

MINICAD: PERCEPTIONS IN PLANNING EDUCATION

This article examines the role of MiniCad in both the teaching and learning environment within the Institute of Urban Planning, University of Nottingham. Its role in the development of student planners is evaluated.

Siân Rose
Teaching Fellow
Institute of Urban Planning
School of the Built
Environment
University of Nottingham
Email:
sian.rose@nottingham.ac.uk.
Tel: 0115 951 4888

Introduction

The theory of urban design and design skills are subjects that are increasingly being recognised both by the RTPI (Royal Town Planning Institute) and the profession as essential for planners to understand and master. This not only enables a planner to take a more informed role in design decisions but also allows planning students to understand the nature of the design process and the hidden complexities of designing three-dimensional forms, buildings, streets, squares and their relationship to the city as a whole.

At the University of Nottingham, planning students spend approximately one third of their first and second years gaining both basic communication and design skills through a number of projects which culminate in an urban design project at the end of their second semester. As part of their understanding of three-dimensional space, computer aided design is introduced in first year and a further elective is offered in second year to enable students to build upon basic CAD skills. Most students do elect to continue with CAD.

Students will leave with skills in:

- Word-processing using Word for Windows
- Email and Internet navigation
- Office suite presentations using Excel and PowerPoint
- Statistics using SPSS-PC
- Computer aided design using MiniCad

MiniCad Design Modules

The Institute of Urban Planning uses MiniCad version 6 by Graphsoft. This runs on Pentium PC's using Microsoft Windows 95 or Windows NT and SVGA graphics with 256 colours. The software was chosen for the following reasons:

- affordability both initially and for upgrading
- popularity of this package in the professional office
- relative simplicity of operation
- user friendly interface originally designed for the Macintosh

It was also thought that the type and quality of images one can create using MiniCad, though not at the top end of the CAD model spectrum, were nonetheless suitable for the basic three dimensional learning aims of the modules taught.

The first year design module aims to teach students the basic skills necessary and encourage the use of the computer as a design tool. The aims of the module are twofold:

- 1 An introduction to a particular period of architecture, using the computer as a basic modelling tool
- 2 A stimulus for students' own design skills, through the design of their own addition to the original computer model

In the second year, CAD is used to model students' own urban design projects in context. In this case, the computer is used as an evaluative tool to change and enhance existing proposals. It is vital that any CAD module is tied to

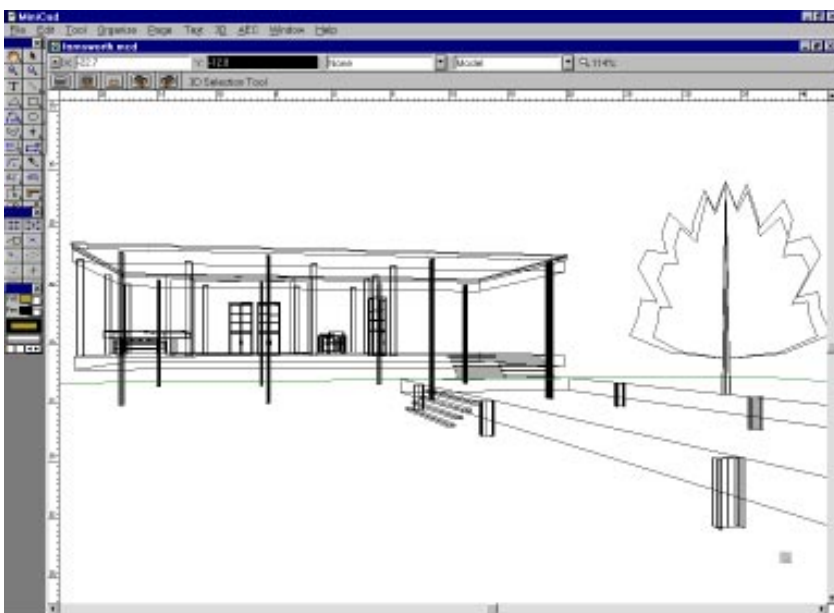


Fig.1 Example of first year project

existing teaching, rather than being seen as an add-on extra; this enables students to use the skills as part of a number of tools for design and presentation throughout their careers.

MiniCad Learning Experience

The learning curve for all CAD packages tends to be very steep and the need to enthuse students using images of what may be possible in the longer term, plays a key role in maintaining interest and motivation.

The following evaluation of the learning experience was drawn from specific feedback from 32 out of 43 students who learnt MiniCad for the first time this semester. The questionnaire was mainly concerned with two issues:

- 1 The difficulties inherent in transferring information from tutor to student and the most effective means of doing this
- 2 The particular problems in learning the MiniCad package

Student response suggested that understanding the concepts behind the operation of MiniCad could best be explained via overheads and lectures. In terms of relating the principles to actual techniques, one-to-one tuition was the optimum medium. Demonstrations involving small groups of students around one machine with back-up hand outs also worked well.

The following areas were identified where the use of MiniCad greatly enhanced the learning experience compared to that offered by traditional methods:

- The selection of seven different rendering modes
- The ease of three-dimensional rotation of the model and the different views possible
- The walk through tool



Fig.2 Example of second year project

Particular difficulties were found in the actual sequence of how tools operated, rather than their identity or location. Perhaps an area for further investigation on the part of Graphsoft is the study of how people naturally want to draw or design and the translation of this into the basic operation of the tools.

Possibly the most difficult concept for planning students using MiniCad is the operation of Layer Linking to form a full three-dimensional model, in particular the difficulties found in erasing elements which are already included in a layer-linked model. The inclusion in this package of a command which can undo more than the last mistake would prove a big advantage.

Positive aspects which help the speed of the design process are the roof and floor commands available in the AEC menu and the steps tool in the tool palette. Of popular interest was the library, particularly the selection of trees and furniture. However, too many additional symbols in one's project could lead to rendering and memory problems.

As with any CAD package, the limitations of both the hardware and software dictate some of the design decisions that are made. For example, care must be exercised in the levels of detail and numbers of symbols which are created, or use of any of the library objects to give greatest impact whilst still allowing an acceptable processing speed.

The most enjoyable aspect of using MiniCad was the ease of using the interface. This allowed the final product to be viewed easily (providing proper care had been paid to limiting file size). Students' perception of the qualities, size, form and proportions of their designs were informed by the models produced. The evaluative properties of being able to manipulate their own designs within the context of a virtual model were rated as one of the most positive aspects of MiniCad. The biggest complaint which can be levelled at many CAD packages is the tedium of repetitive tasks and difficulties which arise in erasing mistakes.

Conclusion

Overall, student response to MiniCad itself has been average. The addition of a further visualisation and rendering package, such as Form Z, would prove significant, both in terms of the quality of the final presentation and students' response to their work.

As a tool for teaching students the realities of design decisions, MiniCad has performed well. A CAD image is, of course, simply a reflection of the real World, a little more realistic than the physical model; it can generate imagination, but as students have found, is no replacement for imagination itself.