

COPY FOR: Convergence 12.3

MIKE LEGGETT ©

## **Interdisciplinary Collaboration and Practice-based Research**

### ABSTRACT

*Practice-based research and actual collaborative projects between artists and scientists have shown that knowledge about each other's fields, whilst necessary for identifying probable outcomes of mutual benefit cannot anticipate the emergence of the possible - does knowledge in the form of written papers or experiential artworks emerge from loose collaborations or the highly specified kind? Case studies from early 1970s video through to contemporary digital projects examine collaborations between artists, scientists and technologists and the involvement of audiences with interactive media art that will, between respondent and correspondent, create human computer interaction of a different order, a new aesthetics of interdisciplinary spaces.*

Developing new media artistic practices in interdisciplinary spaces is often perceived as a need for thorough research into each of the collaborators fields. Practice-based research and actual collaborative projects between artists and scientists have shown that knowledge about each other's fields, whilst necessary for identifying probable outcomes of mutual benefit cannot anticipate the emergence of the possible. In other words, does knowledge in the form of written papers or experiential artworks emerge from loose collaborations or the highly specified kind? How are the outcomes assessed and by who in both public and private arenas?

By working from a position of mutual respect for their differences and armed with scepticism balanced by thorough research into each other's respective fields, art and science can come together in modest ways on specific projects. (Munster 2004)

This description of a situation of 'stand-off', across which negotiated settlements can occur has now to move towards the next stage - the

physical integration of disciplines within the universities. It has been underway for several years with projects such as Creativity and Cognition Studios at University of Technology Sydney, one of a number of several Australian initiatives. Sited within a Faculty of Information Technology it provides access to a range of computer-science research which can be described as so specialist that few researchers are able to comprehend the scope of the whole discipline. This replicates in a sense, the scope of the field of fine art, or design, which in collaborative practice may produce work that emerges from several different specialisms. In this sense, Munster's comments could apply to the initiation of **any** act of collaboration between individuals who possess potential affinities.

It is only recently that interdisciplinary practice-based research has been formally recognised by academia as a basis for making art. Some would say the recognition has been at a cost, but benefits have been observed following the opportunity to work across the artificial divides created by disciplines and departments. Meanwhile the constraints, ~~tradition~~ ~~maintains~~ for probably administrative convenience and possibly professional anxiety, remain in place.

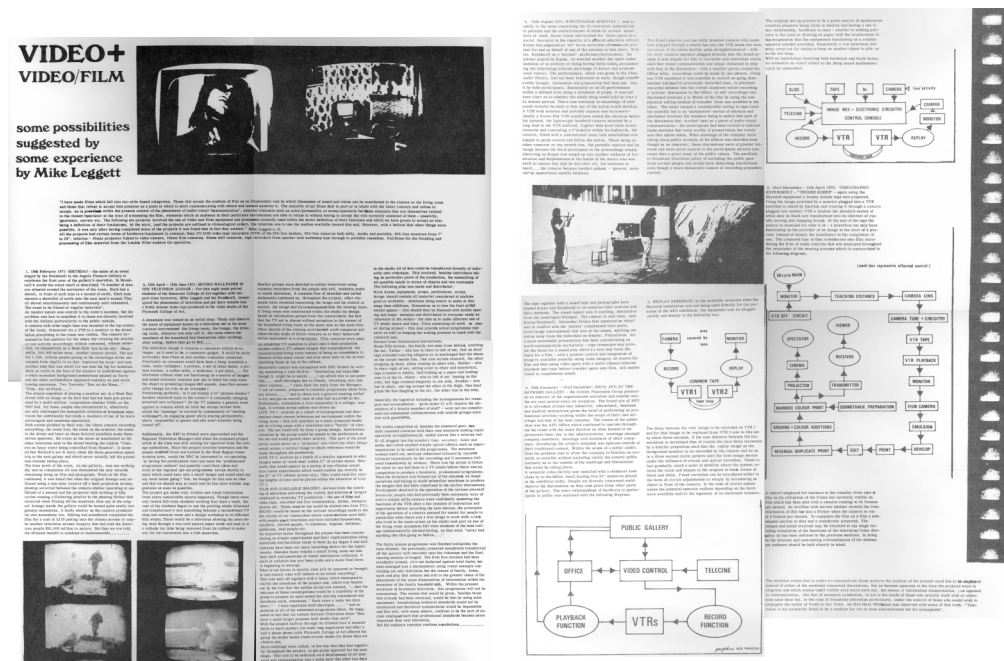
The divisions may have something to do with attitudes inculcated at an early age. Artists have skill, with tools, such as brushes and language, and sometimes rational thought, Scientists have knowledge, with evidence from, and logical thought about, the material world. Simplistic descriptions like this represent attitudes still promulgated by the media for instance and are held by the majority of Western populations.

The word scientist is quite recent and comes from the Latin *scientia*, meaning knowledge. It was a branding mission in 1834, recorded in the *Queens Review*, that sought to find a name for the person practising science: '...the want of any name by which we can designate the students of the knowledge of the material world collectively. ... some ingenious gentleman proposed that, by analogy with *artist*, they might form *scientist* ...' (OED 2004)

So there we have it, artists have only ourselves to blame for inspiring one group of people to lay claim to knowledge. A few years later in 1840 *Blackwell's Magazine* stated that 'Leonardo was mentally a seeker after truth - a scientist; Coreggio was an assertor of truth - an artist.' (OED 2004) If absolutes of this kind can be disregarded today we will be able to understand more completely the dynamics of creative people whether they are making stuff in the studio, office, laboratory, or workplace, and how they become initiators of changing practices. Communication, in particular language, adapted dynamically through their practice, is a key.

## Case Study

In an attempt to communicate to other artists, teachers and students in art school departments about the new media of the early-70s, video, I made a poster, recently unearthed. Between 1971 and 1972 I was working intensively with the first generation of 'industrial' video cameras, monitors and spool-to-spool recorders. As a part-time lecturer at various colleges of art I had access to low bandwidth video facilities. Teaching institutions, if not individuals, could afford to purchase low-band video at this point as it had low running costs as well as good pedagogical prospects. The poster, *Video + Video/Film – Some Possibilities Suggested by Some Experience*, (Leggett 1972) emerged from several converging circumstances. My background working with photography and 16mm film, both as a filmmaker artist, and as a film editor and cameraman in the television and film industries, made my entry to working with this technology a soft one compared to those artists coming from the more traditional trainings in the 60s of painting, sculpture and print-making.



Video+Video/Film poster 100cm x 75cm (Leggett 1972)

The Poster records areas of and approaches to collaborative working, an activity not familiar to individuals trained to work as fine artists within a set group of art forms. The Poster is also the only remaining evidence of many of the video projects undertaken. This was the era of the immaterial in art and the elevation of the ephemeral was echoed by the ease with which videotape could be erased – not always intentionally – to be re-used: some projects were simply grist for the next. The Achilles' Heel in the area of electronics-based technology - obsolescence – has accounted for many

works from this time being lost. The new media of then is the lost media of now, giving the Poster added significance.<sup>1</sup>

In the course of working with art students and collaborating with other visual artists during this period, the notes I made were later used as the basis for the Poster, observed the processes of understanding in others, whilst identifying the specificities of the video medium as they emerged. The instant feedback possible with the medium, unlike working with film, accelerated the development of a work, interweaving the plasticity of this time-based image with decision-making processes made materially tangible, until a final sequence, or series of versions, could be committed as completed to videotape.

The work of technologists in corporations resulted in the introduction of video, like hi-fi audio before it, into the consumer electronics market. The wider social effect of this has been discussed, (Williams 1974) but besides broadening the availability of modern mediums with which artists could work – as a tool for strategic intervention, or to freely experiment - encouraged some artists to go further by seeking collaborations with technologists. In so doing the ‘new media’ of video moved away from being a general tool to being a particular one displaying an aesthetic emergent from crossing the disciplinary divides of technology and language, art and television.

Peter Donebauer has described his building of the Videokalos Colour Synthesiser to ‘address some of the technical and image control issues’ of making abstract video using broadcast television equipment in the mid-1970s. Collaborating with an electronics designer of sound synthesisers, not only were several machines made capable of producing the sound/image combination Donebauer was seeking, but also skills transfer between the partners achieved. (Donebauer 1996 pp 87 – 98) From video art to music videos, from monitors to installations, collaboration was a necessity.

### **Practice-based Research**

My approach to practice-based research in 1972 used a reflective approach to draw together into the Poster the various notes and diagrams that had been accumulating on paper and in mind. The format is a familiar mode of presentation at science and technology events, (the context in which I currently work), but virtually unknown in the art world. The reason, some would say, is that the artist expresses themselves through their art work, that other forms of expression about art are best left to those who communicate with words. However, the form was found useful for communicating to groups on the periphery of becoming a part of the community of interest within what is now called media arts, by displaying concepts, images or descriptions that potentially link to perceived

---

<sup>1</sup> REWIND is a research project in the UK addressing this issue.

concerns and issues. As A Poster, as with a gallery floor-talk, it is an element in the 'inter-' function of interdisciplinary activity: creative, practice-based research, reported as a performance – not a lecture, nor a conversation – at a particular place and time.

As an interactive tool the inter-performance can be useful for closing the gap between the scientist or the artist, their peers and their audience. But it does present an additional load in preparing the meta-language to describe the work. A more efficient solution – avoiding diversions from the creative process – is to structure collaborating partners, disciplines and expertises with a framework that off-loads the description, the interlocutory, onto another ~~technology~~ communication channel. An integrated function rather than supernumary. Paper-based technologies like notebooks, through to language itself are such tools, with machines such as computers beginning to similarly mould themselves to our needs. They are all good examples of what Andy Clark has described as: '...the pervasive tendency of human agents to actively structure their environments in ways that will reduce subsequent computational loads.' (Clark 1997, pp. 150)

It is of course the development of computer technology that has enabled us to restructure our environment, to greater degree by some, to lesser degree by many. This reduction of load has accelerated at extraordinary rates in ways that was not foreseen by many in the 1970s. It has also become the focus of re-appraising the false diversions instigated in the 19th Century and maintained for a variety of vested reasons until the present day. My own engagement with modes of interfacing with memory machines has brought together my earlier work with film and video and the recent work by researchers in interrelated fields. Partly motivated by personal necessity but also related to another of Clark's observations that: '....our brains make the world smart so we can be dumb in peace...' (Clark 1997).

The CACHE project set out in 2001 to recover early British computer art histories and in some initial observations have been made by one of the researchers:

'...the field of early computer arts is a unique example of interdisciplinary collaboration within Art History. ... That there is little direct connection between this pioneering period and the New Media-based practice beginning in the 1990s, is in itself interesting. Contemporary digital art is often more involved with the computer as a platform for communications and issue based ideas, sometimes deconstructing the technology itself. Whereas early computer arts was about specificity of material and technique – as such it can be seen as one of the last aspects of Modernism.' (Mason, 2005)

### **Artists in the Laboratory**

I am in the early stages of interdisciplinary research into human memory and its relation to machine memory, methods of storage and retrieval of media elements in the current context of information and communication technology (ICT). It proposes an approach to indexing audio-visual media utilising a representational system that draws on a real-world time-space representation as the taxonomy for the indexing procedure. An interactive experimental prototype, *PathScape*, and further practice-based research, approaches author-defined storage and retrieval systems for digital video based on non text-based indexing. (Leggett 2005)

Recent work by Nigel Helyer and Mari Velonaki have both been working on distinctive projects over the past two years within interdisciplinary environments in partnership with industry, university departments, the Australian Research Council and the Synapse program of the Australia Council for the Arts.

Nigel Helyer has maintained over the past twenty years a consistent link between sound, the oral and transliteration, combining the technologies of electronics and digital media with sculptural form, his practice often including close working with technology industries, such as a recent research relationship with Lake Technology, a media electronics corporation. At University of New South Wales he has been working on a raft of partnership projects with a budget of some \$AU360,000 over three years that include the *AudioNomad* series. (Helyer 2004)

Mari Velonaki, with her recent project, *Fish – Bird*, is developing autonomous three-dimensional kinetic/robotic objects, a large conceptual and technological shift from earlier work as a dancer and multimedia artist. (Velonaki 2005) 'I felt I had to collaborate with people who were not only proficient with such technologies, but also were innovative thinkers in the use of such scientific knowledge. Working in a large-scale collaborative project requires time to think and evaluate, space to work and test, and sufficient shared activity for ideas to cross-pollinate.' Velonaki reports that at the Australian Centre for Field Robotics at the University of Sydney 'I felt welcomed and supported from day one. The Synapse initiative itself was extremely important, since it provides a framework within which artists can approach leading scientific groups with proposals for collaborations' (Leggett 2004)

Catherine Stevens from a cognitive science background and Shirley McKechnie, a dance choreographer of long-standing, with significant funding from the Australian Research Council, are working on choreographic cognition, movement memory and audience response to contemporary dance - defined as movement deliberately and systematically cultivated for its own sake. 'Creating and performing dance appear to involve both procedural and declarative knowledge. The latter includes the role of episodic memory in performance and occasional

labelling of movement phrases and sections in rehearsal. Procedural knowledge in dance is augmented by expressive nuance, feeling and communicative intent that is not characteristic of other movement-based procedural tasks.' The research focuses on approaches for developing, training and building means for refreshing ways of thinking about the discipline, using various communication modes including language, for the benefit of dancers, choreographers and audiences alike. (Stevens & McKechnie 2005)

Exhibition spaces are responding to the different expectations interdisciplinary outcomes are producing. They have more to work with than simply objects and texts. Some, like *beta\_space* at the Powerhouse Museum in Sydney, (CCS 2005) include the audience in the research process, observing by various means, reflecting, modifying, developing and extending the meanings and possibilities of interactivity within the system. Likewise at the Australian Centre for the Moving Image, Zentrum fur Kunst und Media in Karlsruhe, MIT Media Lab, Artists' in Labs in Zurich etc, the spaces for interdisciplinary research, production and exhibition are moved closer together.

### **Conclusion**

With some official encouragement artists have begun to seek the scientists and technologists wishing to collaborate committedly on projects of mutual benefit. The arena of audience involvement with interactive media art for instance, will likewise shift and mutate into an interzone that creates human computer interaction of a different order, between respondent and correspondent. The role of initiator and auteur is becoming less dominant, less in charge of how an interactive encounter may proceed. By bundling and linking a variety of electronic and microprocessor devices, this moves the art activity decidedly away from the geographically installed and hard-wired artefact towards systems and processes that are definable, more mobile and harder to classify within the taxonomies of art and social behaviour.

Whilst some might prefer the term innovation, a re-emerging creativeness need not be about solving problems, nor be concerned with purveying the collectable object or reputation. The 'creative industries' need to be more about shared knowledge and less its commercialisation. Creative cultures of the kind encouraged by the Australia Council's Synapse initiative, for instance, through active opening of doors and liberalisation of language need now to enable larger numbers of practitioners to move out of the audience and into the new aesthetics of interdisciplinary spaces.

### **References**

CCS, (2006) *beta\_space*, Powerhouse Museum Sydney, consulted 1.5.2006 <http://www.betaspace.net.au/>

Clark, A. (1997), *Being there: putting brain, body, and world together again*, MIT Press, Cambridge, Mass.

Donebauer, P. (1976/1996), 'A Personal Journey Through a New Medium', in J. Knight (ed.), *Diverse Practices*, John Libbey, London.

Helyer, N., *AudioNomad*, viewed 1.8.2005 <<http://www.sonicobjects.com/>>.

Leggett, M. (1972), *Video + Video/Film - some possibilities suggested by some Experience*, Exeter College of Art & Design, Exeter.

Leggett, M. 'Synapse', *RealTime #61 (June/July)*, Sydney, viewed 1.1.05 <<http://www.realttimearts.net/>>.

Leggett, M. (2005), 'Indexing Audio-visual Digital Media: the PathScape prototype', *Scan*, vol. V2 N2, consulted 2005  
[http://scan.net.au/scan/journal/display\\_refereed.php?j\\_id=5](http://scan.net.au/scan/journal/display_refereed.php?j_id=5)

Mason, C. (2005) End of Project Report - the Cultural Institutions. in Brown, P. (Ed.) *PAGE*. London, Computer Arts Society.

Munster, A. (2004), 'Collaboration or Complicity?' *RealTime #60 (April/May)*, Sydney, viewed 1.4.04 <<http://www.realttimearts.net/>>.

OED 2004, *Oxford English Dictionary*, viewed 1.9.05 <<http://dictionary.oed.com/>>.

Stevens, C. & McKechnie, S. (2005), 'Thinking in action: thought made visible in contemporary dance', *Cognitive Processing*, vol. 6, no. 4, p. 243.

Velonaki, M. *Fish - Bird*, viewed 1.8.2005  
<http://www.novamedia.com.au/artists.php> ; also  
<http://www.acfr.usyd.edu.au/>

Williams, R. (1974), *Television: Technology and Cultural Form*, Fontana, London.