Computers in Art Schools
for Visual Experimentation, Research and Networking

Summary

Computers acquire a new level of meaning when used as a general creative facility. Visual computing is a flexible new medium and can facilitate art production in many other media. In turn, the disciplines of art have much to contribute, both in the development of new kinds of artwork, and in the application of visual understanding to other disciplines such as the sciences. Taking advantage of computers represents a new challenge for many artists and art educators.

Artists have experimented with computers since the 1960s, developing new artforms and incorporating technologies into the themes of their work. Such artists accurately perceived these technologies as both central elements in the social construction of reality, and facilitators of new work and new ideas.

The rapid development of visual-based computing, "window" environments, graphics input and editing capabilities and advanced image storage, enable pictures to take over as the currency for many applications of computing in the shift from a one-dimensional (words and numbers) to a two-dimensional (graphic) operating environment. In the future, three- or even four-dimensional representation may offer even better interfacing capabilities.

The use of visualisation in computing is consistent with the shift towards the increased use of imagery for communication in western society (Davies, 1990). Although some observers in the art world have adopted "cultural pessimism" as an excuse to remain outside technological developments, computers are now evolving to a stage where they are capable of facilitating both traditional approaches to visualisation and new ways of generating visuals. Computer output can be either in the form of a photograph, a TV image, or even a lithograph. This begs the question of the medium: photography, printmaking, computing, or ideas? Do the old craft-based boundaries give way to a new generalism based on the computer?

What does it mean if a number of possibilities can be quickly explored? If a visual library of art images can be quickly scanned, copied, collaged and reworked? The question has already been raised in relation to other disciplines at school. Will the need for specific skills diminish if the computer provides automatic manipulation as in, for example, Bezier curves and bending images, or will this free the artist to do what artists do best-express ideas and emotions visually, drawing on all that is best in the traditions of the past, then outputting in one's chosen medium, say ceramics, for example.

If we look at the other side of the coin, it becomes obvious that most, if not all of the scientific and technological experts working on the development of visual computing systems have little idea of an aesthetic visual syntax. This is not to say that they have no idea of either commercial or scientific visualisation, but, considering the huge resources being ploughed into development, there is an under-utilisation of the visual knowledge existing in the art world. Of course this is nothing new - the early development of both

film and television were hardly informed by any other than commercial interest, but art schools could assume an active, as well as a critical role in the design and implementation of newer visual technologies.

Overseas, there are a number of art schools pioneering activity in computing. In Europe one of the leading institutions attempting to spearhead new activities is the Centre for Knowledge Technology at Utrecht School of Arts. Similarly Middlesex Polytechnic and Loughborough University in England have interdisciplinary research programs. In the USA the College of Fine Arts at Carnegie-Mellon University has been experimenting with international computer networking.

There are as many directions for art research in computing as there are disciplines in fine art. Whilst the most seductive visual techniques in 3D and Virtual Reality still demand very expensive machines (Silicon Graphics, or even Cray computers), more and more can be done by the middle-range machines such as Apple or Sun computers. However, there is undoubtedly an advantage in the simplicity of operation of Macintoshes, coupled with the huge range of available software, even for advanced techniques like Virtual Reality walk-throughs. Many of the problems of storing and manipulating high quality 3D visual images on machines costing less than, say $10,000, are currently being solved by ingenious new software. This is also going to blur the line between media. For example, 3D animation windows can be embedded in a text to produce an electronic newspaper (or even an "interactive" CV!)

There is a plethora of information circulating amongst the "in-crowd" of computer buffs, mostly on a verbal level. How can one "plug-in" to what is going on? Fortunately universities here have established the Australian Academic Research Network (AARNet) as a subsidised global communication service which links computers most often used for word-processing and academic record-keeping to others throughout Australia and to the rest of the world. It is important, therefore, that art schools take advantage of the rapid communications and discussion facilitated by such a service.

In addition, the use of the many existing on-line news services is to be encouraged, not to mention the setting up of some new ones. How about an Australian art schools news service? But the bottom line for many art schools is going to be cost. Development in areas like Virtual Reality would obviously be expensive. However there may also be cost savings through new technologies: some media, such as electronic photography, have little in the way of day-to-day "consumables." Similarly the new technologies may develop cheaper systems, like a recent video production system which integrates 3D with animation and video editing for less than $10,000. To take advantage of computers and accept the challenge marks the way forward for art educators.

Eric Gidney
Research Associate
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