PhotoShop etc. Simultaneously they had to prepare physical as well as digital models of the site and its surroundings, collect basic information concerning the chosen exercise and write a scenario about their vision for the specific topic. The first main assignment after this period was the presentation of the information and technical knowledge gained on the Internet. After this presentation, the actual design process started. Another innovation was the fact that the design studio was taken over the border of the University itself by offering the same topic with two different sites on two different locations at two different schools of architecture, namely Karlsruhe and Cottbus. All participants involved into teaching and organization were initially excited about the results in terms of cross communication between the two groups.

The sequentially phase of work unexpectedly did not differ very much from the experiences of earlier studios. Despite intense and successful communication and information flow within the groups, the communication between the two Universities and their students was minimal. Consultation through the web-consultants outside the universities was good though. Through these sources, participants received very detailed and sophisticated

input, ranging from human aspects concerning the designs, to programmatic and structural support, up to whole designs being suggested by some of the web-consultants.

With regard to the design process, some students were facing the problem of adapting the new media's potentialities and its influence on the presentation of the projects. This aspect of the VDS is well known from past studios. A few of the participants had large difficulties in detaching themselves from their classical design development approach. Such difficulties can be split into problems concerning the topic, where students had to describe the world twenty years from now, developing their own program from the scenario, and difficulties regarding the translation from known methods of presentation into methods that meet the requirements of the Internet based presentation. On the other hand, outstanding projects emerged, using the opportunity to develop fantastic project scenarios and updating the program constantly during the design process right up to the finished project. Those participants had no problems in translating their visions into a project and presentation that was very much supported by the used media Internet. The better part of the group was caught in the difficulty of tending to work too much on the technical aspects, with an implied disregard for the architectural aspects of their projects.

Finally, some of the best results are presented by students who possess the ability to combine both their technical skills with an outstanding understanding of conceptual design development, using the web as a challenge to present their work. On the other hand, there are the group of participants who are satisfied with a less sophisticated usage of the technique (sometimes those projects have kind of a naive touch), but nonetheless could present a very successful project regarding the architectural concept.

Searching for reasons for the little interaction between the two groups within the different universities, the authors have come to the conclusion that in future VDS that take place in different locations, the groups have to physically meet before the studio starts. Also helpful might be the formation of interdisciplinary groups, containing members from all participating schools, so one is forced to use web-based technologies in order to communicate and push the project. Relying solely on the new media as a guarantee for intense information and knowledge flow between remote groups cannot replace the face-to-face or group-to-group contact. The mere presence of the communication channels and a willing participant are insufficient in fostering interaction. It appears that a certain degree of prescribed interaction is necessary in opening up a dialogue between the participants. The same applies for the relationship between teachers, consultants and students. Despite their ability to support the intense communication flows necessary, the web-based tools are not able to simulate a physical meeting between different group members. These tools must be seen as extensions of human interaction, not a replacement thereof.

Another aspect that has not yet been into consideration is the influence of the method used onto the design process. So far, most of the results were generated or influenced through the media more or less 'by accident', but not as an intended outcome. Although the influence of the VDS methodology onto the process cannot be denied, the past topics and tasks were not structured to specifically study the impact of the new media on the design development process and its final outcome. In the future incantations of the virtual design studio, the experiences and above-mentioned issues will be taken into account and the VDS will be adapted accordingly.

In addition to the 'VDS-Market', another type of virtual design studio will take place in three different places, incorporating not only architectural but also town planning issues. The kick-off of the

project will take place as a group event on site, with participation of all teachers and students involved, similar to the VuuA-project that incorporated five schools in three countries. The various groups consist of members from all participating schools, that is to say not only general information has to flow but also specific project information including images, sketches, materials and finally plans. All participants will work on one platform, using similar software within the groups to ensure easy data and knowledge exchange.

Further, the 'VDS market' will be introduced, a platform on which participating schools of architecture can offer their design topics to a large community of students. Participating students can chose topics from remote universities, receiving intense virtual consultation through web based media from the teachers at the participating Schools, getting simultaneously face-to-face support and consultation at their home University. An encouragement to explore such types of Virtual Design Studios is the potential to development new methods of teaching and contributing towards the establishment of the universal and virtual University.

Links

adai: http://www.archinf.tu-cottbus.de/
ifib: http://www.ifib.uni-karlsruhe.de/
VuuA: http://www.vuua.org
Netzentwurf platform: http://www.netzentwurf.de

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