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Scoping Study for a National New Media/Electronic Arts Network

Curtin University of Technology
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Project Team, Eleanor Gates-Stuart; Vince Dziekan; Dr Brogan Bunt; Professor Julian Knowles.

http://www.nomad.net.au

Author Jeremy Blank, 2009.

MEDIA ARTS SCOPING STUDY

NATIONAL ORGANISATION OF MEDIA ARTS DATABASE

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Scoping Study
For a National New Media/Electronic Arts Network

Acronyms

AFTRS	Australian Film, Television & Radio School
ALTC	Australian Learning and Teaching Council
ANAT	Australian Network for Art & Technology
AVAA	Australian Video Art Archive
BEAP	Biennale of Electronic Arts Perth
CAA	College Arts Association
CADCAM	Computer Aided Design Computer Artists Media
COFA	College of Fine Arts, The University of NSW
CPU	central processing unit
IRCAM	Institut de Recherche et Co-ordination Acoustique/ Musique
LEF	Leonardo Education Forum
MAAP	Multimedia Art Asia Pacific
MASS	Media Art Scoping Study
NASA	National Aeronautical Space Agency
NOMAD	National Online Media Arts Database
RMIT	Royal Melbourne Institute of Technology
UTS	University of Technology, Sydney
VCA	Victorian College of the Arts, The University of Melbourne

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Executive Summary

The Media Arts Scoping Study project was implemented to explore a national network of media art practices within Australian universities.

The aim of the media/electronic art scoping study (MASS) was to develop a three pronged approach in creating the national network for media/electronic art academics.

- To produce a networked website providing the basis for the design and construction of relevant infrastructures facilitating the collection and dissemination of data.
- A database was designed to obtain meaningful input and create a detailed understanding of the underpinning rationales enabling media/electronic art to evolve within the universities.
- To complement the database a word press site was constructed to run in parallel demonstrating major events influencing the evolution of media/electronic arts within the Australian university structure.

The second stage was the production of a media/electronic art scoping study symposium, held in July 2009. Attendees to the symposium were from across Australia. The symposium brought together three ALTC funded projects where team members, invited speakers and attendees interested in each discrete project shared ideas, mixed within focus groups and networked.

The final stage involved a range of public outcomes as an overview and analysis of new media/electronic arts to gain an accurate and comprehensive view of the sector in Australia.

The study's aim to provide baseline data as to how media/electronic art curriculum has developed within the university sector has been realized. The networked study assists in the contextualization of emerging technologically mediated arts practice curriculum into the future, while developing further definitions of the sector for universities to manage the development of this area of study.

The first priority was the establishment of the National Organizations of Media Arts Database (NOMAD). This database facilitated the collection and presentation of relevant institutional information concerning the evolution of media/electronic art within a University context. To complement the database a word press site was established to work as an archive of significant events that informed and stimulated course development.

Interviewing of some key educationalists to gather first hand historical accounts of information, effectively lost through the pace of change, was perceived as an important and necessary key element of the research. Time for documentation has not been privileged in the general area, while ongoing changes in recording formats, storage formats and codec's has left us with little physical evidence of what has been undertaken professionally and academically.

The need for a networked database of media art is paramount in the development and documentation of a new modality within the arts. Media/electronic art is of particular interest in that its evolution has been so short and intense that it has had little time for reflection and review of itself as a sector.

Since 1975, when John Drews and Eric Gidney first taught an audio-visual unit at Alexander Mackie (COFA) we have, in the following thirty-four years, seen changes taking place towards a total technological mediation of art. The rapid rate of change has required that most course materials be reworked each semester to maintain currency. Currently a computer, with various attachments, can become a surrogate art school providing all the necessary mediums to create art.

The need for disciplined based research is due to the continually evolving status of the field of media/electronic arts within the university sector in Australia over the past thirty-four years. The overall lack of national information concerning teaching and learning in this area provided the motivation for instigating a media art scoping study MASS to be undertaken and for the development of a NOMAD.

The NOMAD database demonstrates that strategically reviewing the use of emerging technologies opens up the 'local' and 'isolated' disciplinary domains to increasingly 'social' spheres of practice. Embracing the possibilities made available through an online collaborative database, of significant media/electronic art course materials, will provide important practice-led curriculum developments and opportunities in the future.

The emerging technologies in Science are presenting us with new understandings and different approaches to concepts of materiality and immateriality. The role of the art school as a unique entity incorporated in universities is necessary and desirable to create a blended homogenized curriculum at the convergence of disciplines.

Figure 1. Example of educational components from the NOMAD site, Synchrotron Residency RMIT School of Creative Media.

The above example from the NOMAD website indicates the level of integrated initiatives already in place within Australia that have been uploaded to the MASS.

More research needs to be done to explore ideas of the creation of neutral research environments between different discipline clusters. Media/electronic art has been at the forefront of experimenting with environments that have established and developed a remix culture, redefined art practice, cultural expression and the creative potential of convergence increasingly throughout the twentieth century.

Review of the Field

The Australia Council's 2006 New Media scoping study report has significantly informed and influenced the Media Art Scoping Study's focus in realizing the documentation of significant educational initiatives in the area of Media Arts in Australia. The Australia Council's oversight of educational importance within their report on the role and future development of Media Arts in Australia offered an immediate and important focus for the scoping study. The generalized tone evident within the Australia Council's report emphasized the lack of material evidence available as a resource in 2006. This will be discussed within the section addressing the Australia Council's scoping study.

The discipline of Media Arts has little documentation of its development either as a distinct art practice, or more importantly its implementation and growth within tertiary and university sectors of education. The area of Media Art documentation is in its infancy, while the practice has established itself academically and professionally at globally recognized levels of exhibition, funding and academic study.

> *1.8. That media literacy is promoted as a key element of the Australia Council's Arts & Education Strategy, and that the Australia Council initiate partnerships with other key stakeholder agencies to further research the development of a proposal for a national review of media literacy education in schools that establishes the status and quality of teaching in this area. Further research would build upon the findings of the National Review of Education in Visual Arts, Crafts, Design and Visual Communication.*
> (Donovan, Lally, & Miller, 2006, 23).

Noel Frankham's ongoing research into the provision and delivery of Visual Art across Australia further influenced the drive to realize a Media Art Scoping Study and National Online Media Art Database.

> *Frankham's paper charted changes over the past 30 years and forecast possibilities for the future of Australian art and design schools. He uses the evolution of the Tasmanian School of Art as a reference for speculating on a range of factors that will impact management and leadership of schools in the near future.*
> (Frankham, 2006).

Frankham's ongoing documentation of Visual Art provision through ACUADS has extended over several years. The Media Art Scoping Study sought to effectively document and create an online accessible resource with open access for all in a defined period of time.

Haseman & Jaaniste (2008), referring to the Australia Council's Media art Scoping study of 2006, state:

> *'In March 2007, the Australia Council and the Centre of Excellence in Creative Industries and Innovation jointly produced Educating for the Creative Workforce: Rethinking arts and education, which framed arts education as an ideal training ground for building the creative capacity of our future workforce in general, and future innovators in particular. The National education and the arts statement, published in September 2007, echoed that rationale'.*

Many of the resources relied upon and accessed in the development, expansion and promotion of this scoping study have been through online alliances, where the project leader Paul Thomas has had a significant presence for many years. His relationships and links with many international professional organizations embracing Media Art education and development have enabled him to forge and establish lasting relationships throughout Australia, Europe and the United States of America. The value of personal professional networks is a defining aspect of Media Arts growth, within a fledgling area of art and academic practice where progress has outstripped documentation since the onset of it as art practice.

It is the absence of the documentation and development of Media Art education that has inspired and galvanized the scoping study to realize a significant and real resource for educational and research referencing.

Australian Screen Production Education & Research Association (ASPERA)
ASPERA is the peak discipline body of Australian tertiary institutions teaching and researching film, video, television and new media as screen based production practices. It was established in 2004 at an initial conference at the Victorian College of the Arts in Melbourne attended by 16 institutions.

http://www.aspera.org.au/

The Leonardo Education Forum (LEF) promotes the advancement of artistic research and academic scholarship at the intersections of art, science, and technology. Serving practitioners, scholars, and students who are members of the Leonardo community, LEF provides a forum for collaboration and exchange with other scholarly communities, including the College Art Association of America (CAA), of which it is an affiliate society.

The Leonardo Education Forum is part of the Leonardo Educators and Students Program which also includes the Leonardo Abstract Service (LABS) and the Leonardo International Faculty Alerts List.

http://www.leonardo.info/isast/lef.html

The MASS site has an extensive link menu to artists and organizations across Australia. The links provide extended referencing potential and dynamic access to media art practice across Australia provided by contributors to the MASS and NOMAD sites.

http://mass.nomad.net.au/links/

Project overview and timeline

The National Online Media Arts Database (NOMAD) and Media Art Scoping Study (MASS) are joint initiatives of the funded scoping study by the ALTC.

The NOMAD website provides a database of current and historical educational materials and resources from across contemporary Australian education institutions. http://nomad.net.au/

The MASS site is both a contemporary and historical database of Australian Media Arts activities significantly contributing to the growth and definition of Australian Media Art practice reflecting educational curriculum development. and documentation of recent exhibitions, conferences and practice. The MASS site has significant extended linkage across a range of Australian media art related portals such as Experimenta, ANAT and Realtime magazine's online resources.

The illustrations contained in this report are accessible through the MASS site. They offer visual references, immediately contextualizing their place in the history of Australian Media Art practice from an educational research context; emphasizing and complementing stated facts realized through the scoping study.

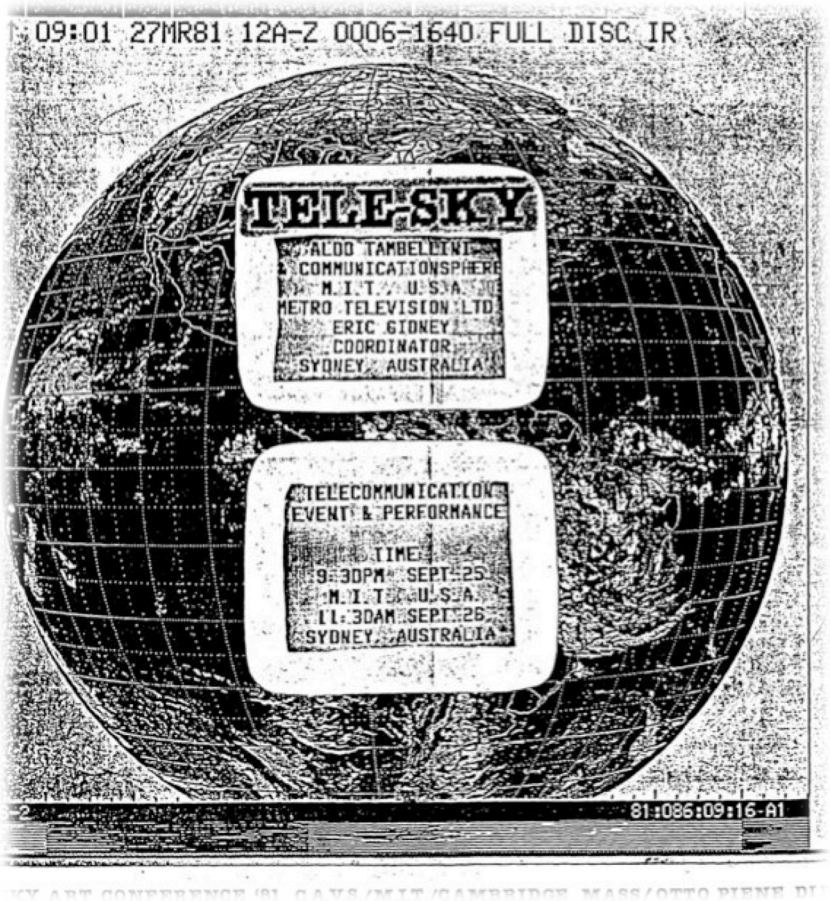


Figure 2. Telesky@Sky Art Conference (1981): C.A.V.S/M.I.T/Cambridge
Organised by Eric Gidney, Telesky was the first visual telecommunications event in Australia linking the Paddington Town Hall in Sydney with MIT in Cambridge Massachusetts.

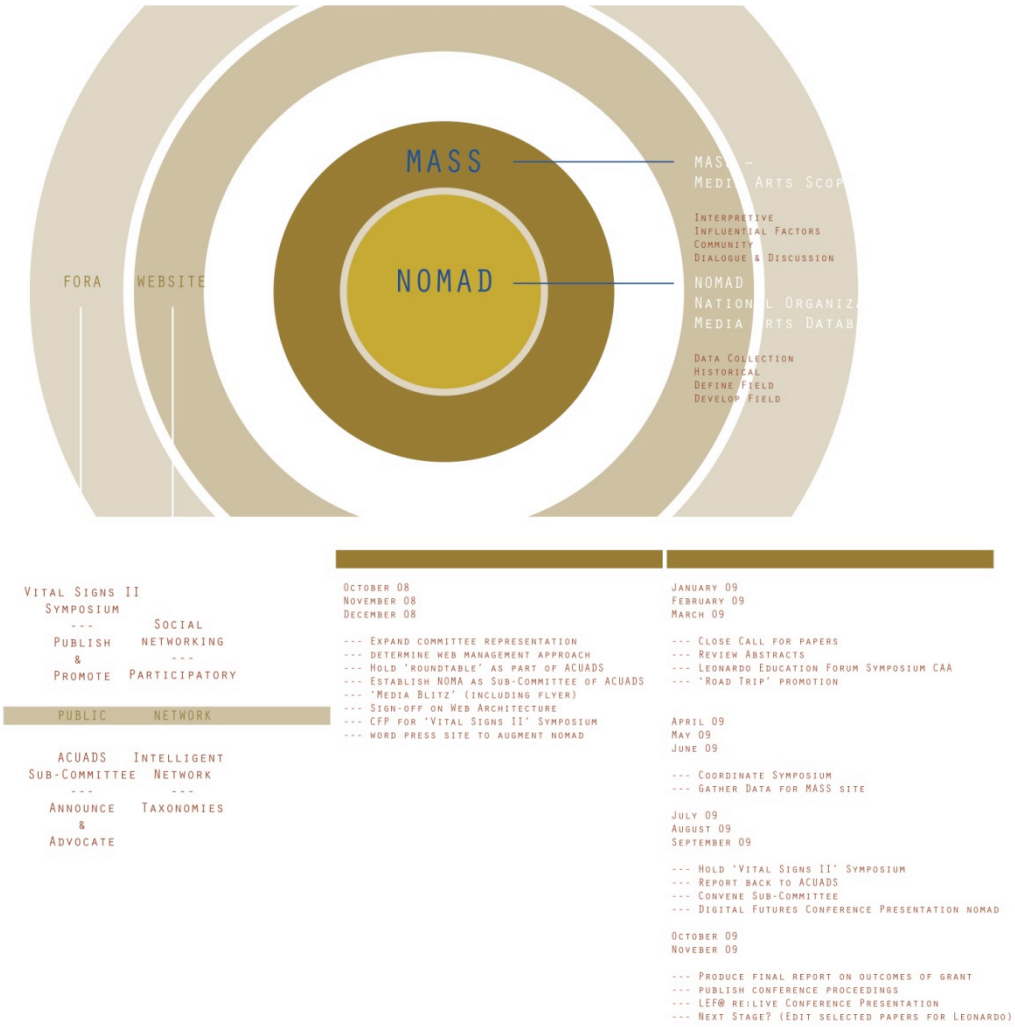


Figure 3. Timeline for the NOMAD & MASS scoping study.

October to December 08: Expand committee representation; determine web management approach; Hold 'roundtable' as part of ACUADS -- Establish NOMA as Sub-Committee of ACUADS; 'Media Blitz' (including flyer) Sign-off on Web Architecture; CFP for 'Vital Signs II' Symposium; word press site to augment nomad.

TIMELINE 2009
January to March 09: Close Call for papers; Review Abstracts; Leonardo Education Forum Symposium CAA; Road Trip' promotion
April to June 09: Coordinate Symposium; Gather Data for MASS site
July to September 09: Hold 'Vital Signs II' Symposium; Report back to ACUADS; Convene Sub-Committee; Digital Futures Conference Presentation nomad
October to November 09: Produce final report on outcomes of grant; publish conference proceedings; LEF@ re:live Conference Presentation --- Next Stage (Edit selected papers for Leonardo)

Media arts: a definition

> To recite the story of media art in its syncretic mode is not to advance its development, nor is it sufficient simply to outline the syncretic reality that is emerging. Strategies to strengthen this emergence are needed. (Alexenberg., ed. 2008, 47).

Alexenberg cites Roy Ascott's definition (above) from *Pixels & Particles; The Path to Syncretism* (2007), which is used as a banner within the National Online Media Arts Database website, an outcome of this scoping study.

The title for the proposed scoping study referred to New Media /Electronic Arts. As research progressed across a broad range of subjects and disciplines, each with their own histories and emphasis, it has been understood that the term Media Arts would be more appropriate serving a broader range of areas without over emphasis of a particular historic faction. The following definition is taken from The Australia Council's 2006 New Media Scoping Study where the term Media Arts was stated as a definition of the areas surveyed.

> *'Media arts is a diverse and dynamic field, constantly evolving as artists find new ways of working with visual, audio and data technologies. In media arts, artists maintain creative and editorial control over their work, distinguishing it from the cultural industries of film, television and multimedia publishing.*
>
> *Media arts may encompass participatory and location-based work, screen-based art, sound art, networked media, projection work, mobile or portable work, software and database generated art, artificial intelligence, wearable computing, bio-art, nanotech, robotics, interactive and immersive environments, art/science and technology practices, and augmented, mixed and virtual realities. It can inhabit traditional presenting spaces such as theatres, museums and galleries, but also non-institutional spaces ranging from online environments and networks to public spaces and remote communities.*
>
> *Media arts may also involve hybrid collaborations between different art forms including the visual arts, dance, music, literature and theatre, as well as popular cultural forms, and disciplines such as science, architecture and history. It is integrated within, and funded by, all boards of the Australia Council'.*

(Donovan, Lally, & Miller, 2006, 9).

PART 1: 1.1 Aims (Vision) & Objectives

The aims of the proposal were:-

1. To conduct a scoping study of media/electronic art teaching practices

2. To build a network and database supporting curriculum development and enhancement in media/electronic arts education at universities.

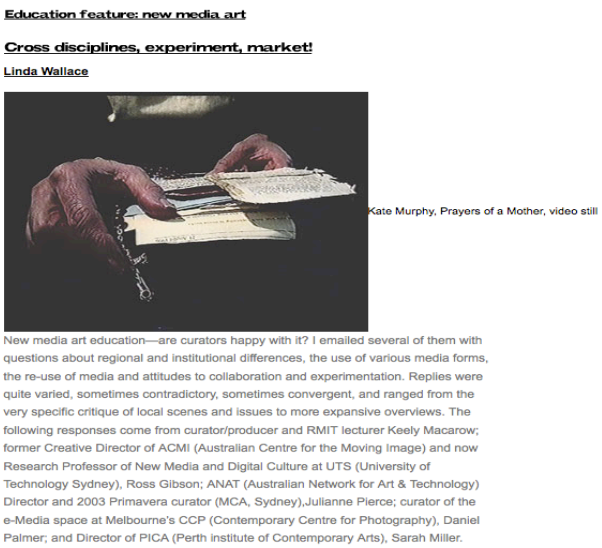
The Scoping Study's aims were achieved through the construction of a website and the efforts of Dr. Paul Thomas. A series of publicising initiatives and interviews were undertaken by Dr. Thomas to generate interest and attract contributions to the project through web submissions. The organization of the scoping study symposium held in Melbourne at the Victoria College of the Arts, July 2009 in conjunction with two other ALTC funded research projects and further international presentations publicising the scoping study were also driven by Dr. Thomas.

1.2 Limitations

The Scoping Study focused on gathering historical and current information relating to Media Art practice and educational initiatives from within Australia. Databases were created through Web - 2.0 technologies where practitioners, institutions, publications, academics and artists were invited and encouraged to contribute in building a database of accessible and relevant material for research and reference purposes.

The Scoping Study did not seek to analyze or present the resultant data or information beyond the initial brief. It is evident that the initial focus of the project, while necessarily tight in its remit, could be significantly expanded to gather and create a more fully realized portal or significant reference point for institutions, academics, artists and students.

Submissions from ANAT (The Australian Network for Art and Technology) REALTIME magazine, the AVAA (Australian Video Art Archive) academics, artists and teaching staff from across Australia significantly enrich the scoping study; such as the article below from REALTIME archives by Linda Wallace an artist, academic.



Education feature: new media art

Cross disciplines, experiment, market!

Linda Wallace

Kate Murphy, Prayers of a Mother, video still

New media art education—are curators happy with it? I emailed several of them with questions about regional and institutional differences, the use of various media forms, the re-use of media and attitudes to collaboration and experimentation. Replies were quite varied, sometimes contradictory, sometimes convergent, and ranged from the very specific critique of local scenes and issues to more expansive overviews. The following responses come from curator/producer and RMIT lecturer Keely Macarow; former Creative Director of ACMI (Australian Centre for the Moving Image) and now Research Professor of New Media and Digital Culture at UTS (University of Technology Sydney), Ross Gibson; ANAT (Australian Network for Art & Technology) Director and 2003 Primavera curator (MCA, Sydney),Julianne Pierce; curator of the e-Media space at Melbourne's CCP (Contemporary Centre for Photography), Daniel Palmer; and Director of PICA (Perth institute of Contemporary Arts), Sarah Miller.

Figure 4. Wallace (2003) Cross disciplines, experiment, market! *REALTIME (56)*: http://www.realtimearts.net/article/56/7154 (accessed November 22/2009)

1.3 Context (Media Arts an interdisciplinary approach to art)

The disciplinary area of Media Arts has grown from small 'interdisciplinary' and experimental approaches from within, what once were, Art Schools. 'The Tin Sheds' of Sydney in the nineteen seventies were cited as an example of interdisciplinary teaching and learning by Stephen Jones at the scoping study's symposium, Melbourne July 2009.

In the nineteen seventies and eighties understanding of 'multimedia' was broad, where a variety of media approaches were encouraged by a handful of practitioner teaching staff aware of international trends and increasing access to technologies such as video, sound, installation and computer based media. Such approaches were implemented through the professional links and involvements of academics either directly involved as practitioners or as critical theorists prepared to travel across Australia or beyond to maintain personal currency.

Developments of areas such as Interdisciplinary Studies by individuals such as Warren Burt, Eric Gidney, Donald Brooke, Paul Thomas and Douglas Sheerer integrated traditional 'Art School' values and approaches with experimental, contextual and theoretical emphasis; while having little access to high-end technologies, which remained the preserve of Film and Television or Graphics.

The label Multimedia was significantly claimed by Graphics or Communication Studies as a cover-all term for the use of computers. The term Media Arts includes both Media and Art. The area has historically been known under many names or titles, often confusing for students, staff, management and funding bodies. Each area/section or subset has developed from a different initial emphasis. Audio Visual Studies initially provided a broad term where time based study in any form, sonic or visual, could be accommodated. As some areas emerged from sound, others grew from performance, animation, photography, super 8 or 16mm filmmaking or 'Portapack' video. With each area having its own history, the context for study within such a broad field has clearly proven problematic. Areas such as painting, where staff with experience in figurative work combined with others in abstraction, may offer a broad teaching experience for students. Accessing multi-skilled staff with fine art experience and specialist knowledge of technology is a rarity. The strengths and emphasis of key staff within any institution effectively drive the focus of that respective study area. With the advent of computer based software, analogue areas of sound and video moved into the realm of multimedia, as understood and owned by graphics and design. Media/electronic arts have a broad and complex web of histories while coexisting and competing for hardware funding with commercially driven and focused areas such as film and television.

The development of the Internet has seen the growth of small-scale providers of media content, where a global phenomenon in the growth of animation, sound and video has exploded over the last ten years in direct relationship to the expanding accessibility of the Internet. Ironically it is major television and film distributors whose dominance is challenged by amateur content and social network providers such as YouTube or Vimeo. Democratization of media content with the individual becoming the content provider, critic, commentator and globally accessible media-personality is upon us.

The potential to immediately distribute material globally as soon as it is conceived, directly challenges the established controlling realms of cinematic, televisual or musical distribution that defined the twentieth century. The challenge to generate material where artistic elements or content are considered defines much current thinking within media arts.

The area's history has been broad, with new developments contradicting each previous aesthetic perspective. Teaching in such an accelerated arena as media arts challenges staff and students on many levels where technological emphasis rapidly shifts. Stylistic and conceptual shifts in media art move at a far more accelerated pace than in the established areas of painting or sculpture. The integration of technologies within the areas of sculpture and painting has already significantly influenced those areas professionally.

Media art is currently represented within two essential strands of practice.

- The democratization of technology and rise of low art has realized Joseph Beuys' statement 'everyone an artist', where anyone has the capacity to create art. The expansion of social networking websites has created global possibilities beyond the physical constraints of being in a geographical location and surrounded by people.
- The development of new potentials through hybrid practice. A remarkable expansion in contemporary art practice has occurred where artists have collaborated with a range of specialists across areas as diverse as Biology, Physics, Computer programming, Philosophy, Politics, NASA, Oceanography, Poetry, Mathematics, Sculpture, Nano-technologies, Architecture, Economics, sound installation, online web-art, painting, photography and performance. It is this aspect that effectively preserves high art concepts of contemporary art practice at a time where art is challenged, once more, by technological innovations being described as revolutionary as the birth of the Gutenberg press.

1.4 Australian Historical Contexts in Media Art Education

The contextualization of Media Art's history nationally and internationally has been within mostly practical focused units and courses where technological upskilling is combined with practical outcome based emphasis within art contexts.

Historical or contextual referencing to international activity has been more recently achieved through such online portals as Ubuweb and YouTube, where previously it would have been through lecturers' personal documentation, copies of events, exhibitions or marginal publications within the area. Practice based lecturers have, necessarily, had to become theorists in order to present or contextualize their study materials effectively.

Reference to the history of media art education have been negligible, other than conference papers addressing important initiatives that would otherwise disappear from our collective memory.

There has existed a long term desire to document, preserve and make available the rich experience and work already done in securing the role of Media Arts within tertiary and higher education in Australia since the 1989 Summer School at CADCAM in Adelaide.

The MASS and NOMAD sites document a rich and diverse history paralleling the interests of universities.

32 — THE AUSTRALIAN Tuesday February 7 1989 — 32

Artists brush up on technique at CAD-CAM summer school

By LINDA WALLACE *

BRISBANE artist Ms Virginia Barratt is no longer phased by sophisticated computer technology. Last week she was one of 12 artists to complete the first National Summer School in CAD-CAM in Adelaide.

The four-week course was an initiative of the South Australia-based Australian Network for Art and Technology (ANAT). It was held at the Advanced Technology Education Centre (ATEC).

The artists, from throughout Australia, worked in painting, sculpture, performance, architecture, audio/visual media and jewellery, fabric, furniture and interior design.

They had to banish their residual Luddite tendencies to understand the computer-aided design (CAD) system (which consisted of Cadds Man software developed in South Australia running on NEC workstations), then begin to push it to its limits.

Instructor and ATEC manager Mr Pat Tucker said he was kept on his toes by the new students and had to change his mode of teaching as the course progressed.

"Instead of rote, mechanical-style learning, they approached the system in an experimental fashion," he said.

The course also served to introduce the business side of technological development to lateral thinking.

Recently, at the school's Open Day, upper management people from software, hardware and allied manufacturing companies, along with the State Minister for Development and Technology, Employment and Further Education, Mr Arnold, rubbed shoulders with practicing artists and arts administrators.

"It is crucial to create an environment for dialogue and trust to develop between artists and industry," the executive director of ANAT, Ms Francesca da Rimini, said.

The business development manager of Adelaide's Technology Park, Mr David Biggs, said he believed the traditional resistance from industry was historically and culturally based.

Competitive

"Artists were seen as the ultimate laissez faire characters — bohemian and unreliable — but businesses, especially at the upper end of the technological spectrum, are becoming more sensitive to the fact of using people with a different conceptual approach if they are to continue to be competitive," he said.

"Perhaps business should be looking at bringing artists and similar thinkers into the design, research and development process at an earlier stage to give their company the leading edge when their products hit the marketplace."

But he also acknowledged the resistance cut both ways.

He admitted there were some artist types he had met who thought they should "roam through the hills and glens waiting for inspiration, and that working for industry would be the ultimate betrayal of their integrity".

The responses of the artists were enthusiastic. A number produced actual objects using numerically controlled mills and lathes.

"For me the month here has been intellectually expansive," Ms Barratt, a performance artist and dancer, said.

"I've developed a fluidity regarding the application of systems of knowledge, and feel like I've flung myself into the 21st century in ways I can't quite articulate at the moment."

Artist Ms Diane Mantzaris was trained as a painter, then began using a 2-D Macintosh graphics system as a tool. She said working with the CAD system's 3-D capabilities and limitless computer space became areas of exploration.

Following the national publicity gained by the Summer School, ANAT has been approached by other educational institutions to co-ordinate the running of similar events.

** Linda Wallace was a course participant and is an audio/visual artist and writer*

Figure.5 Australian newspaper 7 February 1989 press clipping for the CADCAM artists summer school Adelaide.

1.5 The role of the Australia Council's New Media Panel

The Australia Council created a specific panel for New Media, encouraging and supporting 'high end' collaboration between artists working with a broad range of media with technicians, scientists, architects, biologists and aeronautical engineers.

Internationally recognized artists such as Patricia Piccinini, David Haines and Joyce Hinterding were supported through the Australia Council's dedicated funding for New Media work between 1996 and 2005. The New Media department of the Australia Council significantly supported the Biennale of Electronic Arts Perth (BEAP) 2002, 2004 and 2007. The existence of such a peer body encouraged educational institutions to support and develop Media Arts within Visual Art higher education.

The panel further supported organizations such as Experimenta, MAPP, D'Lux and ANAT as well as academics involved in practice and theory within the discipline of New Media.

Salient points from the Australia Council's scoping study are included below confirming the external relevance of this funded scoping study.

1.6 The Australia Council's New Media Scoping Study

The Media Art Scoping Study has specifically referred to the Australia Council's 2006 New Media Scoping Study, which significantly informed current funding of Media Arts, the repositioning of Media Arts within Visual Arts and has been extensively referenced by academics as a defining statement on the development of New Media in Australia.

The MASS perceived the Australia Council's omission of the significant role universities had already played in the direct funding, theoretical and practical developments as well as exhibition of Media Arts as being a defining aspect for the development of the NOMAD and MASS initiatives. It is clear from the Australia Council's report that universities needed encouragement to develop the area of New Media.

> *Media literacy and the Arts & Education Strategy*
> *1.8. That media literacy[1] is promoted as a key element of the Australia Council's Arts & Education Strategy, and that the Australia Council initiate partnerships with other key stakeholder agencies to further research the development of a proposal for a national review of media literacy education in schools that establishes the status and quality of teaching in this area. Further research would build upon the findings of the National Review of Education in Visual Arts, Crafts, Design and Visual*

(Donovan, Lally, & Miller, 2006).

The initial component leading into the research stage of the New Media Arts Scoping Study was the Vital Signs: creative practice and new media now conference, held by

analyze1 Media literacy is the ability to communicate competently in all media forms, including print and electronic, as well as the ability to access, understand, analyze and evaluate the powerful images, words and sounds that make up contemporary mass media culture. It has resonance with the concept of visual communication.

the School of Creative Media at RMIT in Melbourne on 7-9 September 2005. The conference was hosted at the Australian Centre for the Moving Image. 39 papers across 15 different panel sessions were presented covering a wide range of new media arts practice and issues. 193 people attended the conference. Conference papers and debate at the conference formed an early part of the research process for the scoping study and can be found at the Informit Library website www.informit.com.au.

The Australia Council's scoping study arose from a direct call by those attending the Vital Signs Conference to examine and assess the prospects for 'New Media' following the proposed withdrawal of direct funding for New Media.

The New Media Arts Scoping Study Report to the Australia Council for the Arts of September 2006 made recommendations including;

> *Communication.*
> *2.6. National networks*
> *Improve sustainability by strengthening national networks, with the most appropriate model and process to be developed following discussion with key stakeholders across overlapping professional spheres, including the visual, media and sound art fields. The next step is then to determine the most appropriate role and nature of a peak body to support the development and growth of media arts in Australia.*
> *2.7. National archive committee*
> *That a national committee be established to steer the development of a research project into documentation and archiving that addresses long term needs in this field. The committee would comprise representation from artists, major collecting institutions, libraries, universities and other relevant agencies in Australia.*
>
> (Donovan, Lally,& Miller, 2006, 27)

The Australia Council's concerns mirror those of funding bodies, practitioners, educators, academics, curators and artists, aware of the speed the discipline changes.

The Australia Council further stated that 'New Media Artists' are "not described as content providers" where their practice is considered as 'artist driven' rather than ascribed a more commercial label. This distinction is understood and accepted within traditional models of art schools and universities providing Visual Art courses.

Neither the Vital Signs Conference of 2005 nor the Australia Council's New Media Scoping Study defined or acknowledged the key role universities have played in the evolution of media arts.

The New Media Board's closure, followed by its report, has continued to be a reference point for researchers, citing its many statements regarding the contribution Media Arts make to the Australian economy through innovation, collaborations and resourcefulness. Despite the demise of the New Media Board, the Australia Council has been lauded for its initiatives and investment in the encouragement of media arts and the integration of technology within Australian contemporary arts practice.(Haseman & Jaaniste, 2008).

1.7 Project Team biographies

The project team consisted of:

Dr Paul Thomas (*Project Leader)*
Director of Centre for Research in Art, Science and Humanity
Co-ordinator Master of Electronic Arts
Curtin University of Technology

Website: Visiblespace
Short bio:
Paul has been working in the area of electronic arts since 1981 when he co-founded the group Media-Space. Media-Space was part of the first global link up with artists connected to ARTEX. From 1981-1986 the group was involved in a number of collaborative exhibitions and was instrumental in the establishment a substantial body of research. In 2000 he founded the Biennale of Electronic Arts Perth. Paul is currently the co-chair of the Re:live media art history conference 2009.

Eleanor Gates-Stuart
Head, Centre for New Media Arts (CNMA)
Convener, New Media Arts & Technology Postgraduate Program
Convener, BA Digital Arts and BA New Media Arts.

Website: http://www.eleanorgatestuart.com.au
Eleanor is a media artist and well-established printmaker. A prolific artist, having received numerous awards, grants, and commissions in her career. She maintains an active international artistic profile continuing her own research and roles such as curator and director of new media arts events.
Eleanor also has a significant reputation in Australian education, with a strong belief and commitment to pedagogical development in the creative and new media arts. She is a regular contributor to numerous professional associations, having published since 1985 and presented papers at various conferences in the UK, Taiwan and Australia. Eleanor is widely regarded for her professional experience, and for her vision and direction at the Centre of New Media Arts at The Australian National University.
Her interests firmly crossover arts, science, communication and media.

Vince Dziekan
Deputy Head Multimedia & Digital Art
Faculty of Art & Design Monash University &
Convener, Omnium Research Network. Chief Investigation (CI): Research, development and implementation network.

Website: vincedziekan.com
Current research focuses on curatorial design forming part of an ongoing interdisciplinary project negotiating the impact of digital technologies on curatorial practices and the implications of virtuality on the art of exhibition. Recently completed PhD on 'Without Walls: Virtuality and the Art of Exhibition', investigating how the intersection of new technologies with exhibition space offers new possibilities for aesthetic experience. The concept of the multimedial museum is translated through practice-based research focused on the curatorial design of a series of original exhibitions.
Published, in relation to these research topics, in various peer-reviewed journals and presented at numerous refereed conferences, nationally and internationally.

Dr Brogan Bunt
Head of School and Coordinator Media Arts
School of Art & Design
Faculty of Creative Arts
University of Wollongong

Short bio:
Brogan is Head of the School of Art and Design, Faculty of Creative Arts, University of Wollongong. He teaches within the Media Arts program and has a particular interest in computational media. He has produced documentary and experimental art projects, as well as a book on the field of software art (Risking Code: The Dilemmas and Possibilities of Software Art, VDM Verlag Dr. Muller, 2008).

Professor Julian Knowles

Portfolio Director Music and Sound, Communication Design/Visual Arts, Dance
QUT Creative Industries Faculty
Queensland University of Technology,

Short bio:
Julian Knowles is a musician, media artist and educator. In recent years his music and audio-visual work has been presented at ICMC2008 (Belfast), ICMC 2006 (New Orleans), the San Francisco Museum of Modern Art, Experimental Intermedia NYC, the Seoul International Performance Art Festival, What is Music? Liquid Architecture, Australian Perspecta, and the Melbourne International Film Festival. Julian also has a background in the Australian and UK independent music scenes. Julian is a Professor in the Creative Industries Faculty and a member of the Institute of Creative Industries and Innovation at Queensland University of Technology.

Jeremy Blank *(Chief researcher)*

Co-ordinator Media Arts, WASADM, Central TAFE, Perth WA
Jeremy Blank is a media artist and educator working across performance, video, photography and painting. A curator of 'Distributed Difference' stream for the 2004 Biennale of Electronic Arts Perth, recipient of 2005 Emerging Curator travel Award from the Australia Council to Venice & Europe. Jeremy is currently working on his doctorate at Curtin University where the focus is on the integration of Electronic arts within core Visual Art curricula. Jeremy is also establishing a new art gallery venture in Perth WA.

Julian Stadon *(Project administrator)*

Julian is a PhD student who completed a BA. (Art) at Curtin in 2005, followed by an M.E.A (Electronic Art) in 2007. Julian's research has included residencies with the Interface Cultures program in Linz; Salford University, Manchester; Human Interface Technologies Lab, New Zealand (HITLabNZ), and at The Fogscreen Research Centre, Finland. Julian is a member of the Centre for Research in Arts Science and Humanity (CRASH) and in December 2008 he received the Curtin Research Scholarship (CRS) and the Australian Postgraduate Award (APA) for his PhD studies. Julian lectures first year electronic art, is the Web Developer for the BA (Art) Online degree run through Curtin, a research assistant for the National organization of New media Arts Database (NOMAD), and the director of Dorkbot Perth.

Research support from Ruth Cross ANAT, Tim Maybury COFA and Hugh Davies MONASH.

Ruth Cross

Ruth was born in England, but has lived and worked in a variety of capacities within the media industries throughout the world. Her encounters with diverse perspectives combined with her work as a curator specialising in contemporary Asian cinema inspired her commitment to documentary practice. She undertook an MA in Documentary Production in Manchester UK and subsequently directed and produced her Cuban feature documentary Tres Pesos funded by the Channel 4 BritDoc Foundation. Ruth has recently worked as a programmer for the 2009 BigPond Adelaide Film Festival and she currently balances work for the Australian Network for Art and Technology, the Australian International Documentary Conference and her own documentary practice.

Timothy Maybury

Timothy is a Sydney-based emerging musician, curator and arts writer whose work primarily negotiates the intersection between visual and musical forms of creativity and communication. He completed a BA in Art Theory (Hons) at COFA-UNSW in 2008 with a thesis titled Sonic Youth: Noise and Synaesthesia, examining the work of New York-based contemporary musical collective Sonic Youth via their connections with both the visual arts as well as a broader history of experimental sound-based practice. He currently tutors in art history and theory at COFA, is a regular contributor to das SUPERPAPER, resident writer in the Firstdraft Emerging Arts Writers' Program and member of Sydney band Sherlock's Daughter. Recent curatorial projects include Lo-Fi and Loving It: New Dogs, Old Tricks for the Creative Sydney series at the Museum of Contemporary Art, and becoming a member of the directorial board of Quarterbred.

Hugh Davies

Hugh is a media arts practitioner and educator. Hugh has held lecturing positions at the Adelaide Centre for the Arts and the University of South Australia, has guest lectured at the Royal Melbourne Institute of Technology and Carnegie Melon, and has tutored at The Royal Danish Art Academy. Hugh has also presented workshops on making animations for mobile phones for school children in regional areas through the pixelplay program and set up the ABC animation training and hosting site "Rollermache" for 8 to 15 year olds while employed at the Australian Broadcasting Corporation.

1.8 Interdisciplinary Approaches

The Media Art Scoping Study and National Organizations' Media Arts Database directly address significant aspects of the Australia Council's recommendations. This ALTC funded scoping study has necessarily sought data from a broad range of departments, courses and individuals where emphasis on content differs immensely from institution to institution within similarly 'labelled' courses or unit structures.

Media Art education has evolved from broad based approaches where institutions have created discrete areas emphasizing specialisms from staff strengths and interests. This approach is evident internationally where institutions have developed Media Art studies.

Areas such as painting and sculpture have been responsible for initiating Media Art course content. The range and variety of courses has been known of through the emphasis of teaching areas across Australia. RMIT and COFA being two immediately identifiable institutions in media/electronic arts while UTS, Murdoch and the University of Western Sydney have clear differences in their provision for film and television related studies. There has been little documentation of their development, what has been taught, their current emphasis or facilities other than internal asset management within host institutions.

Historically elective or subsidiary studies in visual art courses have often provided access to a broad variety of discrete areas not within core umbrella areas such as painting or sculpture. These extensions such as photography, performance, installation, environmental art, printmaking and more recently video, computer based art have offered students opportunities to emphasize or add technical, conceptual and contextual value to their core areas of study.

National and international understandings of contemporary art practice have expanded with technological developments and comparative ease of access to technologies, such as digital photography, plug and play computer technology, free video, sound and photographic editing software. Any student or lay person can produce media and distribute it globally on the day it was created through an increasing array of online distribution networks without recourse or reliance upon funding or nationally established networks such as television or cinema to reach a potential global audience. The Media Art Scoping Study perceives such availability and potential as positives and negatives for higher education institutions offering visual art courses.

While technology and software may be easily accessed, the immediate question of what is to be created and why still prevail for anyone embarking on media (art) production.

Many students are fascinated and surprised by historical approaches, older technologies and examples of audio-visual, media/electronic arts. Their exposure to historical material offers significant and immediate contextual, technical and content references.

The understanding of interdisciplinary approaches naturally includes historical, theoretical and contextual elements within student centered programs of study. Significant personalized referencing may assist a student in their research towards developing a professional practice. Within this model students from a broad range of disciplines such as ceramics, textiles, jewellery, painting and sculpture easily apply interdisciplinary approaches to their work, where they sense a continuum of practice and research yet extend their specialism beyond existent or traditional boundaries.

Media Art is a continually evolving area. Student exposure to interdisciplinary approaches within the context of extension, technological upskilling and historical understanding enrich the arts through the combination of broadening understanding and deepening their awareness of a range of media potentials.

The Media Scoping Study's work establishes dedicated websites where historical and current contextual data is readily available for practice outcomes and teaching and learning resources.

City Art Institute

LECTURE THEATRE
ALBION AVENUE
PADDINGTON
SYDNEY

TUESDAY
SEPTEMBER 28
11.30 A.M.

ars electronica

SYDNEY WILL BE CONTACTED BY AUSTRIA FOR ONE HOUR. DURING THE CALL, VISUALS WILL BE EXCHANGED BY TELEFAX. TEXT WILL BE TRANSMITTED USING COMPUTER TERMINALS.

A PROJECT CONNECTING ARTISTS AROUND THE WORLD; 24 GROUPS WILL BE IN COMMUNICATION WITH THE ARS ELECTRONICA BIENNALE IN AUSTRIA

AUSTRALIAN PARTICIPANTS: ERIC GIDNEY, IAN HOWARD, MIKE PARR

PROJECT CO-ORDINATOR : ROBERT ADRIAN X / LINZ, AUSTRIA

Figure 6. The World in 24 Hours Event Tuesday, September 28th, 1982

1.9 Limitations of the study

The intention of the scoping study was not to exhaustively present the media art courses existent in the visual arts, but to establish a database of current practice and significant historical Australian educational initiatives in the area of media arts (www.nomad.net.au).

Secondly, to establish a database of historical and current activity in media arts identifying key individuals, organizations and educational institutions within the MASS website.

Issues arising from the collection of data and their statistical significance were not within the remit of the scoping study.

The project is primarily descriptive in nature, seeking to map current and past implementation of media/electronic arts in Australian universities and their parent art institutions as opposed to providing detailed quantitative data on each institution. Data drawn from interviews with individuals or institutions would not necessarily provide a complete overview of the practice or history of that institutions commitment or provision of media arts.

Data collected establishes documentation of the differing ways in which media arts currently exist and have been established from across Australia. Interviews asked specific and particular questions relating directly to the implementation of new media/electronic art initiatives within Australia and further where they had relevance to teaching and learning development in Australia. Many 'early' Australian artist/academics have left to work in Europe and the USA, some contact was made with internationally based artist/academics, while of those contacted some have not worked within Australian educational institutions so were excluded from the study.

The resultant websites are not definitive in their content. Outcomes were not envisaged to be definitive but rather to establish a foundation to build from. Take-up from institutions has been gradual rather than immediate. The constraints of the initial focus have provided several opportunities for the further development of the study. The study provides the basis for an overview of current practice in media art education in Australia: contributors can develop their profiles, and those institutions yet to contribute may be encouraged by the content already online.

The Scoping Study for a National New Media/Electronic Arts Network sought to ascertain from higher education providers of Media Arts across Australia levels of commitment to, and desire for, an online network. Initial outcomes indicate that apart from universities, professional organizations and publications associated with Media Arts have been keen to contribute to the study with their archives and current activities.

The necessary limiting of focus to establish structural forms of presentation through web 2.0 technologies has produced open access material for the stated audience and beyond. It has become apparent that such documentation of Media Arts is being undertaken by academics elsewhere, where they seek to retain control of their respective intellectual property. The Media Art Scoping Study members have sought to implement an inclusive approach to the gathering of historical materials throughout this study.

1.10 Scoping Strategy

The Media Art Scoping Study focused upon two clearly identified objectives:-

1. *To conduct a scoping study of media/electronic art teaching practices*

2. *To build a network and database to support curriculum development and enhancement in media/electronic arts education at universities.*

The proposed utilization of Vince Dziekan's Omnium research materials was amended. The NOMAD database required considerable linked options once data had been uploaded. The selection of Transmog, a company that developed the Synapse database, was seen as providing a more appropriate format regarding the range of material being presented.

- A database was designed to obtain meaningful input and create a detailed understanding of the underpinning rationales enabling media/electronic art to evolve within the universities.
- To complement the database, a word press site was constructed to run in parallel demonstrating major events influencing the evolution of media/electronic arts within the Australian university structure.

The second stage was to instigate a media/electronic art scoping study symposium, held in July 2009.

The final stage involves pursuing a range of public outcomes as an overview and analysis of new media/electronic arts to gain an accurate and comprehensive view of the sector in Australia.

- Presentations have been made in Adelaide, Melbourne and Sydney using round table forums gathering and disseminating information.
- Papers were also given on the MASS at the College Art Association (CAA) in Los Angeles and at Digital Media Futures in Falmouth UK. The MASS has also made strong links with the Leonardo education forum based in America.
- The final report was presented to the LEF at the media art history conference Re:live 2009 Melbourne in November.
- The realization of the MASS and NOMAD websites extends the scoping study's reach beyond that of the funded period where they continue to attract visitors and contributions from individuals, academics and organizations in the public domain.

1.11 Scoping Methodology

The methodology selected for this scoping project provided for;

- Systematic collection of data identifying representative areas of tertiary interdisciplinary practice contributing to the field of media/electronic art (i.e. art & design; art & science; art & technology).
- The design and administration of a survey of resources and facilities currently supporting teaching and learning activities in media/electronic art across Australia.
- An accessible networked online resource, useful to academic and professional staff, policy makers, researchers and other stakeholders in the visual arts, and more broadly in the creative arts.
- Conduct a national forum/symposium to bring together key academics involved in media/electronic arts courses.
- Map the national curricula in media/electronic art, particularly across postgraduate courses and higher degree course work programs.

This provided the basis for designing and constructing relevant infrastructure. The final stage saw the realization of a range of public outcomes where the methodology became publicly visible through the successful implementation of the websites, symposium, online publication of all papers presented at the symposium, associated developments from attendees to the symposium and further nationwide ongoing contributions to the scoping study.

1.12 Contributions to the research project.

115 respondents from 43 organizations have made contributions to the research project. Contributions to current and past institutions from teaching staff are the essential element of the NOMAD site.

Contributions from organizations involved in the promotion, support, exhibition and understanding of media arts made valuable contributions to the project. In particular REALTIME magazine and ANAT (The Australian Network for Art and Technology) made their archive materials available through the MASS (Media Art Scoping Study) website.

The educational institutions, contributing through their staff, represent the majority of providers in Australia for media arts. The range of provision, from institutions as diverse as AFTRS, the Sydney Film School to the University of Western Australia's bio-art masters program, differ vastly from each other. The contributions to the National Online Media Arts Database from a significant number of nationally and internationally recognized providers have aided the establishment of a database where current and past educational content is easily accessed as an online resource.

Contributing academic institutions and professional organizations.

Australian Film, Television & Radio School (AFTRS)
Australian International Video Festival
Australian Centre for the Moving Image (ACMI)
Adelaide Centre for the Arts
Alexander Mackie College
Australia Council for the Arts
Australian National University
Australian Network for Art & Technology
Central TAFE
College of Fine Arts, University of NSW
Contemporary Arts Media
Curtin University of Technology
d/Lux Media Arts
Deakin University
Edith Cowan University
Electronic Media Arts Australia
Experimenta
Flinders University
James Cook University
Macquarie University
MEGA
Metro Screen
Monash University
Murdoch University
New Media Network
Perth Technical College
Qantm
Queensland University of Technology
REALTIME magazine
RMIT University
Southern Cross University
Swinburne University of Technology
Sydney College of the Arts, The University of Sydney
Sydney Film School
The University of Melbourne
The University of New South Wales
The University of Sydney
The University of Western Australia
University of Canberra
University of South Australia
University of Technology, Sydney
University of Western Sydney
University of Wollongong
Victoria University

Part 2 2.1 Media Art Scoping Study symposium

In July 2009 the scoping study held a one-day symposium at the Victorian College of the Arts, Melbourne[2] as part of a three-day series with two other ALTC funded research projects presenting and sharing information from each respective research project. *Assessing Graduate Screen Production Outputs In Nineteen Australian Film Schools* and *Future-Proofing the Creative Arts in Higher Education, Scoping for Quality in Tertiary Creative Arts* presented research, questions and data related to research indicating several aspects of convergence.

Issues of validity of assessment pertaining to screen based media production and the need to examine content within curricula were key elements of Josko Petkovic's funded research. The future proofing of creative arts research presented examples of current creative art research and addressed issues of theoretical and practical content and structure in the definition of visual art study in Australian higher education.

The scoping study's fifteen presentations addressed understandings of media art, its relationship with visual art, current research practice and examples, linkage and historical collaborations with science, technology and the balancing of theoretical and practical elements within media art studies. Where media art is promoted as an interdisciplinary and core aspect of practice across music, sound art and visual arts were crucially emphasized. Archival and presentational aspects of historical work was considered and presented by Matthew Perkins of the Australian Video Art Archive, a resource funded through the Faculty of Art and Design Monash University.

2.2 Media Art histories and their presentation?

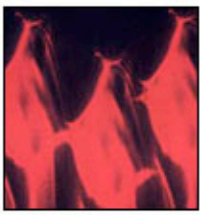
Media Art histories were presented from similar technological perspectives. Paul Brown's keynote speech introduced an historical overview of media/computer art history from a European perspective. Historical contextualization of computer arts in the United Kingdom was combined with key European and American initiatives. The privileging of United Kingdom based practice within the context of media/computer art history was substantially bolstered and enriched by the inclusion and documented collaborations, or awareness of, concurrent European or American research and practice. Paul Brown's expression of historical contextualization offered a model easily applicable to Australian media art histories where many Australian artist/academics have worked internationally, collaborating within science and technology from early points in media art's currently described history.

Stephen Jones presented an Australian model of an historical timeline linked directly to art based practice where collaboration between visual artists and technologists was initially encouraged within 'the Tin Sheds' of Sydney's art school in the nineteen seventies. Jones stated that such an historical contextualization is necessary for the development of media/computer art practice and education, where a definitive history is stated documented and published for future reference.

[2] http://mass.nomad.net.au/2009/07/

Examples emphasized practice from Sydney with little reference to electronic art practice beyond New South Wales. The presentation offered models for collaboration based on historical best practice. Jones stated that this aspect of the presentation was commissioned for consideration to support and inform educational cross disciplinary practice, the already well established relationships existent between visual arts and science and an historically relevant base for Australian students and academics to refer to and build from.

Article - 05.09.2006



Australia 75 - Australia's first electronic arts festival

by Stephen Jones

In March 1975 an exhibition called 'Computers and Electronics in the Arts' was presented during the 'Australia 75 Festival of the Creative Arts and Sciences' in Canberra. Australia 75 was a celebration of the creativity and achievements of Australian scientists and artists, presenting examples of what they were doing and the tools with which they worked.

Australia 75 set out to provide an opportunity for the public to see the work of, and interact with, scientists and artists working in many fields. Science exhibits included astronomy and prehistory, communications technology and environmental monitoring, geology, botany and medical science. The arts were represented in exhibitions of craft such as ceramics and weaving; visual art, with paintings by Sidney Nolan and Arthur Boyd; sculpture and aboriginal art; and presentations of music and theatre and other aspects of the performing arts. For some, the computer arts exhibition would be the most exciting part of the festival.

In Australia this was a period of great optimism for the future; the Vietnam War was ending (30 April 1975, fall of Saigon) and colour television had just arrived (1 March 1975). Gough Whitlam was Prime Minister and it was a good time for the arts, a good time to go to university, and there was plenty of interest in science and technology. But that technology was still very difficult to access. Computers were large monsters hidden away in air conditioned floors of banks, insurance companies, government offices and universities, while science fiction writers dreamed up all sorts of scenarios in which computers would take over the world and turn us into slaves. For most people their only contact was through computer forms on punched cards and the phrase 'Do Not Spindle, Fold or Mutilate'. Occasionally you could see a computer at a University Open Day, where you might have been fortunate enough to receive a computer print-out of a calendar with a picture of Snoopy at the top, but you would almost never get to use one for your own creative work.

The very first personal computers were just becoming available and came as a kit you had to build and program yourself. The only people who were likely to do that were electronic hobbyists and a few young scientists. One of those scientists was Doug Richardson, a young computer programmer at the University of Sydney, who had recently completed a computer graphics software project (using a system known as a PDP-8 - a mini-computer used in many scientific laboratories both in Australia and overseas). Some of the work he produced with other artists interested in experimenting with technology was shown in exhibitions in Sydney and Brisbane. This led to Anderson receiving an invitation to organise an

Figure 7. Jones, S. (2006). *Australia 75- Australia's first Electronic Arts Festival.*

2.3 Contributions to the Media Art Scoping Study symposium

2.31 Keynote from Paul Brown

Paul Brown introduced an historical review of Media Art's genesis from a UK perspective mapping of computer integration within art-based contexts. Brown's documentation of UK computer arts emphasized the need for an Australian model. Paul Brown was concerned that many artists who were involved in early computer art production were now at the end of their careers or dead, reinforcing the need for urgency in the documentation of Australian practitioners.

A cohesive historical timeline was presented including European, American and particular UK practice. Brown's presentation offered a model for Australian documentation where key UK initiatives were framed alongside American and European developments. The stylistic approach emphasizing key aspects of international collaborations over other well-documented international initiatives such as (IRCAM, France) offered a focus or filter that may appropriately emphasize similar activities from Australian media art history.

Paul Brown proceeded to an overview of current doctorate assessment issues in Australian and UK institutions. Brown cited problems evidenced in 'practice' based doctoral projects where the degree of university understood research was lacking, either in the depth of practical application or 'research'. Written components were of equal concern in addressing generally accepted levels of 'documented' research models within a doctoral framework.

Brown shared his concerns regarding the appropriateness of university models of research in creative practice based PhD's; suggesting that such studies be more readily situated in Doctor of Creative Arts qualifications while the PhD remain an academic essentially written qualification. Paul Brown stated that the 'terminal' exit point for studies in the visual arts should be Master of Art. This would impact upon university requirements for a PhD as an entry-level qualification for lecturers, where Brown voiced concern regarding the potential over emphasis of theoretical study over practical explorations. Science based studies, where practical work is a central aspect of coursework were cited in support of the view.

2.32 Relevant papers presented within the symposium

Matthew Perkins (Monash University) presented work from The Australian Video Art Archive. Perkins discussed issues of preservation relating to analogue and digital formats. Emphasis on the availability and importance of access to Australian Video and Performance work through an easily accessed portal was stated as a primary concern.

> *'The AVAA will have enormous benefits for curatorial practice and scholarship by contributing to the understanding of this important contemporary art genre.'*
>
> Perkins, M. (2009)

The AVAA seeks to provide an educational, curatorial research portal where historical Australian works in Performance and Video are made freely available online.

The presentation emphasised problems related to historical (analogue) formats and earlier digital formats, where specific digital compression codecs are no longer used or particular software packages are effectively closed formats.

Issues of preservation and the original format's integrity were voiced. Perkins' presentation stimulated discussion where many delegates have access to work they could contribute to the database.

The work of the AVAA compliments the ALTC funded NOMAD and MASS initiatives, making visible Australian media practice from the nineteen seventies and onwards for academic, curatorial and reference based research[3].

Peta Clancy (Monash University) presented a body of work relating to her current PhD studies, where she has investigated Helen Chadwick, an international artist, whose analogue works from the nineteen eighties formed the basis for Clancy's research integrating 'viral' concepts within the context of bio-art outcomes. Clancy's work emphasizes current academically accepted understandings of research and 'best practice'.

Ian Haig Perspectives on Media Art studies at RMIT University.
Ian Haig's personal overview of Media Art's history within what is now RMIT University. Haig indicated how the identity of the course was shaped by its geographical location and approach to practice. Staff and critically based theoretical course content combined with a course situated beyond the city's centre aided in shaping the course. 'Establishing a more critical framework in regards to new technologies. We are less interested in the latest developments of new technologies for their own sake and more in the cultural histories of various technological media and the ability to combine them with newer ones.'

The insight and knowledge Haig shared in establishing, developing, relocating and building a nationally recognized course emphasized the importance of the Media Art Scoping Study's focus in facilitating an online database documenting such histories.

Ian Haig works at the intersection of visual arts and media arts. His work explores the strangeness of everyday reality. His practice focuses on the themes of the human body, devolution, mutation, transformation and psychopathology. Currently he teaches a number of courses in media arts, including new genres and hybrid media in the school of art, RMIT in Melbourne. http://www.nomad.net.au/people/ian_haig www.ianhaig.net

2.33 Mediality and New Media

Brogan Bunt offered examples of 'best practice' within the area of media arts at University of Wollongong. Interdisciplinary approaches across a range of media were

[3] *Note, Convergence and or clear linkage between the AVAA, NOMAD and MASS research initiatives would considerably aid and contextualise Australian Media Art historical documentation.*

introduced with enthusiasm for art within collaborative, experimental and scholarly exhibitions.

A further renaming of the discipline where the concept of "mediality" was introduced; a term with the capacity to embrace an intellectual interpretation of any expression of media activity liberating Media Art from its ties to computer based technologies.

> *'In a recent blog post, Florian Cramer explains the special character of German media theory: In the last decade, German humanities have developed a broad, general and transhistorical notion of media as "mediality" ("Medialität") in which any material or imaginary carrier of information qualifies as a medium, from CPUs to angels'.*
> (Cramer, 2009)

"Mediality" offers a fluid open-ended definition where current and previous emphasis of media/new media practice could exist. Potential experimental practice and research can co-exist without further revision of the naming of the disciplinary area. The constant renaming of the area has created historical problems within professional funding sources around the world, while it has equally been confusing for students, staff and administrators within education since its emergence from hybrid art practice.

Also from Wollongong Media Arts, Jo Law presented a considered argument for the retention of the term 'New Media'. Law emphasised the ongoing development of media art through 'new' collaborations, interpretations or research integrating 'media' within the context of art outcomes. Both presentations from Wollongong stated a positive and supportive environment encouraging media arts within visual art studies. The examples indicated a positive mix of work where artistic sensitivity is supported and tempered with a critical and analytic approach integrating high and low end technologies in the generation of academic contemporary art practice.

The discipline has emerged from a range of initial areas ranging from photography, film, theory, painting, sculpture, music, anatomy, performance and computing.
From the breadth of activities across many areas of practice it is evident debate on the name of a shifting discipline will continue within media/new media arts. While names may differ, the general understanding of the area remains fluid as to what constitutes media/new media art practice. It is doubtful that any singular term will be embraced by a discipline that has grown and developed through diversification.

2.34 Opportunities and indicators for 'knowledge management'

Presentations from members of the research group alongside other ALTC funded research projects indicated clear areas of common ground, where issues relating to each particular research project were of concern to the other groups.

- Assessing Graduate Screen Production Outputs In Nineteen Australian Film Schools.
- Future-Proofing the Creative Arts in Higher Education, Scoping for Quality in Tertiary Creative Arts

Both the above research projects focused or emphasized assessment or the validity of study within the 'creative arts'. The Media Art Scoping Study's emphasis on content defines its position, while complimenting the other two research projects presenting at the Victorian College of the Arts in July 2009.

Attendees to the combined symposium of the three funded projects made direct contributions across disciplinary areas and project focus contributing professional experiences and observations within discrete focus groups. Informal interviews were held with key presenters to the symposium with the same questions as had been asked of contributors to the MASS website.

Within the Media Art Scoping Study's program, Ross Rudesch Harley (2009) presented a paper challenging educational institutions' ability to adapt to the pace of change being driven by open source networks.

'The explosive growth of knowledge in the 21st century has placed a unique set of pressures on many institutions, and in particular, on those that generate, analyse, sort and disseminate information. While the public looks to universities as places where world's-best practice in knowledge management is employed, these same universities are in danger of being overwhelmed - not only by the increase in knowledge, but by the just-as-rapid multiplication in techniques for capturing, exploring, and distributing this knowledge. I want to suggest that closed "Virtual Learning Environments" are not the best solution for digital-media arts education. Instead, I argue that external "user-centric web services" should be allowed to flow into the university web systems. In this way students and teachers increase their participation in the broader production (and critique) of knowledge in the media arts and other disciplines'.

Ross Harley's observations were taken up within an open discussion group where further support for the presentation was ascertained with a common desire to reduce reliance upon commercial software programs and move towards open source/freeware models. Ross Harley emphasised the creative core of Visual Art studies, which he perceived as being directly corralled by proprietary software programs effectively controlling and structuring student outcomes, staff perceptions and teaching as training to an established current professionally recognised platform and format rather than higher level computer literacy education. The concept of producing 'flexible' and 'adaptable' graduates was seen as more desirable than training students to be reliant upon and tied to software upgrades. It was further discussed that such a move would also assist institutions in reducing expenditure on constant software upgrades.

2.4 Issues arising from the Media Art Scoping Study symposium

- Concerns cited regarding balance and currently perceived over emphasis of theory in practice-orientated study.
- That the now established 'exit' 'terminal' qualification and effective 'entry' point of PhD for contract teaching staff directly privileges theory over practice, where experience and traditional understandings of a practice are now validated by the granting/award/recognition of a doctorate level qualification. This has ramifications across teaching and learning, the particular emphasis of a school or department and how research is interpreted and implemented within each institution.
- General agreement in the understanding and value of art and its integration of theory and practice across the research groups.
- Provision for a range of study areas within course structures.
- The privilege of Fine/Visual Arts in providing effective non-commercial opportunities for interdisciplinary/media art research and practice
- Visual art research has many potential and existing issues regarding its now established position within university environments. Justification of validity, emphasis of theory over practice, provision for practice within the built environs of the university, relationships within departments between media arts and silo areas such as sculpture, painting, design, performing arts, music.
- The opportunities for interdisciplinary experiences within the umbrella of Fine/Visual art courses to effectively serve as facility or bridge for a broad range of students from across many disciplines, where they may explore new/media arts and their historical/contextual relevance in contemporary art practice.
- The need for Fine/Visual art courses to significantly adapt and embrace interdisciplinary models of teaching and learning in combination with online resources and distribution portals.
- The realization of a national database for video art as educational/research tool.
- The need to build from initial historical data gathering and stories, told by those involved in key Australian media art initiatives at a national level developing the databases.
- That sound, as a distinct area of art practice, is being undertaken in experimental and academic ways across music, performing and visual art courses.
- That Sound Art exists as a viable and contemporary art form, while its position within the arts has effectively been sacrificed. Teaching in the area poses significant challenges in terms of positioning, emphasis and context.
- Reliance on professional software programs, when open source freeware may offer better opportunities for students and institutions.
- That professional software programs represent 'training' for market place and industry entry, whereas open source software encourages network based development and long-term ability to adapt rather than consume.
- The relationship between design, screen based and communications with media arts is fluid on some levels and fixed in others across institutions, depending upon senior staff perceptions and understanding of the area.
- To expand the disciplinary boundaries and understanding of Media Arts.

Similar debates regarding academic emphasis, parity, transferable levels of accreditation, consistency in curricula, theory/ practice balance or mix and the desire to retain art as a non-commercially focused research area where critical and academic rigor is maintained, within the context of art (practice), were evident across the three research studies presenting in Melbourne.

Figure 8. Screen grab: Links page MASS website.
http://mass.nomad.net.au/links/
The MASS website functions in effectively creating networks from individual and organizational web presences, where contributions are made transparent within the context of an historical timeline or organizational grouping.

2.5 Building on past Success

There has been no prior discipline-based initiative in the specific area of media arts. This is most likely due to the continually evolving status of the field of new media/electronic arts within the university sector in Australia over the past decade. The overall lack of detailed national information concerning teaching and learning in this specific area provided the major motivation for the scoping study.

As mentioned above, the 2006 New Media Arts Scoping Study Report to the Australia Council for the Arts included, as one of its 10-year goals, an aim to develop the 'field of practice-based research and development'. This is as much a teaching and learning issue, as it is a defunct governmental agency's ambition. The role of research and creative development in digital media/electronic arts practice is understood and clearly articulated as a rigorous mode of cultural innovation relating to a broadly constituted field. Its basis in the relatively new subject of Art & Design research contributes different insights to scientific and academic research and methodologies. These collaborative, cross-disciplinary explorations have been crucial and defining aspects of media arts practice.

The NOMAD and MASS sites are perceived as ongoing, where modifications will continue to facilitate further desired functionality. The sites have been modified after testing where live input indicated the need for development.

The synergies desired with other ALTC funded projects were achieved prior to and following on from the July 2009 conference held at the Victorian College of the Arts. Commonality was established across several aspects of each respective research project while key presenters such as Paul Brown gave addresses within two of the research areas.

Figure 9. Screen capture from the NOMAD website, PhD Media Arts at COFA University of New South Wales

3. Impact

3.1 Linkage and flow across discrete boundaries

The scoping study and resource database together with the establishment of a network of arts educators will be the basis for vigorous curriculum development in media/electronic arts.

The MASS and NOMAD sites assist in facilitating access to interdisciplinary study areas beyond specialist fields. Linked access to the wealth of 'resources' (information, technologies, expertise), usually exclusively reserved to particular areas of study, is readily available in an appropriate context.

Linkage through Australian Network for Art and Technology to their Synapse database significantly expands access to over two hundred practicing Australian artists actively involved in art /science collaborative work. Exposure to diverse disciplinary perspectives sharing a common interest in media/electronic art allows viewers to explore existent or new areas of collaborative creative production. While all areas are 'works in progress' and any review of their current presence is effectively a snapshot they have generated attention, interest and contributions from significant institutions and individuals from across Australia.

The direct connection across sites from the Media Art Scoping Study (MASS) to the National Online Media Art Database (NOMAD) and their associated links provides immediate cross-referencing for educational, training and professional level activities current in Australia and beyond. Such immediate access and linkage emphasizes the dynamism and collaborative interdisciplinary nature of Media Art teaching and practice in Australia.

Figure10. Screen capture from the NOMAD website homepage with featured artist.

3.2 Impact upon teaching and learning materials.

Through the NOMAD portal the scoping study sought to present a national overview of current Media Art provision including unit outlines and syllabus data. These prove more challenging to achieve than data gathering within the MASS site. While gathered data has not achieved a comprehensive snapshot of what is being currently taught it has established a basis of historical data from artist/academics involved in the establishment of Media Art related courses or initiating units within other disciplines.

A review of national curriculum currently operating across the University sector would provide an opportunity to recognize quality national practice and different learning environments.

- A national database for media/electronic arts would provide a quality resource for teaching, learning and professional practice environments.
- Its impact has implications for contributing institutions and individuals where their course and unit materials would be visible online, therefore open for appropriation, adaptation, plagiarism or theft.
- It is understood that teaching staff both own and seek to protect their intellectual property.
- The challenge to present current teaching and learning materials, while preserving the integrity of intellectual property ownership requires sensitivity and rigor in the gathering and presentation of data.

The project provides support for leading Australian universities currently conducting research, academic teaching and learning programs in new media/electronic arts.

The databases seek to become an established resource portal for teaching and learning, while further serving as a key reference point for curatorial and academic research in Australia and internationally.

3.3 Value to the Sector

3.31 Student perspectives.

> *Media/electronic art students face the challenge of creating a syncretic art that explores telematics (planetary connectivity), nanotechnology (bottom up construction), quantum computing (augmented cyberception), cognitive science and pharmacology (field consciousness), and esoterica (psychic instrumentality). (Alexenberg,. ed., 2008 59)*

The above areas outlined by Roy Ascott in *Telematic Embrace; Visionary Theories of Art, Technology and Consciousness* (2003) indicate the potential range students may explore within the umbrella of media arts. Staff experience, personal emphasis and networks may constrain or limit access for students to expand or individually focus upon relevant research and professional levels of practice.

- The provision of a National resource through the MASS and NOMAD websites offers students immediate and real primary source materials for them to reflect and rely upon introducing and indicating possibilities for research and practice beyond the immediate geographical locales of their institutions.
- Interdisciplinary and cross-disciplinary practice has been perceived as a valuable and enriching aspect within education and professional level funded practice.
- The MASS website and its links beyond provide a broad range of sample projects already undertaken across many disciplinary areas.

3.32 Currently perceived student needs and requirements

To accurately ascertain students' perceived needs requires more contributions of course/unit outlines within the NOMAD site. Student needs vary from year to year and institution to institution. Perceptions of what they require may be uninformed in their understanding of the discipline's history and practice. Many media art facilities often act as workshops servicing a range of related or extended areas where students may have been advised or chosen to value add by developing technological experience and understanding. The contextual and historical aspects of their educational experience vary considerably, depending upon how materials are presented within the context of practice and theory.

- There is a perceived need for integration of significant key developments in interdisciplinary/media arts within general Visual Culture theoretical units. This would offer students a clearer understanding of the relationship and role interdisciplinary/media arts have played in the development of contemporary art.
- Timetabling often precludes many opportunities for students to mix and match areas of perceived interest where choice effectively equals the lessening of specialist knowledge over a broadening and non-specialization in their studies. This aspect directly relates to the effective cutting of contact hours and significant reductions in credits relating to courses when there are more choices and options to study.
- Media Arts/electronic arts require significant student commitment in upskilling through software to achieve professionally acceptable outcomes.

- Opportunities for students to experience high-end professional level media/electronic arts regularly, beyond Melbourne and Sydney, are limited in comparison to painting and sculpture. While online portals such as YouTube, Vimeo or Ubuweb provide current and historical references they are no substitute for a physical experience of an installation or performative work.
- The range of opportunities within the broad area of media/electronic arts extends far beyond that of painting or sculpture.
- While particular institutions may have reputations for figurative work or sculptural installation, media art/electronic art in Australia is, by its nature and historical development, rhizomal in its growth, effectively spreading as well as separating as it develops.

Figure 11. MASS website; Role of Research

3.33 eResearch

This scoping study offers a core of new connections existing fortuitously between otherwise separate academic departments. The MASS and NOMAD web portals will develop beyond the timeframe of the funded period for gathering, forming and presenting data.

This proposal is consistent with a commitment to further develop an 'eResearch' agenda. e-Research is the use of information technology to draw on perspectives and resources from a range of participants to develop new insights and solutions for complex problems. It involves the use of technology to draw people together, where technology is the facilitator to researcher collaboration.

From a multi-national blog providing a new academic forum on art theory, to multi-disciplinary research, drawing together databases on climate change from England, the USA and Australia, e-research is changing the face of research around the world. e-Research plays a significant role in the economies and culture of Europe and the USA though still relatively undeveloped in Australia. Further investigation is required to understand and accommodate diverse approaches by which digital technologies and networked infrastructures support emergent 'collaborative' practice in media/electronic art.

The scoping study database provides the opportunity for Deans, academics and researchers to understand nationally an overview of developments in media/electronic art education through emerging technologies and science. It can reasonably be anticipated that the resulting cross-fertilization of ideas will demonstrate 'emergent' properties leading to new knowledge. A social network approach offers a unique opportunity for the distinctive interdisciplinary research involved in media/electronic arts to engage in – and contribute to - developing the overall national picture.

An historical example of e-Research is included in the MASS site and was an initiative of Dr. Paul Thomas from 1996.

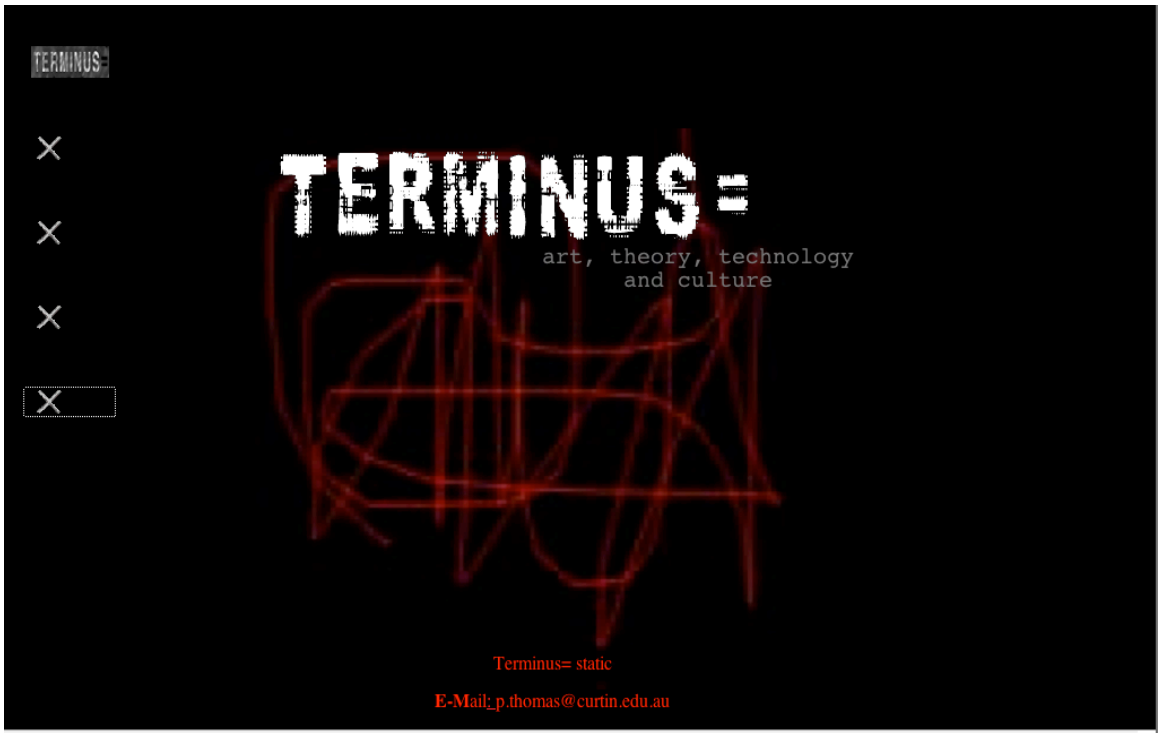


Figure 12. Terminus= was an initiative where artist educators met to investigate and discuss theoretical, cultural and philosophical aspects of contemporary art practice. The group included online meetings with international contributions. All members were academics and practicing artists. The significant dates for the group's activities were between 1996 – 1998. http://mass.nomad.net.au/1996/12/

The symposium held at the Victorian College of the Arts (July 2009) witnessed several presentations where eResearch significantly contributed to academic and professional level practice within an Australian context.

- Academic staff currently utilize e-research as the basis for study and development.
- Staff link their personal, professional interests and specializations through social networking groups.
- The understanding of e-Research is still developmental; its manifestation has significantly altered from the dot binary groups of ten years ago.
- The presentation from the Australian Video Art Archive offered both a resource point and significant research area in the archiving and preservation of Australian video art.
- Specialist portals are constantly being developed where linkage offers greater

potential for distribution or access to material/data.

- Higher degree students significantly utilize e-research techniques within their work accessing a broad range of information and current practice from networks, peers and interest groups.
- Australian based academics and students have immediate access to a rapidly expanding network base.
- Formal structuring of identifiable research possibilities assists students in framing their respective research focus within a global context, this was evidenced by Peta Clancy's presentation of her work based on the late UK artist Helen Chadwick. Clancy initially worked at distance from Chadwick's oeuvre before gaining the opportunity to visit the Henry Moore Foundation in the UK and gain direct access to some of Chadwick's work and working notes.
- eResearch is now the primary research point for many students. This phenomenon has developed within the eighteen years the Internet has been publicly promoted.
- The use of the Internet as the primary research tool is not in itself related to media/electronic arts. This fact creates further issues in the definition of what constitutes media/electronic artwork or research.
- The division between consumer and producer is in constant flux. Remix culture encourages appropriation, sampling, mixing and representation of other ideas, images, sound or vision. Online access and networking groups offer opportunities for multiple inputs in the development of product.

Ross Harley's (2009) symposium presentation directly addressed current concerns and understandings of e-Research:

> *Many new social network services have very quickly positioned themselves in the marketplace as brands. At the same time, we could also argue that these new entities could be easily aligned with pedagogical principles of "learner centered", "blended" or "constructivist" learning approaches, which emphasize the ways students operate in a community of peers. When students are encouraged to explore at their own pace, reflecting on their own discoveries as part of that process, there is enormous potential for them to learn in new ways. Utilizing the multiple feedback channels available via social networking software and other similar tools, universities can engage with students by entering into a dialogue with them about what they want to learn (and what they need to learn) in this fast paced media-world.*

> *Researchers maintain blogs and wikis, giving colleagues instant access to experimental results. Many people at universities spend much of their time online, trading links to media and information on every subject imaginable — via email, SMS, Facebook, Twitter, instant messaging and so on. We all know this. The open web is already a reality. And that is why it's up to us, to make sure that we do everything we can to allow our constituents to redefine the university in the light of these new open network structures and that we join together to build the open learning models that will benefit us all.*

3.4 Engage with the Values and Principles of the ALTC

This scoping study, combined with setting up virtual database infrastructure as a means of collecting, interpreting and disseminating the outcomes, engaged with the principles of the ALTC by:
* Establishing a network for media/electronic art (NOMAD) and a MASS portal where artistic production from academic Media Art research has also been significantly realized.

* Further opportunities for academic research relating to Media Arts in Australian academic contexts being discovered within the project's research and development periods.

* The documentation and presentation, throughout the scoping study, of significant historical Australian media art practice. Australian academic Media Art practice is recognized internationally at the highest levels of professional art/science practice.

* Several presentations at the symposium where the definition and understanding of interdisciplinary practice emerged as both fluid and also historically identifiable as an area of academic and professional art practice.

* Linkages across several Australian professional organizations such as ANAT, Experimenta, REALTIME magazine and the AVAA. A significant and interconnected database now exists where previously none existed across such databases. Such collaboration facilitates an invaluable 'one-stop' resource for extended research and reference across many other linked organizations, institutions and resources both within Australia and beyond. Linkages achieved across universities in the realization of this scoping study emphasize a highly collaborative focus Australia wide.

* The establishment of a NOMAD and MASS resource within the key area of art/science collaboration and art/science academic research at institutional levels.

3.5 Interdisciplinary Possibilities

Emerging technologies affect all areas within the arts and in turn other discipline areas across the universities. The ability of art to develop inter and trans-disciplinary approaches across these discipline areas is increasing rapidly.

The trans disciplinary approach of media/electronic art could pave the way for participation in the world of science and technology. Media/electronic art is continually re-delineating its definitions of materials and contexts within which it operates.

The opportunities that come through scientific and technological research means acquiring the skills and knowledge to allow media/electronic artists to significantly participate in these areas. A trans-disciplinary approach constitutes an artistic education, developing the ability to collaborate by penetrating beneath the surface of techno–scientific presentations.

To think about unexplored research directions, unanticipated implications and learn about the information sources used by scientists and engineers to engage emerging fields, including academic and professional journals, trade shows, academic meetings, Internet resources and equipment supply sources

What might be gained from such approaches to interdisciplinary practice? Focusing on the development of social networks can further complement art &science partnerships through the linkage of individuals sharing similar interests. Learning and adopting methods developed from observing how such physical and virtual communities of practice operate contributes to the evolution of a new type of academic infrastructure supporting the distinctive methods and qualities of practice in this field.

The virtual database facilitated by the scoping study introduces the kind of (collegiate and collaborative) 'culture' required for propagating productive collaborations between academics across disciplinary boundaries (Art & Design. Art & Science; Art & Technology). Through promoting interdisciplinary links and exploring complementary methodologies, it is anticipated that research alliances will be formed between academics and across academic programs leading to viable collaborative projects fostered through this initiative.

3.6 Cross Disciplinary Learning

Students currently work in a wide range of artistic practice including digital telecommunications, Internet connectivity, screen-based hypermedia, digital film, multi-media installations, intelligent architecture, smart products, robotics, telepresence systems, computer modeling of behaviour, remote sensing devices, cyberspace and virtual reality, artificial life, popular culture, contemporary music, sonic art, video art and performance.

These examples from contemporary art practice explore ways in which art schools need to confront key issues that will define their future. These concepts involve new materials that confront the presentation of art, initiating current debates such as the role of Bio art and new media/electronic art practice within the gallery context. The scoping study's symposium offered examples from art students connected to the making and developing of new media art where theory, practice and academic rigor are unified.

If we were to agree that fine art has come out of its radical individualisms, then what has replaced it?

Stephen Wilson (2001, 39) states:

> *What must artists do differently than they always have done to prepare to participate in the world of research? They must broaden their definitions of art materials and contexts. They must become curios about scientific and technological research and acquire the skills and knowledge that will allow them to significantly participate in these worlds. They must expand conceptual notions of what constitutes an artistic education, develop the ability to penetrate beneath the surface of techno–scientific presentations to think about unexplored research directions and unanticipated implications and learn about the information sources used by scientists and engineers*

to engage emerging fields, including academic and professional journals, trade shows, academic meetings, Internet resources and equipment supply sources.

To respond to these opportunities and act proactively, it is crucial that necessary 'cultural conditions' be established to expand the horizons of trans-disciplinary and interdisciplinary training in this field.

Making use of emerging networked technologies exposes 'local' and 'isolated' disciplinary domains to increasingly 'social' spheres of practice. Embracing the possibilities made available through online collaborative creativity provides significant interdisciplinary practice-led opportunities for the future. Investigating and investing in the establishment of productive, intensive physical and virtual communities of practice is appropriate in realizing such aspirations.

3.7 Stakeholders

* Tertiary institutions involved in research and PG academic programs in media/electronic art (Australia wide)

* Post-graduate students and researchers involved with new media/electronic art practice-based research

* Academics who have established or are establishing new media courses

* The professional new media and electronic art sector

* Government and tertiary institution policy providers and curriculum developers' new media/electronic arts

* Commercial new media service providers

A broad-based survey program engaged stakeholders from the above areas, identifying and developing an overview of interdisciplinary (contemporary art, digital design, science and technology) research occurring nationally across the sector.

A series of working meetings and a national symposium offered key academics, who have established or are establishing media/electronic art courses, access to professional, governmental, and cultural representatives concerned with the future of media/electronic arts. The above goals were successfully achieved within the timeline of the scoping study's funding period. The primary readership of the report therefore includes: the ALTC, academics in the visual arts and other creative arts disciplines, and international academics within these disciplines.

3.8 Members of NOMAD

Greg Ackland
Roger Alsop
Keith Armstrong
Marsha Berry
Colin Black
Jeremy Blank
Oliver Bown
Mez Breeze
Philip Brophy
Paul Brown
Brogan Bunt
Sian Carlyon
Alessio Cavallaro
Peta Clancy
Ted Colless
John Conomos
Martine Corompt
Ruth Cross
Donna Crotty
Sean Cubitt
Mark Cypher
Hugh Davies
Alan Dorin
Vince Dziekan
Pia Ednie-Brown
Megan Evans
Chantal Faust
Eleanor Gates-Stuart
Greg Giannis
Alex Gibson
Eric Gidney
Peter Giles
Sasha Grbich
Lisa Gye
Ian Gwilt
Ian Haig
Stewart Haines
Werner Hammerstingl
Ross Harley
Lisa Harms
Chris Henschke
Larissa Hjorth
Ian Hobbs
Cat Hope
Troy Innocent
Jeff Janet
Lyndal Jones
Stephen Jones
Tom Klinkowstein
Julian Knowles
Anita Kocsis
Daniel Kojta
Taras Kowaliw
Aidan Lane
Leonie Lane
Jennifer Lade
Jo Law
Gillian Leahy
Brendan Lee
Mike Leggett
Shelley Matulick
Nancy Mauro-Flude
Ricardo Mbarkho
Jon McCormack
Peter Mc ilwain
Cam Merton
Tracey Meziane Benson
Adrian Miles
Adam Nash
Angela Ndillianis
Julian Oliver
Garth Paine
Daniel Palmer
Matthew Perkins
Josko Petkovic
Fee Plumley
Geoff Portmann
Dominic Redfern
Malcolm Riddoch
Melanie Rodriga
Gavin Sade
Phillip Samartzis
Lynne Sanderson
Shiralee Saul
Jill Scott
Douglas Sheerer
Julian Stadon
Helen Stuckey
Vicki Sowry
Gaye Swinn
Paul Thomas
Darren Tofts
Kit Wise
Helen Yeates
Joel Zika
Peter Zylstra
Ionat Zurr

3.9 Recommendations

There was no requirement for recommendations within the remit of the scoping study's project, however it has been apparent that need exists for authoritative 'in house' developments to be maintained and continued as ongoing research and in advisory roles.

It is clear that electronic/media arts have been significantly promoted and cited by organizations, researchers and funding bodies to attract and justify funded research, generate reports or papers, where they have significantly and consistently failed to recognize the role Australian art schools and universities have already played in the emergence, development, critical positioning and ongoing support of the broad discipline of media/electronic arts. Ironically, academics have referenced the Australia Council's New Media scoping study, relying upon the opinions of the Australia Council as definitive statements on the provision and development of teaching and learning, where previously there existed no effective readily available documentation of Australian electronic/media art educational archives.

The scoping study has collected significant levels of data to be further analyzed, offering further opportunities for both expanding and deepening the degree of available data and documentation of academic teaching and learning, research and practice within the dynamic field of Australian electronic/media arts.

The establishment of the MASS and NOMAD websites provides a readymade platform to build upon. In an area notorious for its lack of documentation, where the pace of change outstrips any other area of visual arts, further research and development of new teaching and learning related materials would prove valuable across the general discipline. The extreme technological growth within electronic/media arts has challenged the very status of the art school, from where it emerged. It seems appropriate for the discipline of electronic/media arts to contribute to the effective repositioning of Art for the twenty first century.

List of illustrations

1. Screen capture*:* Example of educational components from the NOMAD site, Synchrotron Residency RMIT School of Creative Media
http://www.nomad.net.au/education/synchrotron_residency (accessed 30 October 2009) 10

2. Screen capture*:* Telesky@Sky Art Conference 1981: C.A.V.S/M.I.T/Cambridge Organised by Eric Gidney. Telesky was the first visual telecommunications event in Australia linking the Paddington Town Hall in Sydney with MIT in Cambridge Massachusetts.
http://mass.nomad.net.au/1981/09/ (accessed 30 October 2009) 13

3. Timeline for the NOMAD & MASS scoping study. 14

4. Screen capture: *Wallace, L (2003)* Cross Disciplines, Experiment, Market! *RealTime Magazine, Issue 56.*
Linda Wallace is a Queensland based artist, curator and director of the media arts company, machine hunger.
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8. Screen capture: Links page MASS website
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12. Terminus= was a group committed to the investigation of theoretical, cultural and philosophical discourse with contemporary art practice.
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Appendix1: MASS Symposium Program

9.00: Introduction Paul Thomas
9.05: Welcome Su Baker
9.15: Keynote Presentation by Paul Brown
10.00: 20 Minute Break
Session Chaired by Paul Thomas
10.20: Presentation 1 Matthew Perkins
10.40: Presentation 2 Peta Clancy
11.00: Presentation 3 Ian Haig
11.20: Presentation 4 Stephen Jones
11.40: 20 Minute Break
Session Chaired by Vince Dziekan
12.00: Presentation 5 Malcolm Riddoch and Cat Hope
12.20: Presentation 6 Roger Alsop and Marsha Berry
12.40: Presentation 7 Brogan Bunt
1.00: Presentation 8 Jane Quon
1.20: 40 Minute Break
Session Chaired by Ross Harley
2.00: Presentation 9 Jo Law
2.20: Presentation 10 Vince Dziekan
2.40: Presentation 11 John Conomos
3.00: Presentation 12 Joel Zika
3.20: 20 Minute Break
Session Chaired by Brogan Bunt
3.40: Presentation 13 Colin Black
4.00: Presentation 14 Gaye Swinn and Jennifer Lade
4.20: Presentation 15 Nancy Mauro-Flude
4.40: Presentation 16 Ross Harley

Appendix 2: MASS Symposium Abstracts

Paul Brown Keynote: Hollow Promises
Friday, July 3rd, 2009

In the 1960's and 70's, early in my art career, I was an ardent proponent of critical theory and art-as-research. Back then they were pretty thin on the ground. Some of my contemporaries were amongst the first artists to be awarded doctorates for their work. Now, in the twilight of my teaching years I find myself more and more concerned about the preponderance of these aspects of art education. Or, to be more precise, concerned that theory and research – scholarly approaches to the arts – have usurped the teaching of art as an intuitive, studio-based and non-verbal activity. By doing so they have disenfranchised many gifted but semi-literate students who in the past were able to participate in the tertiary education process and attain significant qualifications and reputations in the arts. In this talk I hope to address the historical reasons that have led to this undesirable state of affairs and also suggest possible ways of redressing a more balanced curriculum. In particular I would like to focus on the role of the oxymoronically titled 'new media' (that are now some 70 years old!) as one of the major causes of this undesirable situation and how they might also be one of its possible solutions.

Presentation 1 **Session Chaired by Paul Thomas**
10.20: Presentation 1 Matthew Perkins
10.40: Presentation 2 Peta Clancy
11.00: Presentation 3 Ian Haig
11.20: Presentation 4 Stephen Jones

Matthew Perkins: Increasing Scholarship of Australian Video and Performance Art through Internet-Based Databases.
Friday, July 3rd, 2009

Video and performance art are highly visible in contemporary art and artists, curators, students and academics at all educational levels are responding to this trend through their own work. The difficulty in Australia is that there is very little access to historic and contemporary Australian video and performance art so students and academics find themselves looking overseas for inspiration.
The Australian Video Art Archive (AVAA) was founded in 2006. The aim of the archive is to provide an on-line educational hub which showcases new and historical Australian video and performance art works in the form of a database. These works can be viewed on-line or rented for educational, research and exhibition purposes. The lack of knowledge of Australian video and performance art is predominantly due to the scarcity and fragility of documentation but we have found that this documentation can be collected, archived and disseminated.
This paper will summarise the development of the AVAA highlighting key works in the database. The AVAA will have enormous benefits for curatorial practice and scholarship by contributing to the understanding of this important contemporary art genre.
[http://www.videoartchive.org.au/]

Peta Clancy: Porous Boundaries
Friday, July 3rd, 2009

This paper will discuss shifting perceptions of biological boundaries. In order to solve the problem of development molecular genetics has focused on the genetic material thereby disregarding the rest of the cellular material such as the cytoplasm and nucleus. Bodily boundaries, at all different levels, are perceived as static borders between inside and outside. Whereas according to ideas in relation to Developmental Systems Theory (DST) this

understanding of boundaries is problematic because bodily boundaries are active and never sealed. It is necessary for bodily boundaries, on a multitude of levels, to permit different degrees of communication, as Evelyn Fox Keller argues, "cells need to communicate with each other through intercellular signalling.

DST offers ways for understanding development without relying on notions of gene dominance by proposing that in order to understand the organism it is necessary to investigate beyond its boundaries. This paper will draw on these conceptions of biological boundaries to discuss both my body of work *Visible Human Bodies* (2005) (created as artist in residence in the Cell and Gene Therapy Laboratory at the Murdoch Childrens Research Institute) and Helen Chadwick's photographic works *Viral Landscapes* (1988-89) (from my original research held at the Helen Chadwick archive at the Henry Moore Institute, Leeds, UK). Through this discussion of these works I intend to explore the notion of biological boundaries as active and permeable as well as evoke notions of the boundary between the interior of the body and the exterior environment as ambiguous and constantly shifting.

Ian Haig: Media arts
Friday, July 3rd, 2009
I plan to discuss the history of one of the most unique and dedicated media art courses in the country 'media arts'. Originally established in
1978 in the outer Melbourne suburb of Bundoora as Preston institute and later Philip and now currently at RMIT in the school of art.
I will discuss current challenges of media arts within a traditional fine art school and issues surrounding multidisciplinary practice and approaches. I will also talk about the history of media arts and its development as one of the first screen based art courses prior to the explosion of 'multimedia' and digital technologies and also how our sensibility as a course area operates in relation to these technologies.
In particular by establishing a more critical framework in regards to new technologies. We are less interested in the latest developments of new technologies for their own sake and more in the cultural histories of various technological media and the ability to combine them with newer ones.
I will discuss the all too common utopian mindset of the wondrous possibilities afforded by digital media which endlessly regurgitates the marketing rhetoric of Apple Mac. Where by creatively is locked into the world of software and the computer lab opposed to an awareness of older, vintage technologies whereby students can achieve outcomes that one can't in current software.

Stephen Jones: A Systems Structure for Understanding New Media Practice.
Friday, July 3rd, 2009
The production of new media artworks involves a complex network of artists, technical and other collaborators (eg, sound and/or choreographic), technologies, funding institutions, curators and exhibiting structures all functioning concurrently in a context of cultural, political and technological strata. The people involved become a network consisting (in one language) of nodes and inter-connections. The operating process is a communicative activity best described through Wiener's cybernetics and the indication of the circular causal loop structure of a system. The connections of the network consist in these feedback-loop structures. They are dynamic yet can develop an intrinsic stability through their capacity to handle variety and perturbation. When they function adequately they can become autopoietic and thus self-generating and self-sustaining. The system of interconnections is rhizomic in general and it is driven or motivated by desire in one or many of its multitude of types.
This analysis is very important for providing an adequate basis to the historiography of the media arts. In this paper I provide a basis for pedagogical curricula and presentation that uses the framework to bring to the students' attention the wide range of interconnectedness of the study and practice of the new media arts.

Session Chaired by Vince Dziekan
12.00: Presentation 5 Malcolm Riddoch and Cat Hope
12.20: Presentation 6 Roger Alsop and Marsha Berry
12.40: Presentation 7 Brogan Bunt
1.00: Presentation 8 Jane Quon

Dr Malcom Riddoch & Cat Hope: Programming Musicians: a New Approach
Friday, July 3rd, 2009
In 2007 WAAPA began a new music course that tied a thorough traditional music training with computer programming. The Music Technology Major in the Bachelor of music aims to produce students who can not only program interactive or compositional projects, but have a full capability in a more traditional musical background of aural training, harmony, history and performance. After initial learning in acousmatics, spatial music, recording, mixing and mastering music, students are introduced to programming through composition and interactive projects using MaxMSP and Jitter, moving on to C sound and the programming of Arduino's, as well as realtime internet performances. The project based teaching and assessment structure encourages collaboration and performance in the public arena, creating a foundation for a performance research ethic beginning at undergraduate level.
This course is the first of its kind in Australia, and is developing exciting outcomes that may finally solve the sound art vs music debate, developing learning strategies that combine musical and scientific approaches for a range of artworks with sound as a foundation. The paper discusses the design of the course and how it differs from others, and provides detail on the way programming is taught within a music framework, and some of the outcomes to date.

Roger Alsop and Marsha Berry: Sound Design Skills: Exploring a Blended Learning Environment for Developing Practical and Conceptual Skills
Friday, July 3rd, 2009
The performance arts are an area where many media based and human based art practices collaborate and collide to form cohesive works. When developing skills in students, practical knowledge bases are required in order to develop and express concepts. Studio models are often seen as the most efficient and practical teaching methods, but the efficiency of this process is being questioned as student diversity is being acknowledged. Computers and networked technologies are normal tools of performance arts, and, while current students enter university with high levels of computer literacy, they need to learn how to apply these tools within complex cultural contexts and productions.
This paper will discuss the on line course 'Sound Design Skills' as a system through which technological skills and advanced conceptual skills are introduced to students at undergraduate and postgraduate levels. 'Sound Design Skills' will be considered as a case study that explores media as a tool for developing practical, technological and conceptual skills in a blended learning environment that explores concepts of sticky knowledge within a networked media based studio model.

Brogan Bunt: Media Art, Mediality and Art Generally
Friday, July 3rd, 2009
In a recent blog post, Florian Cramer explains the special character of German media theory: In the last decade, German humanities have developed a broad, general and transhistorical notion of media as "mediality" ("Medialität") in which any material or imaginary carrier of information qualifies as a medium, from CPUs to angels. (Cramer, 2009)
This paper considers how the notion of mediality, as an expanded conception of media, affects the notion of Media Arts. If the concept of media arts practice was once chiefly concerned with modern technological forms of audio-visual representation (photography, film, video, etc.) and then, under the guise of 'new media', developed a primary concern with the implications of the digital (electronics, computation and networked interaction), then

where are we now? What are the artistic traditions, forms of practice and bodies of theoretical understanding that lend disciplinary coherence to Media Arts? My particular interest is in how Media Arts is positioned within the Australian higher-education context. More specifically, how does it relate to the apparently more general field of Visual Arts? Is it better regarded as a distinct entity or as crucial new perspective within a mainstream Visual Arts education? I am leaning towards the latter view, partly because the 'medial' conception of Media Arts practice lacks general currency within Australia. There is the awkward assumption that Media Arts study will focus narrowly on conventional media and the teaching of industry-relevant media production skills. The field of Visual Art is at least slightly insulated from these expectations and may provide a better umbrella for experimental media arts practice. These issues are considered in relation to the development of the Media Arts program within the Faculty of Creative Arts at the University of Wollongong.

Session Chaired by Ross Harley
2.00: Presentation 9 Jo Law
2.20: Presentation 10 Vince Dziekan
2.40: Presentation 11 John Conomos
3.00: Presentation 12 Joel Zika

Jo Law: Media Arts: a Multidisciplinary Approach
Friday, July 3rd, 2009
This paper addresses the symposium' theme of 'media arts in the context of contemporary art education' by presenting an approach to teaching media arts curriculum informed by experimental screen arts.
This approach is founded on the following considerations:
- Media arts are an evolving arena; it is open-ended and engages with many areas and established disciplines.
- I see these characteristics as strengths - ones that engender exploration by students to discover what media arts means to them and their practices.
- It precludes medium specificity, technological determinism, and the perceived needs of industry.
- It is project-based and informed by history and theory.
- It is necessarily experimental.
- The subjects I teach are uniquely positioned in the Faculty of Creative Arts (University of Wollongong) where students come from a broad range of study areas including, visual arts, media arts, graphic design, music and sound composition, performance, journalism, and creative writing.

Media arts draw upon diverse areas including experimental film, performance art, installation, sound art, and new media arts. In contrast to a method that seeks to define the field, my approach makes use of this open-endedness in giving students the freedom to explore and discover, as practitioners, what media arts is for them and their practice.

Vince Dziekan: Preview: Programme Architecture
Friday, July 3rd, 2009
The synthesis of exhibition-based spatial practice and digital mediation is becoming increasingly influential to our understanding of art today. By effectively structuring the form through which viewer experience, interpretation and interaction with art is entered into, the exhibition acts as the interface that actively mediates between physical properties and social space, producing protocols for viewing and routines of audience engagement. What my preceding interdisciplinary research has referred to as *curatorial design* proposes a programme for how aesthetic experience might take shape at the intersection of new technologies and exhibition space.
This short paper will position upcoming research on curatorial design and emerging forms of programme architectures. Titled *Edge Blending*, this project will investigate how concerns

relating to the blending of spatial practice and digital mediation characteristic of new media exhibition extend to the construction of encompassing curatorial programmes. In order to do so, the research (which has been supported by a British Council Design Researcher Award) will focus its study on approaches to structured artistic programming recently implemented at FACT, the Foundation for Art & Creative Technology based in Liverpool. By defining the term *programme architecture*, this paper aims to draw attention to the interdependence between the character of given creative approach (or programme) and the processes (development, design, evaluation) and systems (institutional, organizational, technological) employed in the realization of exhibition projects.
The transformative impact of digital processes on practices associated with artistic production, curation and audience is distinctive of the continued evolution of the media/electronic arts.

John Conomos
Friday, July 3rd, 2009
I shall argue in my paper that the autonomy of the contemporary art school or college has become progressively compromised within its larger context - being a critical part of today's corporatised transnational university. This has happened for many reasons, but primarily because of the 'globalisation' of tertiary education, teaching and research. In a word, arguably, artists who teach the new media arts face cultural, historical and pedagogic situations that are foisted upon them because their institutions have been absorbed into the contemporary bureaucratised Euro-American university system. As a result, the radical pluralism of contemporary art is being seriously threatened or homogenised by the aesthetic, cultural, managerial and pedagogic values of our universities.
Furthermore, practicing artists who specifically teach contemporary art, media and technology are daily challenged by the shifting social role of the university in society and its internal systems of managerial rationalism, its literal, anti-metaphorical art education speak (especially as it pertains to artistic creativity) and its blinding cardinal institutional and pedagogic belief in the exploitative logic of global capitalism and media celebrity culture. This is further complicated by the fact that contemporary artists who do not submit to this complex economic and cultural zeitgeist of tertiary education for global niche markets become, because of their personal and professional convictions and values, hermeneutically critical and suspicious of 'the administered world' (Theodor Adorno)
Contemporary art, ideally speaking, as an act is controversial by nature; it is, according to one of its (post)modernist lodestars, Georges Bataille, in opposition to the status quo. So, fundamentally, we need to ask ourselves: What kind of education will suit this specific type of art? Can art schools merging

Joel Zika Creative practice as research in new media:
Friday, July 3rd, 2009
This research paper examines the reconfiguring and re imagining of the cinematic scene into physical experience. Practice based research leading to the development of studio works which engage the iconography and atmospheres of cinema in new spatial contexts. Historical research examines the origins of popular cinema; the period between the Lumière brothers's Cinématographe in 1894 and the first feature film in 1906. This is an era important to the new media discourse in which this research and studio practice finds its context. Cinema at this time had a strong relationship with the amusement park, the fairground and exposition. Illusionistic cinematic devices bore great resemblance to the carnivalesque sideshows which had existed for centuries prior. The aesthetic content of these scientific spectacles can be attributed to defining the popular 'look' and dark thematics of early film. This can be seen in the ghostly apparitions of the Phantasmagoria in theatres and the use of the Peppers Ghost in haunting Cabaret.

As well as detailing studio practice by Zika, this paper will examine field research undertaken to a range of historic sites throughout 2007. Through documentation and experience of more

than 20 examples of the earliest immersive popular entertainments (from the period 1906-1940) it was possible to see the effects of spatial design on the way one reads a narrative.

Session Chaired by Brogan Bunt
3.40: Presentation 13 Colin Black
4.00: Presentation 14 Gaye Swinn and Jennifer Lade
4.20: Presentation 15 Nancy Mauro-Flude
4.40: Presentation 16 Ross Harley

Colin Black: RADIO ART: AN ACOUSTIC MEDIA ART FORM
Friday, July 3rd, 2009
It seems obvious, if you take radio out of radio art then you have a sound based art work that is not broadcasted, unicasted and/or multicasted; conversely if you take art out of radio art then you have radio …
This paper explores the idea of radio art as a media based acoustic art-form and argues that the Australian works *Journal* (1969) by David Ahern's and *Quadrophonic Cocktail* (1986) by Chris Mann are forms of acoustic media art.
Further to this it examines the absence of radio art as a formal course of study in Australia (especially for under graduates) and argues for the need to include radio art and its vibrant Australian history to be acknowledged within formal academic institutes.

Gaye Swinn & Jennifer Lade:
Friday, July 3rd, 2009
Games art will be seen by some of the largest audiences in all of the history of art or of media. Yet as a representation of human civilization at the end of the 20th Century and into 21st Century there can be few media examples that so comprehensively fail to evidence the hopes, expectations, aspirations or even the existence of large sections of society.
This paper chronicles the development of RMIT's three games programs, the attempt to provide for an industry still emerging from its modest home-base beginnings, to provide graduates with a broader art historical perspective than was then evident in the genre and to insinuate into the venture a greater respect for digital art and some of its emerging protocols. The authors then review the first iterations of the programs, from the response of the media to their launch, through the vested interests of existing structures and disciplines. With five years of experience to draw upon we consider the development of cross disciplinary collaborations between schools, between members of staff and between students and we map the changing landscape across that period.
The authors also chart the deepening of commitment to the discipline of games evident in the evolving student body and consider both theoretical and practical protocols for developing and extending creative conceptual thinking in an on screen and technically driven environment.

Ross Rudesch Harley: Open Learning Networks in Media Arts Education
Friday, July 3rd, 2009
The explosive growth of knowledge in the 21st century has placed a unique set of pressures on many institutions, and in particular, on those that generate, analyse, sort and disseminate information. While the public looks to universities as places where world's-best practice in knowledge management is employed, these same universities are in danger of being overwhelmed - not only by the increase in knowledge, but by the just-as-rapid multiplication in techniques for capturing, exploring, and distributing this knowledge. I want to suggest that closed "Virtual Learning Environments" are not the best solution for digital-media arts education. Instead, I argue that external "user-centric web services" should be allowed to flow into the university web systems. In this way students and teachers increase their participation in the broader production (and critique) of knowledge in the media arts and other disciplines

Appendix 3 NOMAD & MASS site data

Last Update: 18 Oct 2009 - 12:21

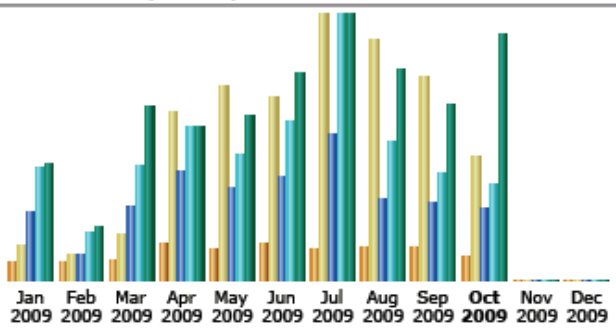
Reported period: Oct 2009 OK

Summary

Reported period	Month Oct 2009				
First visit	01 Oct 2009 - 09:00				
Last visit	18 Oct 2009 - 12:00				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	**166**	**856** (5.15 visits/visitor)	**3464** (4.04 Pages/Visit)	**4549** (5.31 Hits/Visit)	**64.35 MB** (76.97 KB/Visit)
Not viewed traffic *			**15733**	**17890**	**309.77 MB**

* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2009	125	241	3231	5351	30.79 MB
Feb 2009	123	180	1248	2267	14.00 MB
Mar 2009	135	319	3562	5443	45.34 MB
Apr 2009	246	1149	5126	7327	40.51 MB
May 2009	216	1341	4369	6009	42.96 MB
Jun 2009	245	1262	4946	7515	54.29 MB
Jul 2009	215	1829	6969	12583	69.58 MB
Aug 2009	228	1666	3914	6598	55.04 MB
Sep 2009	233	1404	3636	5039	45.76 MB
Oct 2009	166	856	3464	4549	64.35 MB
Nov 2009	0	0	0	0	0
Dec 2009	0	0	0	0	0
Total	1932	10247	40465	62681	462.61 MB

NOMAD site traffic data as of October 2009.

Last Update: 18 Oct 2009 - 12:21

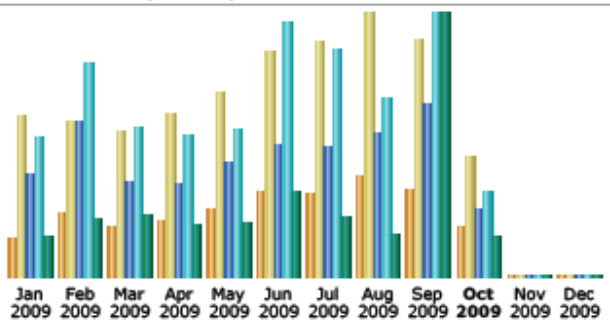
Reported period: Oct 2009 OK

Summary

Reported period	Month Oct 2009				
First visit	01 Oct 2009 - 09:00				
Last visit	18 Oct 2009 - 12:19				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	**384**	**958** (2.49 visits/visitor)	**4178** (4.36 Pages/Visit)	**5219** (5.44 Hits/Visit)	**102.99 MB** (110.08 KB/Visit)
Not viewed traffic *			**3722**	**3943**	**151.13 MB**

* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2009	304	1285	6297	8537	99.60 MB
Feb 2009	505	1223	9481	13084	145.34 MB
Mar 2009	396	1161	5766	9045	155.33 MB
Apr 2009	448	1297	5666	8588	131.70 MB
May 2009	545	1475	6927	8983	134.43 MB
Jun 2009	665	1795	8079	15491	210.06 MB
Jul 2009	655	1860	7883	13863	150.28 MB
Aug 2009	799	2092	8796	10828	105.05 MB
Sep 2009	693	1879	10569	16034	662.89 MB
Oct 2009	384	958	4178	5219	102.99 MB
Nov 2009	0	0	0	0	0
Dec 2009	0	0	0	0	0
Total	5394	15025	73642	109672	1.85 GB

MASS site traffic as of October 2009.

MEDIA ARTS SCOPING STUDY: HTTP://MASS.NOMAD.NET.AU

NATIONAL ORGANISATION OF MEDIA ARTS DATABASE:HTTP://WWW.NOMAD.NET.AU