AVOCAAD – EXERCISES
EXPERIENCES WITH TESTING

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1. Introduction
We architects in general do not tend to exhibit an irresistible urge to use modern media. However, we at least live and work within a constantly expanding environment of contrasting elements: Buildings tend to get more complex, prices tend to go down and honorariums desperately tend to decrease at the same time. The industry is busy promising us architects that we will only survive this scenario by using excellent computers with outstanding CAAD-software-products. This aspect is crucial. No architect who is forced to earn his living by handling the daily mess consisting of
• contacting clients
• calming down contractors
• speeding up planning partners
• keeping the own design business running
will be able to view his computer as a toy, but rather as an important ally. Our knowledge and areas of interest will be clearly confined by aspects directly connected with our daily exercise of professional activities. Of course we architects are increasingly forced to use better means of presentation. And we are forced to present our design
• with growing accuracy
• within less time
• and offer a high-level compatibility with the CAD-products of the planning-partners.
This again means that we need constantly improving tools. Who is developing and providing these tools? And how do we architects get our training to handle those improving tools?
Let us first focus on the development of tools. Software-companies have identified this market years ago. Architects will survive on the battle-field of competition only by using efficient software tools. If there is a powerful user-group there is a good chance to exercise significant influence and even pressure on developers. User-groups in our days need not gather physically in time-consuming conferences, they can easily stay in contact using modern communication-media like internet-forums or e-mail. Somebody has to collect e-mails and can provide a powerful summary, based on a large number of users, which is presented to the software company. This software provider is directly dependent on the satisfaction of the users, otherwise they will eventually – even very probably – change to another
provider. This is getting easier and easier in our days. No one is actually forced to stick to specific software, because one’s hardware is able to meet any special software needs. This situation of software-dependent hardware conceptions was very common in the past. Thus the software developer will offer a very attentive ear to a powerful user-group.

Next are the schools and universities, which provide a good amount of testing and training capacity. They will be predestined to develop training methods for practising architects unskilled in CAD software use.

2. Intention of paper
These training materials are the main aim of the AVOCAAD-project. Inserting a simple CD-ROM and going through some exercises or alternatively using the internet for the same purpose is exactly the way to attract professionals pressed for time.

What are architects – practicing architects – expecting from training materials, such as AVOCAAD is in the process of developing?

In our days no architect will honestly fight the usefulness of computers. We can assume that most of us architects have understood that computers are not threatening the quality of architectural design but improving it considerably.

The data-interface to planning partners, clients and contractors is an important element of powerful interaction in our days. This is only possible by using computers. If there is only one single planning partner who is not referring to the common data base, the whole system is broken.

The planning time can be reduced considerably by using computers. None of us architects will be able to survive on the free market in the long run, if he or she denies this development and goes on fighting the traditional way, sticking stubbornly to paper and pencil. Some twenty years ago the same thing happened to computer-abstinent engineers.

Thus it is a feasible assumption that we can rely on getting efficient and cost-effective support through use of computers. And there is a good deal of progress in store, looking at present and future aspects by the growing impact of Facility Management [1].

There is one thing that is very important to us: Many architects active today have learned their design process manually. They were crouched over large drawing tables and did their work using traditional tools more or less enthusiastically. When these architects change their tools to mouse and computer screen they tend to stick to their traditional methods without taking advantage of the new powerful tools which are structured completely differently. This needs to be addressed with training, or else a significant disappointment cannot be avoided.

In addition we cannot assume that all schools of architecture are able to present good teaching personnel. This is not only a question of money – meaning adequate payment of teachers. A student who uses a powerful computer with any powerful CAD software will very soon end up with photo-realistic images of his or her design instead of getting a profound training in preparing a correct - and we really mean: correct - set of 3D-data of his or her design within a reasonable time. This means learning all advantageous aids or added values of CAAD, which are mostly independent of the software used.
3. Looking out for efficient training material
Training material which is useful for practising architects preferably refers to the improvement of efficiency rather than to time consuming features such as
• Rendering
• Photo-realism
• Virtual Reality
This does not mean that we architects do not want to be taught these topics. There is a growing need for outstanding quality of presentations; this again is offered by modern software on highly efficient computers, which can be bought for ridiculous prices, compared with the situation only a few years ago. If there is going to be a software aid providing ideas for studio-activities in early phases of the architectural design -- a development likely in the near future -- most of us architects would stick to sketching on paper anyway. Really efficient software covering this field must provide excellent training – possibly through entirely new methods.
Efficient training material will provide, whenever possible, a complete survey of a topic or theme. A selective exercise which only covers a very restricted field of an entire curriculum will be possibly interesting, but could not yet provide the full power of submitting the added value of a new tool.
Efficient training material will provide help-functions, and will also give handling advice even on low level features.
Efficient training material will give an example - or even several of them - to make sure that the exercise at issue has been approached correctly. A possible objective of the example would be to overcome language-problems.
In addition, we may assume that examples can bridge differences in curricula.
Of course it has to be discussed how far a rather primitive introduction into CAD-handling should be involved. There are numerous experiences with partner offices where we can find persons who are very willing to become familiar with CAD-handling. In some cases they are very far away from accepting the value - not even to speak about an added value - of CAAD. In our view efficient training material should cover even these basic needs.
To guide persons who have been working with traditional tools to CAAD presents a very special challenge. If someone is very skilled in the traditional way of handling all drawing and designing activities, it will be rather difficult to convince this person of the values of CAAD. For a rather long time he or she will initially not only be much quicker working the old way, even worse, he or she will use CAD in a wrong way by transferring the traditional way of working to the new tool. This will rarely produce a satisfactory result.

4. Giving evaluations
There are not many exercises available for testing. In general we refer to the paper of Verbeke [2], where we can find the characteristic features of the planned structure.
At the start of an exercise we would appreciate a nice explanation of what we are supposed to do. Sometimes there is an obvious dependence on unfamiliar curriculum. Especially newcomers might be unable to continue or finish certain exercises.
Generally everything that is mentioned above under the section covering the efficient training is good for giving an evaluation. This means that exercises providing sufficient help-functions and information features examples - if possible - that are rated 'excellent' in order to give some support how an exercise is to be understood in cases of language problems a background survey of the training field, which may lead to packed information on whole curricula have a very good chance to get a good evaluation by users, especially by those not belonging to universities.

Submit my work

- View related topics
- View related exercises
- View other's answers to this exercise

Load

Odd

Beginner-experienced

Odd

Time load

Odd

Figure 1: AVOCAD exercise sheet; links to “submit” and “other results”.

The planned structure of the exercises (see figure 1) shows the possibility of submitting results. More than that, we guess that we shall be able to compare our results with those found by others. In addition a teacher's comment would be a wonderful help.

To us practising architects it seems extremely important to really get help from computers. This help is not only supposed to speed up our daily activities but also to enhance the quality of our work. We are confronted with results of planning partners who pretend to be familiar with CAAD. Especially the detail level tends to reveal deplorable facts. In particular, if the design task at hand is part of a major planning context, it is rather difficult to integrate contributions of poor quality.
Reviewing plotted output does not shed much light on the quality of the data structure. Nobody can see how nicely the layer discipline was observed, only after, for instance, moving the furniture layer to the background we may detect how many walls and windows are vanishing together with the furniture. Taking measurements between certain construction points will reveal unclear definitions, which are not obvious by only looking at a nicely plotted drawing. All this is rather trivial matter but this only demonstrates how important it is to have a sound instruction on CAD basics. We would very much appreciate if the AVOCAAD material also gave us some training in very basic CAD topics. At least this should be discussed, though AVOCAAD is focussing on the added value of CAAD.

5. Conclusion
We are very glad that in the near future AVOCAAD will be offering training material for those architects willing to go into CAD activities. We know that the main effort will focus on university activities. But we think that there is an outstanding chance to involve architects outside of universities. While it is extremely difficult to convince them initially of the value of CAAD -- not to speak of the added value -- in most cases financial or economical reasons will be the only motivator.
We have also tried to point out how to define efficient CAAD training material. Above all we are aware that everything we have presented in this paper might originate from a rather specific perspective of the subject. In general the AVOCAAD project will aim to support university teaching. Nevertheless many of us architects who are in practice for years and even decades, might gladly seize the chance of exercising with training material, which enables us to develop and implement whole new capabilities we had no chance to achieve in our studies.

6. References