DISCUSSION PAPER

COMPUTERS IN THE SCHOOL OF MEDIA ARTS

The following is a model which is the result of my own research and thoughts on the matter. Although conversations with a number of people have been very valuable there has not yet been a chance for full consultation with all who have something to contribute.

Please consider whether you think what follows is on the right track. You may wish to respond to this in writing, but should you prefer instead to be a party to discussions, please let me know if you would want to be included. In any case, the matter is urgent and I would like an indication soon as to whether you wish to contribute in these deliberations.

RICHARD DOVEY
HEAD, RESEARCH PLANNING AND DEVELOPMENT
SCHOOL OF MEDIA ARTS

18 June, 1990

PREAMBLE

Things have changed quickly in the area of computers and their applications. The move into the University and the prospect of the Design Degree have focussed attention on this area as never before. The history of our use or non-use of computers is of less concern than where we might go from here.

It has been part of common wisdom that computer literacy is essential to anyone operating in and interacting with the world as it now is. This discussion proceeds from this premise.

What follows is based on the premise that artists have been among the first to recognise and develop the potential of any new medium. In the field of new and sometimes complex technology there is always a period of familiarisation with its potential and capabilities, prior to using it to communicate.

In the use of computers, artists have been afforded access to sophisticated hardware and software with which to experiment, and have undertaken commercial projects for fees which permit further experimental work.

This could be conceptualised as a process whereby artists have an increasingly vital social function and are more widely acknowledged for their creativity and expertise by those not accustomed to so doing.

The best creative minds have gone into the arts or into science, but there has been a perception of these two residing at opposing extremes of a polarity. This polarisation is changing rapidly towards an integration; the best minds in science appreciate the imperative of creative thinking, and some artists use the new technology and new media to extend and expand their means of expression. These approaches enhance rather than repudiate the traditional media and forms.

COMPUTER APPLICATIONS

The most advanced work in computer art/graphics is done in institutions and corporations which have chosen and been able to afford to purchase powerful installations. Low power installations limit and slow work in this medium.

All disciplines can opt to use this kind of facility, while others will find its use an imperative; for example:

SCULPTURE: Sculptural works of virtually any kind, especially when their context is a factor as in a public commission, can be investigated by computer generated modelling. Photographic images of the physical context for the work can be scanned into the computer or a three dimensional model generated. The sculptural form can be superimposed; changes in scale of the whole or parts of the work explored; the sculptural forms can be moved around, and the effects of prevailing and changing light conditions demonstrated.

Taking the notion of sculpture into the medium of computers not only allows exploration of all kinds of public art and art in the environment, but also allows artists to explore astonishing phenomena such as the Mandelbrot set and fractal forms and geometry which come out of Chaos Theory. (see also Painting below)

PAINTING & DRAWING: Just as some artists now generate their sculptural forms within the 'mind' of the computer, some painters are using it to create their imagery. Drawing and an understanding of three dimensional form, including the platonic geometric solids is central to generating computer graphics and computer aided design. Interfacing of computers with such equipment as robots, laser cutters and sophisticated airbrush equipment allows them to make the images or objects they have created 'real'. As a process this is merely the application to the making of art of advanced techniques which have enhanced surgical procedures and produce some of the most exciting examples of good design, eg., cars, building components, furniture and appliances.

PRINTMAKING: Computers linked (interfacing) with a range of equipment (hardware) such as scanners, cameras and colour printers (naming just a few), now extends the scope of the art of printmaking.

Additionally print media has been revolutionised by introduction of new technology and most businesses which have provided work for artists educated in the traditional techniques will have replaced these with computer processes within twelve months.

The artist who has concentrated on printmaking has skills which will continue to have a degree of application in these areas, but unless that person can survive economically as an artist or can secure a teaching position, their education would be enhanced by the addition of skills and techniques discussed herein.

FILM/VIDEO/MEDIA: These disciplines are perhaps already familiar with and accepting of the effects of new technology. Its application has invariably made production of creative work quicker, easier and less labour intensive. Facilities such as those discussed herein can only expand the scope of what is possible in these areas.

PHOTOGRAPHY: Many of the comments made in regard to printmaking apply here. In general though, it can be demonstrated that the kinds of applications being proposed herein expand the ways in which images are generated, can be modified, and can flow into related media by software interfacing.

JEWELLERY: Jewellery designers and makers frequently find they employ their skills and knowledge in a wide range of creative areas; ideas can be developed into full colour rendered three-dimensional computer generated images which can be rotated in space, and in which differing materials, colours and a wide range of other effects such as reflectance, texture and transparency explored at the touch of a key.

CERAMICS: Forms, surface textures and colours can all be generated and rapidly explored and modified just as has been described for sculpture. Research into materials, glazes and firing can all be recorded with both a precise visual record and the tabulation of data.

FIBRE/FABRICS: It is now possible to design everything from swatches of sample fabric through to completed

DESIGN: Designers, if they are to have any relevance at all in the latter part of the twentieth century must be familiar with the most up to date applications of CAD (Computer Aided Design) / CAM (Computer Aided Manufacturing).

The College of Fine Arts enters this discipline at a critical time in the restructuring of Australia's economy and industrial base. All informed opinion on this topic points to the urgent need to add value to the country's resources through manufacturing, and to sell competitively in world markets. There is an emerging appreciation of the role design plays in this value-adding process.

All of the possibilities discussed in the context of a specific medium in this document apply to the activity of design; the difference is that design education is vocational in its focus.

With expertise both in art and design, the College of Fine Arts is well placed to facilitate the process whereby the experimental and research nature of artists' work in this medium can inform design and its commercial applications.

Conversely design's connections with industry affords the chance of soliciting funding from corporate and other sources to support research.

It appears we need to provide for a number of different applications in the area of education and training.

Students will need:

a) to be computer literate,

b) access to, and skills in the use of this medium, including the use of text, graphics, Computer Aided Design, together with software allowing interfacing of computers with such hardware as cameras, video, scanners, printers etc.,

c) to conduct research in the medium at an advanced level with access to state-of-the-art hardware and software.

To achieve this we need to establish:

1. A facility to train students in basic keyboard skills and to provide access by students to allow them to word-process essays etc.

There is already considerable pressure on technical and support staff by students to assist in giving them even a rudimentary grasp of how to use the existing few computers for things such as word-processing essays.

RECOMMENDATION:

A. That in first semester all students acquire computer keyboard skills.

B. That a 'centre' be established where a number of computers are available to students through a booking system.

It is important that the philosophy of this facility be one of providing a service; that it be user oriented (much as the library is).

This would allow students to word-process essays and assignments and perhaps to generate simple graphics for the same kinds of purposes. If the School of Arts Education & Theory requires students to have essays and assignments typed/word-processed (as it seems some lecturers do), they should be asked to contribute to the establishment and running of this facility.

... IBM compatible

2. A facility to educate appropriate students in the generation of computer graphics, 2D CAD and 3D CAD applications, and for students to use this facility in the creative development of their own work.

This represents a lecture room/laboratory set-up which, given optimum numbers for classes, should contain (say) ten workstations with appropriate hardware and software. This would be used both for teaching the use of the installation and for students to work on their own projects.

3. A facility for working at the cutting edge of this medium, and to interface with 2 above and associated hardware.

This will be expensive but necessary. If our position in this field, ie. computer art / graphics / design, is to be established and held, we simply cannot do this cheaply, although the use of such a term is relative. Present constraints on the availability of funds mean studies will have to be undertaken in alternative sources of money. (see below)

We do have at least one advantage however: others in this field, in Sydney and elsewhere, have made their commitments to going one way or another. We can learn from the experience of others and exercise choices without being locked into past decisions and structures.

ACCESS

Down-time on computers is lost time. It is characteristic of people working in this field that when working on a project, they lose track of time and frequently continue working into the early hours of the morning. It is important, particularly in light of the chance to integrate this with the construction of a new building, that 24 hour access to these (and possibly other) facilities be provided.

RECOMMENDATION:

That an investigation be undertaken immediately to determine the costs of the incorporation into the new building of a live-in caretaker's flat, together with an integrated security / alarm system. This would facilitate controlled and secure access to studios / workshops and facilities.

FUNDING

Other than recurrent funding, overseas student fees, corporate funding, offset funding, and the development of schemes in conjunction with industry whereby they contribute to our funds because of involvement with us in Research and Development entitling them to taxation advantages, we can generate funding by becoming a fee charging, accredited training centre in the use of 2D and 3D CAD programs.

RECOMMENDATION:

That a study be undertaken to ascertain all possible sources of funding.

The proposals in this document may seem ambitious, but they occur at a time when there is a real appreciation of the need to assimilate and then initiate and develop programs which focus on a future which is both ecologically and economically sustainable. There are ample indications that the University is well advanced in the establishment of such programs.

ACCOMMODATION

Computers need a particular kind of physical environment. In general this can be described as dust free and humidity controlled. Incoming air must therefore be filtered and dehumidified, and to prevent dust entering the space it should be kept under slight positive pressure.

RICHARD DOVEY HEAD, RESEARCH PLANNING & DEVELOPMENT