Introduction

The aims of research carried out at the Centre for Advanced Spatial Analysis (CASA) under the umbrella of ‘Online Planning’ have been two fold. Firstly, to examine how new technologies can be used for the development of an Internet based planning system and secondly, how such technologies can enhance planning education. There has been considerable overlap between these two aims when real world applications have been introduced into the education environment. Teaching methods on a number of different courses at University College London, including the MSc in Virtual Environments, the MPhil in Town Planning and the BSc in Geography, have been developed to incorporate new technologies. This article describes progress to date and suggests possible uses of Internet based technologies for the teaching of topics relating to the design of the built environment.

Methods

In order to enhance the lecture environment and to allow students to gain both an educational and enjoyable insight into the design and structure of the urban realm, two distinct Internet based teaching methods have been used at UCL.

Firstly, students were introduced to the Collaborative Virtual Design Studio (CVDS) which was developed to allow Architects, Town Planners and Urban Designers to navigate three dimensional virtual reality worlds on the Web (see Habitat Issue 6 pp 38-40). This is based on software by ‘ActiveWorlds’ (http://www.activeworlds.com). The CVDS has been used as part of research conducted by CASA into the growth of virtual space. This has taken the form of the ‘30 Days’ project and has been introduced into the Geographies of Cyberspace course at UCL. The project entailed an area of virtual land, the size of Central London, being made available for any users with the relevant software to engage in construction. Participants would utilise a range of either submitted or predetermined objects such as roofs, doors and windows. Over a period of 30 Days, 40,000 objects were placed in the virtual world. An online community was thus created comprising over 50 citizens and distinct urban areas with representations of urban facilities including art galleries, health clubs, community halls and urban parks. The growth of the virtual world was mapped every 24 hours and conversations logged. This resulted in the production of an unique document detailing the development of virtual space and community. Figure 1 illustrates a map of...
the ‘30 Days’ virtual world with sample avatars and objects which could be integrated into this world.

The students were introduced to the ‘30 Days’ research via a series of lectures on virtual worlds. The relevant software, ActiveWorlds, was subsequently placed on a number of PCs on the University network and students were allowed to ‘explore and build’ in the virtual environment. This teaching process was quite innovative in that the students were not only in a virtual world but they were in a space with an established community, meeting actual citizens logged on from various locations world wide. A number of the students located undeveloped land and constructed a variety of buildings, often assisted by established citizens. The experience of building in a virtual world allowed a ‘hands-on’ approach to issues in urban design, planning law, development control and public participation.

Secondly, photospatial panoramas have been utilised for teaching which also link into current research being undertaken at CASA. In this case, a digital visualisation system was used for an example Planning Inquiry. The digital visualisation seen by the students consisted of 360 degree panoramic views of a site both before and after a proposed development.

![Figure 2: Panoramas can be viewed by clicking on the interactive plan](image)

The digitally visualised area was specifically designed for ease of use. By integrating a colour coded interface (see Figure 2) students were able to view the development from each set viewpoint. Clicking on the appropriate colour at each location, either a ‘before’ or ‘after’ panorama of the building development is displayed in the right hand section of the interface. Figure 2 illustrates a sample scene. The scene used for the Planning Inquiry example was initially provided on CD-ROM, utilising high resolution panoramas. For applications use on the University network, a secondary version was produced at a lower resolution. This reduces download times and processor requirements.

Development issues were discussed by the students using an online Bulletin Board. The latter combined with the visualisation provided a good case study in which students could explore aspects of the planning and design process in terms of development control, planning law and as players themselves in the planning process.

**Initial Experiences**

Use of the CVDS provided students with a new and enjoyable learning experience. A strong sense of location and place can be provided within a virtual environment, enabling better understanding of issues relating to design.

The University network did however provide some problems as Windows 3.1 is still the main operating system. The CVDS requires Windows 95/98/NT and as such a number of additional machines had to be made available to the students. The Digital Visualisation by contrast, utilises JAVA and as such is more flexible being able to run on Windows 3.1/95/98/NT, MAC and on Unix based systems. In terms of teaching, the use of Digital Visualisation did provide a strong case study for an actual planning application and therefore a better theoretical background could be established.

**Future Prospects**

The Visualisation system described was the first of its kind to be used in a Planning Inquiry in the UK. As the application was deemed to be relevant to the presentation of the Inquiry, it is expected that other planning applications will use the system in future. This could provide an increased number of case studies which, if networked, students can access to gain insights into both the planning and design process. The strength of the CVDS is in its ability to visualise and interact in a networked virtual environment, opening up the prospect of joint lectures with planning and design schools around the globe.

Both the Digital Visualisation System and the CVDS are available online for teaching purposes. Anyone wishing to utilise the resources should contact CASA.