Drawing with Pencil, Pen and Mouse

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Using pencil and pen

Only twenty years ago the traditional architect office often was a place where the architect designed with a soft pencil from behind his drawing board. In those days our school was a place where students graduated as secretaries. As many ended up in an architect office the idea was launched to create an educational profile which specially trained students for work in the architect's office; the Architect-Assistant was born. In those early days training focused on secretarial tasks with basic elements of drawing and construction.

Twenty years ago drawing by computer was an adventure which was started by picking up your pen, writing a computer program, typing the program code onto punching-cards, feeding the cards into a mainframe computer and, with a little luck, getting the result you wanted on thermal paper.

In the early eighties, the first CAD program on a personal computer made its debut. This program was able to perform with the same power as a minicomputer but only at a fraction of the cost. Besides, you no longer had to be a programmer to use it. This breakthrough made CAD an alternative for the drawing board. However, in the early days CAD was not exactly popular in the architect office. Drawings had been made by pencil for ages, the only investments needed being paper, pens and a drawing board so why change to a costly computer. A computer which also asked for a huge time investment in order to get to know the drawing functions of the CAD program. In the early days the personal computer was mainly introduced into the architects' office for the benefit of making up construction specifications and other documents by word processor or spreadsheet.

During these years students at our school were trained how to use a word processor and discover the advantages of a database.

The mouse comes in

At the time of the rise of the personal computer the educational profile of training courses at school once more was redefined. Former secretarial subjects like accountancy and languages were dropped and training was focused mainly on the architectural and building world with subjects like strength analysis, properties of materials and Computer Aided Design.
Being an Architect-Assistant, the actual design of a building project is no part of the training programme as the assistant starts to work from the rough sketches of the architect. Skipping the design process made CAD the perfect tool to offer to students in order to develop their drawing skills.
That is why, in the early nineties, the CAD program Robocad was

introduced at our school. The reason for choosing this particular program was mainly political as the manufacturer had excellent references from one of the highest education authorities and was able to offer the computer program at very competitive rates.

Although the program itself was all right to use and specific for architectural applications it soon turned out that nobody else in the professional world was using it. After extensive research amongst architectural offices and the building industry our school, in 1993, switched to AutoCAD, a general CAD program. Next to a widespread use, AutoCAD also has the advantage of a very open structure which enables the user to add anything to this program, from a customised menu item to a purpose written routine.

1996 saw the first draft of CAD trained students to leave our school. They graduated with extensive skills in drawing by computer. We were perfectly able to judge this during the training program as they had to use CAD in their own work. Next to drawing, the students were also able to fine-tune the CAD program in order to be more effective, a quality which made these students even more competitive to the industry.

However, we didn't get to that result just by teaching our courses. We learned that we have to keep students' feet firmly on the ground as drawing by computer should not become a target in itself. The fact that one draws by computer doesn't make one a better draughtsman. It is a general fact that a CAD drawing might look a lot better than a drawing on the board as, for instance, text always will be placed as neatly as can be. Drawing by computer comes in very handy when you have to repeat identical elements, tedious hatching suddenly becomes a pleasure but still you have to know what you are doing. Drawing by computer doesn't mean you can stop thinking.

Making CAD CAAD

So far we only talked about CAD drawing; using the computer to improve what you previously did by using a pencil and a pen. It is beyond any discussion that Computer Aided Design has advantages compared to the traditional way of drawing. These advantages are not specific for the architectural world, anybody who used to draw by using a pencil and a pen can benefit. For the Architect-Assistant the next step was to get from Computer Aided Design to Computer Aided Architectural Design. We found this step was most likely to be taken in the field of 3D-drawing.

Next to the regular 2D-drawing training we also provide extensive courses on 3D-drawing. In principle you can start the 3D course with a basic knowledge of 2D-drawing. You learn to think 3D, by far the hardest part, after which you start drawing various 3D models, from wireframes and 3D-faces to solid models. Generating a perspective view, applying materials to surfaces and perform a walk through a building are some of the next steps. This is where CAD becomes CAAD.

Try to imagine how much time it used to take to make a perspective drawing, not to mention the time it took to make it into a decent presentation drawing. Whenever you had to change the height of the eye in the basepoint of the same perspective drawing this would keep you occupied for the next twelve hours. Nowadays, with the help of Computer Aided Architectural Design, generating a completely different perspective view is just a matter of pushing a few buttons with a result as impeccable as it was the first time.

Exploring the Internet

During the last couple of years the personal computer, next to word processing, spreadsheet and CAD, has got a new reason for use in the architect office: Internet.

Using access to Internet will provide you with a large database of information on almost any subject you want. As before with the introduction of the computer, you now once more have to invest time in order to get to know the possibilities of the World Wide Web. But once you have got in touch it becomes a very powerful tool.
A tool which is under constant change as technology on the Net goes fast. Just take a simple drawing. It's no problem at all to put a picture of any drawing on a Website, the problem is whether you can obtain much information from an image the size of a stamp. In order to solve this problem the .DWF file format was developed. This latest technology in viewing drawings on the Web reduces any drawing, 2D or 3D, to 2D vector data. By means of a 'plug-in' or 'add-on' to your favourite Internet browser you are not only able to look at the drawing as it is, you have also got extra 'pan' and 'zoom' functions which allow you to view the drawing in further detail.

It is good to know technology can help in a convenient way but what is the use of putting a drawing on a website? First of all it is a way to promote yourself or the ideas you stand for. Searching for a place to follow a practical training course in a foreign country we extensively used our website to show what our school stood for with examples of the projects students are working on.[1] Secondly you can put courses on the Net and have students studying wherever and whenever they like. A year ago we experimented with CAD courses from the University of New South Wales in Australia. The course was taken from the Net while the assignments had to be handed in at our school. There was a storm of enthusiasm not only from students but also from staff.

A completely different aspect of the use of Internet is Email. Using Email you can send information to anyone anywhere at the cost of a local phonecall. It's not only a note you type on your word processor, you also can attach complete documents, spreadsheets, databases, drawings, anything you want. The possibility of Email also makes life easier for students at our school. Just before the exams staff are very likely to find

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[1] You can visit us on the World Wide Web at http://www.innet.net/~pub00308

mail with some last minute questions, sometimes even with a drawing attached. Maybe, in the future, this will be the only way to teach. For the time being it is a very convenient way of helping the students.

What's next

Whenever you have a look at the employment opportunities for the Architect-Assistant you will find that nowadays you have to be capable to use CAD. Just being able to draw by the board doesn't work any longer. Moreover the architectural and building world have told us that they are really satisfied with the training courses we offer.

However, a recent trip to architectural offices in various European countries has made clear that the market is now eager to find persons who not only have a firm knowledge of CAD but also are into CAAD and computer presentation techniques.

At school this should result in offering more training in those presentation techniques using various computer programs ranging from a simple render of a 3D object to extensive 3D animation. However, the limited budget and the software which continuously demands more powerful computers, restrict our possibilities.

But that is another story.