

INVESTIGATING MULTIMEDIA DESIGN AND APPLICATION



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ISS Institute/TAFE Fellowship

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Victorian Government

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1. Acknowledgements

1.1 Organisations

Awarding Body

> International Specialised Skills Institute

Fellowship Sponsor

> Victoria University

Overseas Industry Training Organisations

> Future Media Concepts Inc.

> Sterling Ledet and Associates Inc

1.2 Individuals

Carolynne Bourne - Executive Director, ISS Institute

Richard Carter - Deputy Director, Victoria University

David Bigelow - Instructor, Future Media Concepts Inc.

Russell Youngblood - Instructor, Sterling Ledet Inc

Vikki Merriman - Instructor Future Media Concepts Inc

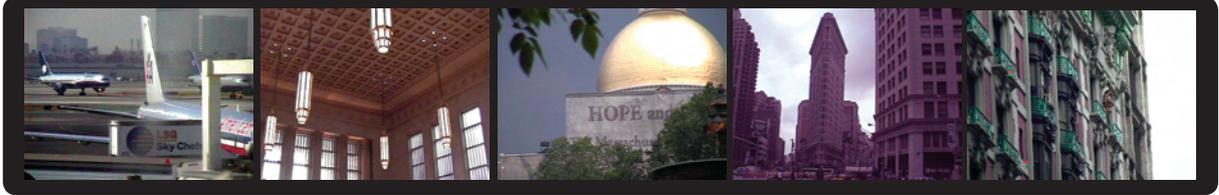
Sue Macauley - New Media Curator

Michael Buckley - Multimedia Developer, Strategic Media

John Barmby - Head of Department, Art Design and

Multimedia, Victoria University

Juanita Custance - compatriot and mother of my three kids



2. Introduction

2.1 International Specialised Skills

International Specialised Skills (ISS) Institute is an independent, national organization that was founded by Sir James Gobbo AC, CVO in 1989 and was its chairperson until becoming Governor of Victoria. Now ISS Institute's Patron in Chief, he continues his interest and support.

Since 1990, ISS Institute has filled gaps in industries and enterprises where the means of doing so are not available through Australian TAFE institutes or universities.

If we are to build successful enterprises, then it is essential that we raise the aspirations of both organisations and individuals. In skill terms, it will not be sufficient to simply meet current needs, but to anticipate future needs and allow and encourage innovation and growth in every sector of our economy. In this context, skills gaps are vital to long term economic prospects and in the short term sustain sectors that are at risk of disappearing, of not being developed or leaving our shores to be taken up by our overseas competitors. In this scenario the only prudent option is to achieve a high level of skill, high value added economy in order to build a significant future in the local and international marketplace.

The consequences of diminishing or loss of skills has significant economic consequences - for individuals and industry - and there exists the potential for serious flow-on effects for businesses, industry sectors and the whole economy, as well as our community in general.

Operations are directed toward bringing knowledge and leading edge technologies to Australia and rebuilding skills that are disappearing, or have already been lost.

ISS Institute's vision is to build, sustain and improve partnerships between designers, artisans, trade and professional people, both nationally and internationally bringing together an innovative and productive future for Australia.

The Institute creates links between industries and occupations, government, educational institutions and the community, both here and overseas, finds new ways of addressing problems and new ways of producing for the local and global marketplace.

One critical aspect of our strategic positioning is through the Fellowship program. "Fellowship" is a term selected to be used as a marketing term. The aim is to open doors to companies and businesses that may not otherwise be accessible and to gain intellectual property, perspectives and insights from our overseas competitors. Moreover, the aim is to keep 'doors' open for future projects.

Fellowships are a key strategy encompassing market research to identify skill gaps, international travel programs and education and training activities to ensure experiences and information gained overseas are passed on. Those selected become the catalysts for change in their industry and occupational sector.

Fellowships have been awarded to Australians to undertake overseas programs to destinations such as USA, Italy, England, France, Germany, Norway, Austria, Switzerland and Indonesia, and experts have travelled to Australia to conduct a range of activities from USA, England, Turkey and Italy.

This has resulted in the creation of highly effective new business ventures, the development of existing business, and the return of lost skills and knowledge to the Australian workforce, thus creating jobs.

The Office of Employment, Training and Tertiary Education (ETTE) is responsible for overseeing the administration and coordination of programs for the provision of training and further education, adult community education and employment services in Victoria.

ETTE is a major sponsor of ISS Institute.

Victoria University has become one of Australia's largest universities, and one of the five dual-sector universities offering both Higher Education and Technical and Further Education courses. More than 50,000 students and 3000 staff make up the greatest international mix at any Australian university. The University also has nearly 2300 international students currently studying, both onshore and offshore.

The University's four Higher Education faculties and seven Technical and Further Education schools have developed strong links with industry, business and the local community. A number of alliances have been forged with key industry players to give students direct access to cutting-edge research, as well as work experience to broaden their employment options.

Recent funding from the State and Federal governments has facilitated the construction of a \$6.5 million online learning centre and state of the art animation training facility.

Victoria University is also part of an international network of universities and has formal exchange agreements with institutions throughout Asia, Europe, the United Kingdom, the United States and Canada. The University runs offshore courses in Malaysia, Hong Kong, Singapore and the People's Republic of China.

2.2 The Australian Context

Australians are world leaders in the consumption of new technologies, yet we are behind most developed countries in the production and export of new technologies. The domestic appetite for Information and Communications

Technologies (ICT) and the trade deficit of \$16 billion in ICT goods and services, represents missed opportunities that we must realise if we are to create jobs and wealth for the country.

We need to plan for the basic elements that must be in place to ensure industry growth. The industry needs a strong foundation – the right people; an entrepreneurial culture; innovation systems that will take our good ideas through to the marketplace; and a capacity to grow small businesses into larger businesses.

JOHN BRUMBY MP

Vic Minister for State and Regional Development

2.2.1 Background

Over the last 30 years, advances in information and communications technologies have changed the world. The development of the first personal computers in the 1970s and 1980s, the creation of the world wide web in the early 1990s and the emergence of satellite and other high speed communications have created an information age which allow individuals an unprecedented global reach.

Australians are renowned for the speed at which they have embraced new technology such as mobile telephone and the internet. Globally, over the last decade the ICT industry has become a major driver of economic growth. Research by the *Reserve Bank of Australia* found that ICT contributed almost a third of Australia's productivity growth of 4.1 percent over the period 1996 - 1999 .

The benefits of a healthy ICT industry are not just self-sustaining. Most other industries rely on some aspect of ICT to go about their business. ICT has changed all aspects of our lives – the way we do business, how we interact, how we spend our leisure time and how we access health and education services. Technology surrounds us and Australians are among the highest users of technology in the world.

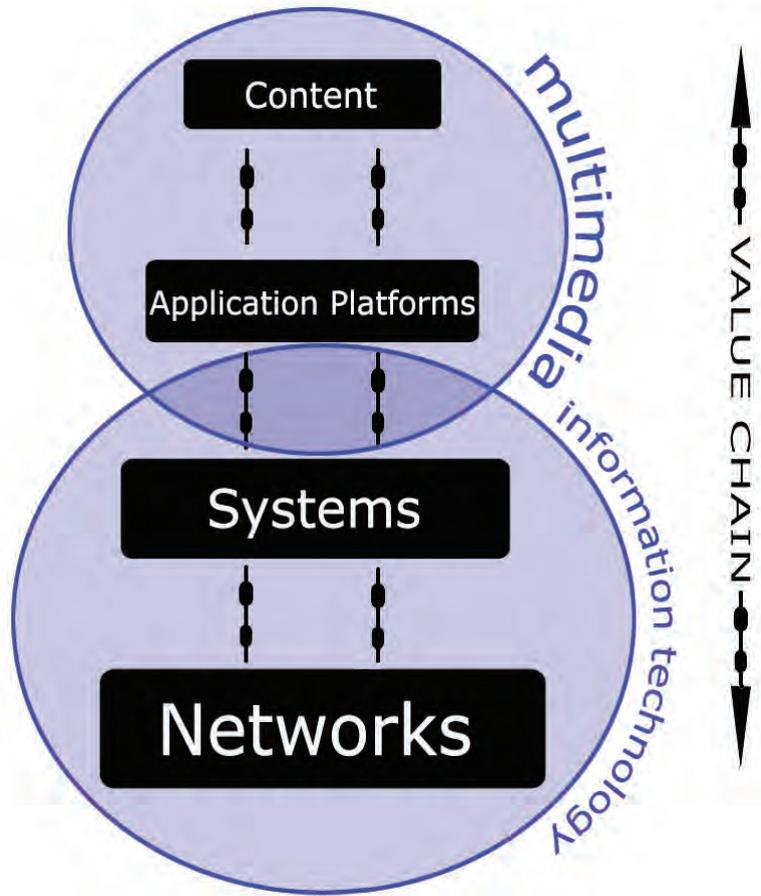
However, when it comes to producing, rather than using ICT, Australia is well below the OECD average. This amounts to missed opportunities for wealth and jobs.

The ICT industry in Australia incorporates organisations that provide hardware, software or people. These contribute to:

- **content:** material that is conceived, designed and produced for use or distribution via digital networks and interfaces (e.g. computer games; video; digital design etc)
- **application platforms:** hardware and software designed for the creation, manipulation or exchange of digital content (e.g. CDs; digital TV etc)
- **systems:** the development, manufacture and maintenance of interface products and services that give access to and allow the creation, manipulation or exchange of digital information (e.g. computers; printers etc)
- **networks:** the development and maintenance of digital communications networks (e.g. wireless and wireline infrastructure)

The focus of the training program in this Fellowship was in the area of digital content design and delivery for interactive environments. This interface between people and technology encompasses a dynamic shifting relationship and is dependent on digital delivery systems, client demand and new technology adoption rates by business and domestic sectors. Industry professionals who operate in this sphere of practice are known as Multimedia Developers. These workers build websites, e-commerce systems, data management interfaces, new media products, games, film and television special effects, 2D and 3D animation sequences and are employed in the government , educational, corporate and entertainment sectors.

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)
INDUSTRY DEFINITION



2.2.2 State Initiatives

The Victorian government is the most proactive State Government trying to redress the balance between consumption and production. An initiative by the Victorian Government called *Growing Tomorrow's Industries Today* involves close collaboration with education institutions, venture capitalists and finance institutions, as well as liaison and negotiation with the Federal Government. Encouraging businesses to innovate and grow from small businesses that are national into larger businesses that are global is a major platform for growth in this plan.

The strategic identification of Victorian ICT industry strengths and their relationship with other industries will lead to greater growth by targeting resources and support. It will mean achieving critical mass and international

significance. The framework developed for *Growing Tomorrow's Industries Today* enables industry-wide development of the right environment for growth and the strategic targeting of international opportunities.

The success of the plan is the shared responsibility of the Victorian Government and industry. Government initiatives in this plan must be complemented by industry commitment to investing in long-term professional development, establishing partnerships across industry and building international networks.

(Information and Communications Technologies Industry Plan November 2001- Multimedia Victoria)

2.3 Organisations which impact on this industry

As Multimedia is a field in a state of flux encompassing innovations in technologies, consumer demand for novelty, startling shifts in focus and the sudden demand for mastery of new software and technique, multimedia developers and artists must be equipped with lateral abilities and a flexible approach that can only arise via thorough understanding of the medium technically, culturally and historically.

Since the dot-com downturn, businesses which had previously funded development, innovation and supported skill acquisition specifically in the area of content development, are taking a more conservative approach to embracing multimedia design technologies. Much of the financial investment in ICT in Australia is concentrated in networks and systems rather than in design. There is a perceived security in investing in a more tangible product, although this assumption is in fact dubious.

It has fallen upon other organisations to plug the gaps. Those that currently play a pivotal role in furthering the awareness of current trends in new media include:

1. Industry bodies

- *Australian Interactive Media Industry Association (AIMIA) www.aimia.com.au who represent Australian creators and developers of digital media by*

*supporting best practice, lobbying government,
organising events and Awards*

- *Australian Network for Art and Technology* _____
www.anat.org.au

2. Arts Organisations

- *Experimenta* *www.experimenta.org*
- *dLux Media Arts* *www.dlux.org.au*
- *AFC* *www.afc.gov.au*
- *Australian Centre for the Moving Image* *www.acmi.net.au*

3. Government

- *Multimedia Victoria* *www.mmv.vic.gov.au*
- *ICT Centre of Excellence* *www.noie.gov.au*

4. Educational Institutes

At present the future of interactive multimedia integration in Australia is largely dependant on the commitment and resources of organisations such as these.

2.4 The Skills Gap

New Media skills gaps were particularly identified in the areas of the design and delivery of interactive media content. This TAFE/ISS Institute Fellowship was undertaken to acquire skills in the following areas of design and delivery:

- interactive vector based web imaging techniques
- digital video production techniques
- DVD authoring

An ability in these fields of multimedia production and delivery is essential to the future design of streaming online content (a technique which, for example, enables animation or video to play while being downloaded). Tuition in these specific areas was unavailable within Australia at that time.

Broadband streaming of online content, which allows high

volume transfer of data (enabling, for example, full screen video to be delivered as interactive content) is reliant on broadband technology and is being increasingly adopted in commercial and domestic situations.

Whilst broadband technology is available in Australia it is not utilised at the level currently implemented by European and American communications industries. Although this does not necessarily limit our capacity to develop content and technologies for a global market it does seriously impinge on our capacity to fully realise the potential of visually sophisticated interactive media both culturally and commercially.

3. The Fellowship Program



3.1 Introduction

The USA was chosen as the destination for the Fellowship as the areas of multimedia production studied involved sophisticated software developed by US based companies. Official training accreditation by these software developers is acquired by training organisations in the USA significantly ahead of training suppliers elsewhere in the world. The United States' traditional strengths in technology and its highly entrepreneurial culture have resulted in its global market dominance in this field.

The fellowship sponsored training took place between June 12 and July 13, 2001. From Melbourne I travelled to Philadelphia in order to attend a one day seminar on DVD authoring by David Bigelow with Future Media Concepts Inc. After a weekend in New York I travelled to Boston and attended the 3 day workshop tutored by Vikki Merriman on advanced video compositing with Future Media Concepts Inc. The final 3 day training program in vector based interactive animation was delivered by Russell Youngblood and held in San Diego by Sterling Ledet Inc.

This schedule also allowed me the opportunity to investigate cutting edge commercial and cultural applications of multimedia product in New York, San Francisco and Los Angeles. This involved investigating digital exhibitions in art galleries and observing multimedia applications in public spaces (eg Times Square). I was particularly curious to observe these areas in light of the multimedia spaces and Museum of Modern Art due to open

in Federation Square this year.

Unfortunately I was unable to observe research and tutorial methodology in action at any tertiary institute due to the US summer semester break. This was the only disappointing conflict in my schedule. I was, however, able to take advantage of my return trip via East Asia with the help of Victoria University to meet with multimedia designers and educational practitioners in South Korea and Hong Kong and to examine the trends in and current applications of Multimedia product in those regions. Organisations with who I was in contact include:

Seoul

- *ISEP*
- *Kaywon School of Art and Design*
- *Seoil University*

Hong Kong

- *IDP Education Australia*
- *Delirium Cybertouch,*
- *Chu Shek Lun Prevocational School,*
- *Kwun Tong Vocational Training Centre*
- *International Studies Service Centre*
- *Wai Shun International Education Centre*
- *Introducing Australia Studies Centre*

3.2 Training Organisations

My training sessions were delivered by Future Media Concepts and Sterling Ledet and Associates Inc. They are both Authorised Training Suppliers.

Future Media Concepts Inc. (<http://www.fmctraining.com>) has Digital Media Training Centres which provide a complete range of manufacturer-authorised training in all areas of digital media including non-linear editing, sound design, web design and programming, video streaming, DVD authoring, 3D animation, compositing and desktop publishing in New York, Boston, Washington DC, and Philadelphia.

Sterling Ledet Inc. (<http://www.ledet.com>) is located in

Atlanta, Chicago, San Diego and New Orleans and offer specialised training to Multimedia practitioners. Their philosophy in delivery is to adopt innovative technology and industry best practices which recognize and accommodate technology's weaknesses as well as its strengths.

3.3 Program Content

3.3.1 DVD production - 1 day seminar in Philadelphia

This seminar examined the DVD format's special features and technologies and covered demonstrations of encoding, authoring and mastering of DVD content. The seminar was delivered to eight designers/developers from corporations including Hewlett Packard, Boeing and Erickson.

The presenter David Bigelow is an Apple Solutions Expert, an instructor for Future Media Concepts and an award winning editor recognized by the American Film Institute's Visions of US competition for his comedic short, "Seven's Gate". He specializes in digital media production for video, broadcast, DVD and the web, and is the owner and operator of 01 Video, a digital media production company in Boston.

The program schedule was as follows:

10:00-10:30am - What is DVD Video
Video - High Quality MPEG-2 Compression
Audio - Dolby Digital AC-3, 5.1 Channel Surround Sound, and DTS
Playback - DVD player on set top box, DVD players in Mac/IBM
Distribution - The wide spread of DVD

10:30-11:00am - Special Features of DVD
Interactivity - Menus, Motion Menus
Languages - Subtitle and Audio Tracks
Video - Multiple Angle Tracks
DVD-ROM features
DVD@CCESS - linking your DVD's to the internet

11:00-11:30 am - Planning and Preparing for DVD Authoring

Flowcharting interactive menus

Bit Budgeting - How much can you fit on the disk?

11:30-12:00 - IDVD Authoring

Drag-and-Drop Video/Audio

Using templates for menus

Burning a DVD

1:00-1:30 pm - Preparing Assets

Using Final Cut Pro to encode MPEG-2 Video, Dolby Digital or PCM Audio

Using Adobe Photoshop to create Menus and Buttons

1:30-5:00 pm - DVD Studio Pro Authoring

Importing Video/Audio

Menu Import and modification

Linking assets

Proofing on DVD-RAM or the Hard Drive

Burning your DVD with SuperDrive or DLT for duplication

3.3.2 Advanced video compositing techniques using Apple Final Cut Pro - 3 day workshop in Boston

This training was held in Cambridge on the grounds of Harvard University. The intensive workshop was delivered to a small class (only one other participant who ran a video production company). We were instructed by Vikki Merriman, a graduate of Cambridge Film school who worked with production companies while expanding her experimental film/art practice. For a number of years she worked with Boris Effects developing a series of special effects plugins for video compositing software products. She has been working with Future Media Concepts for a year

The program schedule included:

- Advanced editing techniques
- Compositing, Filters and special effects
- Adding multi-layer Effects
- Using keyframes and advanced keyframes techniques
- Creating commonly used effects with keyframes
- Building a multi-layer sequence with PhotoShop art.
- Import Logos using an Alpha Channel

- Touching-up an Alpha Channel
- Creating and importing parts of still images
- Creating complex PhotoShop art and importing it to FCP
- Creating advanced Text effects and custom transition effects
- Composite Modes, nesting and PhotoShop layer effects
- Managing complex projects - Relink, Media Mover, Sequence Trimmer
- Complex media management
- Using Media Cleaner Pro to create output for CD-ROM, web, DVD and tape

3.3.3 Advanced interactive web animation and scripting using Macromedia Flash - 3 day workshop in San Diego

This workshop was undertaken by myself and one other participant, a web designer with the State Government of California. The instructor, Russell Youngblood is a web expert based in New Orleans. He originally worked in the hotel convention business. After expanding the business by implementing a successful e-commerce model he moved full-time into training and independent contract work in CDROM production. He worked with Director and Flash at the NetCom Group in New Orleans.

The program schedule covered the following areas:

- Object-oriented programming concepts
- ActionScript
- Using built-in objects
- Variables with dynamic text boxes
- Attaching a movie clip
- Executing ActionScript based on conditions
- Initializing variables
- Using Operators
- Making a draggable movie clip snap into place
- Controlling sound.
- Using XML

3.4 Outcomes of the Fellowship

3.4.1 Impetus

Knowledge of sophisticated multimedia production methods is fundamental to the creation of a dynamic and expanding multimedia industry. Adopting innovative design techniques, exploring fresh ideas and understanding user/client behaviour are also essential to content creation. The communications industry of the future will see a convergence of media forms. Understanding how interactive dynamic web delivery can be integrated with full screen video delivery for corporate and entertainment sectors is essential for the future of the multimedia industry.

3.4.2 Tutorials and seminars

The Fellowship program focussed on intensive technical training in the design and delivery of interactive media content that was not currently available in Australia. Participants were industry practitioners using specific software packages. By attending these workshops I was able to learn specific cutting edge programming packages (among them Flash, Final Cut Pro, DVD Studio Pro). I saw how these multimedia technologies are currently integrated in production and how strategies for innovative practise are formulated in the melding of different media forms during the development process.

The seminars also provided the opportunity for me to identify some of the less tangible but equally important skill gaps in the multimedia industry. In particular I found that it is generally agreed that the rapidity with which new technology changes our environments at an industrial and domestic level requires us to constantly re-examine human-computer interaction.

What this means is that the design and delivery of multimedia content needs to be evaluated with a focus on user centred functionality. That is to say 'usability' is a prime consideration for attracting and maintaining a strong client base and ensuring commercial success. Some of the difficulties in establishing effective usability stem from the fact that Multimedia is a new medium that is using conventions developed within other communicative

disciplines.

For example, conventions for multimedia design have been largely inherited from Graphic Arts. Typographic principles and layout based on the grid system as employed in most current screen design has been adopted from the print industry. However, as we move closer to broadband delivery of content, multimedia design will increasingly call on the language of cinema and motion graphic principles. The convergence of these defined conventions from the graphic arts, and linear time based media, means there are no standards to draw from for the degree of animation or the placement of these elements as navigational devices on the screen. Those who are currently at work in these areas of multimedia are pioneering the way in which information will be dispensed. Those that are able to develop an effective means of communication using a non-linear interactive medium will lead the way in a globally competitive future.

There are wide differences in the perceptual mechanisms people use to absorb information. Moving from the printed or electronic page into three dimensionality both amplifies our ability to design information and complicates the process. The dynamic visual and aural capacity of instructional web sites, CD-ROMs and other interactive multimedia products requires attention to the “artistic” for the Designer. It is critical that issues of form, aesthetics, graphic design, visual communication, interpretation, and creativity are addressed. In multimedia products the aesthetic is also the vehicle of communication. That is to say that visual design goes beyond “aestheticism” and is the actual means by which consumers will absorb the intended information content. Accordingly, animated multimedia components need to be addressed in usability studies not just as an underlying aesthetic but also as an integral consideration of functionality.

3.4.3 Other activities

While in the USA I visited New York to see the level of implementation of multimedia technologies in public spaces. I also visited the San Francisco Museum of Modern

Art for a Digital Media Exhibition delivered in the gallery space and online.

In addition to visiting the USA for the Fellowship, I travelled to Seoul where I spent time talking to artists and educators at the Kaywon School of Art and Design. I then travelled to Hong Kong and met with Developers at Delirium Cybertouch - a global multimedia production company. New York, Seoul and Hong Kong were included because they are cities that are at the forefront of implementing multimedia technologies in commercial and public space. I was interested to observe the effectiveness of the street level use of digital media and to see how the interface between technology and people impacts on the dynamic of large cities.

4. Recommendations

4.1 The Problem and the Solution



4.1.1 Meeting the demands

Multimedia developers must be flexible in their application of technique and need to embrace innovative approaches to ensure long term sustainability of the industry. By offering appropriately structured training we can redress the lack of global confidence in Australia's IT industry.

For example, the Seven Network is in the process of establishing a *National Multimedia Centre and Broadcast Centre* - an innovative and state of the art digital facility based at the Melbourne Docklands Stadium. *The National Centre* will house high-tech digital studios for news and sports and the headquarters for Internet service content. The Seven Network will invest up to \$140 million in the facility, including \$40 million of development costs and a further \$100 million in leading edge digital technology inside the building. The facility will employ over 200 people. To meet the needs of this and other similarly future-looking enterprises a learning and skill base that demonstrates a preparedness to adopt and implement new practises is essential to secure a future for Australian business and enable industry to respond to the global thirst for content generation. We need the capacity to generate ideas and be able to develop them into internationally desirable products.

4.1.2 Training

The training that will skill a workforce to enable it to participate in ventures that focus on content production and delivery will not be generated by the multimedia industry in the current climate - where financial return is

more guaranteed through networks and systems design and manufacture.

In a climate of conservative spending by businesses on multimedia products and tentative contract based employment in the industry, New Media production companies are reluctant to spend money on staff development. Most workers upgrade skills through self directed learning utilising online resources or through Registered Training Organisations and successive TAFE modules.

A disturbing finding of a 1999 survey (Australian Bureau of Statistics) was that many employers, especially with small businesses, intended to meet their skills needs by recruiting - or poaching- staff from other companies. They have entered a vicious cycle where they are unwilling to invest in training because of fear that their staff will be poached by others, and so go out and poach themselves, thereby exacerbating the problem.

Government initiatives that strengthen relationships between business and education and promote the acquisition of skills by increasing employer support for training are a key strategy with which to tackle this stagnation of skill development.

The Victorian Governments' *Digital Media Fund* supports the development of innovative design in the multimedia industry. \$5.75 million in grants funding is helping to create interactive screen-based content for digital distribution.

This funding is being distributed by:

- ABC Cinemedia Multimedia Production Accord
- SBS New Media Projects Accord
- Digital Culture Program
- Interactive Screen Arts Program.

This is a welcome initiative. Accordingly, the role of smaller cultural organisations (e.g. Experimenta) should also be encouraged. Festivals, awards, competitions and peer support activities all encourage multimedia practitioners to continue to develop skills in their field. This area which has been generally lacking support provides a wonderful

opportunity for interested businesses to invest in the future development of the industry without the risks of large financial outlay and with a great deal of potential gain. Providing links between business and arts organisations with a view to the mutual benefits of the relationship should be an action to consider.

Similar partnerships between educational institutes and both the arts and business sectors would also prove valuable in due time.

4.1.3 Securing the future

As interactive multimedia matures and user experience produces a more multimedia-literate and sophisticated population, Designers and Developers need to be working at the cutting edge of technology to satisfy demands secure business in the global market. This dynamic is already evident in the extensive use of animated navigational elements and other time based interface components once considered bewildering but now common features of interactive items.

Improvement in the functional and visual design of informational/educational/entertainment based products will only evolve with the constant upskilling of multimedia designers.

The ISS Institute Fellowship allowed me to learn cutting edge techniques for the design and delivery of time based media that were not available in Australia. The Fellowship was a valuable opportunity to acquire new skills and a refreshed perspective and I hope other multi-media practitioners will be able to enjoy the benefits of future Fellowships.

Due to the understandably conservative nature of business at present it falls upon cultural and educational organisations to encourage the development of the medium. Unfortunately this is also a time when cultural organisations in particular have a politically low perceived value and funding for the sort of cultural development

needed to stimulate interest in multimedia is low. Multimedia practitioners need incentives (not only monetary ones) to continue to develop skills and consumers need places in which to engage with the medium. Cultural institutions require support in providing such incentives and opportunities.

Educational organisations particularly those that can link in with the needs of the industry offer the best mode of skill dispersal and (via shorter intensive courses) upgrading and reskilling within the industry. The TAFE Education sector currently plays the most significant role in the skilling of the Multimedia workforce and is the best avenue for the immediate expansion of future skill development. However, the need for professional development of training staff within the education sector itself is equally important and crucial to ensure relevant delivery of content. Teacher development must include contact with industry. Innovative practice in the commercial sector needs to be identified and integrated into curriculum. Closer links between industry and education sectors is crucial to facilitate this dialogue.

4.2 Action Plan

Aside from the broader recommendations I have made above I intend to pursue an action plan in my position as Program Manager in Multimedia at Victoria University. I am currently responsible for maintaining consistency of delivery and meeting curriculum objectives in multimedia courses. I am responsible for employing over twenty sessional staff and coordinating curriculum delivery to over 180 students. Monitoring student progress across the program and working with teachers who are industry professionals and practising artists means I am well placed to pass on specific skills acquired during the Fellowship Program.

My personal teaching philosophy seeks to establish an environment of creative enquiry and encourages exploration in the teaching/learning situation. I encourage students to adopt a flexible application of technique and

to make a connection between their ideas and content development. This ensures students acquire a well rounded skill base and sets them up for success in an industry where, in addition to technical competence, flexibility, creative solutions and the ability to respond to problems laterally is a must. I hope to inspire students to seek, access and utilise learning resources and encourage them to develop a lifelong learning approach.

I have identified that industry bodies and arts organisations have a role to play in fostering innovative practice and creating interest in the field. I am in contact with groups as the *Australian Teachers of Media, Experimenta* and the *Australian Interactive Media Industry Association*. As part of an action plan to further the skilling of a Multimedia industry I will extend these contacts to create working partnerships. I believe there is a lot of scope for mutually beneficial joint projects between all of our organisations.

The TAFE sector is responsible for the most intensive skilling of Multimedia Developers. The Australian National Training Authority has addressed this by working with ETTE in the introduction of the Film, Television, Radio, Multimedia Industry Training Package which will replace all existing Multimedia courses from next year. The implementation of this Training Package has been discussed in meetings by all Victorian institutions delivering current multimedia courses over the last 6 months. I have attended and participated in these discussions and raised issues addressed in the Fellowship program.

Over the next year I will be implementing the Training Package and as part of the Australian Quality Training Framework guidelines involvement of industry is an essential part of the process. I will be discussing training outcomes with multimedia businesses and arranging meetings and developing online forums for discussion of these issues with businesses, teaching staff and other institutions.

4.3 Further Skill Gaps

The Multimedia Industry is in a state of flux. Skills which

equip developers with an ability to use cutting edge technologies will not guarantee work for long. Upskilling is essential yet anticipating what skills will be needed requires a visionary approach. New career paths will unfold and young people need encouragement to realise a future in multimedia development.

The computer game industry is an example of activity contributing to Australia's current economic prosperity. This industry can provide young people with a career path in an exciting and dynamic field, and generate valuable export revenue for the nation.

By preparing the industry with an ability to innovate and respond rapidly to change, Australia can compete globally in this rapidly growing industry. There will always be skill gaps as the technology in the communications industry evolves and creates possibilities that once were the realm of science fiction.

To be the 'imagers', as well as the 'makers', is a key individual and national challenge in a global, interconnected world. Training and development of our human capital is a critical component in our quest for a prosperous and equitable future for all Australians.

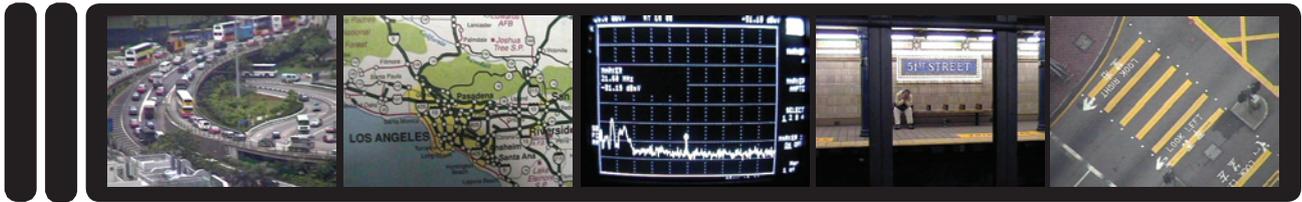
Recent research (*Technology and Tolerance: The Importance of Diversity to High Technology Growth*. Centre on Urban and Metropolitan Policy) indicates that social, cultural and ethnic diversity are significant factors in attracting and retaining highly skilled ICT people. Australia's diverse lifestyle, creative and multicultural society provides a major incentive to potential workers and investors.

We have within our nation a diversity of cultures that should be harnessed to encourage exchange programs through our educational and cultural institutions with multimedia developers and artists from areas such as USA, Hong Kong, Japan and the emergent IT powerhouses like India and Korea. This would ensure cutting edge skills reach Australia when they are needed and can place Australian workers at the forefront of global content providers for

emergent markets.

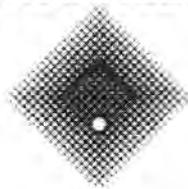
New communications technology makes it just as easy for a corporation anywhere in the world to source its multimedia requirements from New York, Melbourne or Hyderabad. The ability to perceive and design culturally relevant product for a global market will ensure a growth in the multimedia delivery and content industry. This knowledge will also benefit other Australian interests who must develop global appeal to remain in the market.

There will remain an increasing demand for clever design and presentation of time based content. Keeping Australia's multimedia industry in a state of readiness to adapt to and embrace new technologies, and hence meet this demand, is the way forward.



5. Appendix

Contained in the Appendix are letters of support, covers from training manuals and print media articles.



Sue Macauley
Lecturer in Multimedia
Department of Communication, Language and Cultural Studies
Faculty of Arts
Victoria University
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Melbourne 8001
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To whom it may concern,

I know Mark O'Rourke in my capacity as an Online Artist and New Media curator. Mark has a keen ability for utilising new technologies in artistic pursuits, which has been evident in project collaboration in which we have been involved.

In current New Media art practice there are areas in which Australia has skill shortages. These include integration of multimedia in performance, realtime animation and multiuser gaming environments.

Intensive training in software and hardware based interactive environments is needed to provide an injection of skills into the art and entertainment industries that would be of benefit to Australia's future role in multimedia and global communication.

In particular there has been little focus on the incorporation of online interactive tools and streaming video content in Australian work. The potential for these programs extends across a range of artistic applications and into the industrial arena.

Mark has always shown interest in other peoples work and an enthusiasm and willingness to share his expertise. Acquisition of skills from training not available locally would expand the potential scope of projects that Mark is involved in and the sharing of skills through this involvement would be beneficial to other participants in the projects as well.

Yours sincerely,

Sue Macauley



Mike Buckley
Director
Strategic Media
35 Gold St
Collingwood VIC 3066
mbuckley@c031.aone.net.au

7 November 2000

To whom it may concern,

In my work as an international multimedia practitioner I am acutely aware of the current shortage of specialist skills within Australia in interactive web design and interactive multimedia production.

I have worked with Mark O'Rourke on several projects over the last 3 years. In this time we have realised that finding designers with specific skills is so difficult that constant reskilling is necessary to compete with contemporary design on the World Wide Web.

We have often discussed the lack of industry standard training available to students. Sadly our population base does not encourage multimedia developers to hold the seminars and workshops necessary to attain these skills in Australia. Both students and Australian web design would benefit from having designers and more specifically trainers acquire these skills. Since his appointment at Victoria University Mark has initiated programs to redress this situation. Most notably the Web Design and Development Program (<http://edim.tafe.vu.edu.au/wddp>) which provides industry workers eg Graphic Artists with web production skills.

Yours sincerely

A handwritten signature in black ink, appearing to read "M Buckley". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Michael Buckley

Victoria University of Technology

PO Box 197 Telephone
Footscray (03) 9248 1583
Victoria 3011 Facsimile
Australia (03) 9682 8358

South Melbourne Campus

Department for Art, Design & Multimedia
207 City Road
South Melbourne



To Whom It May Concern,

I have known Mark O'Rourke since January 1999 when I interviewed him for a teaching position in the Advanced Diploma of Electronic Design and Interactive Media. When the co-ordinator resigned a few months later it was easy to recommend Mark as a substitute replacement. He is an excellent communicator and just as importantly has commitment and dedication to teaching as a career in its own right. It is not easy for teachers to reject the lure of higher financial remuneration in industry (I have lost four in the last 18 months!)

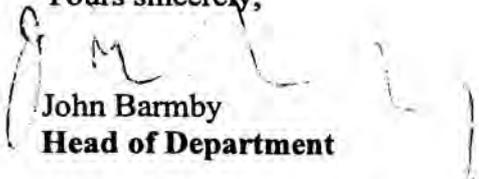
One of the challenges facing education is being able to access industry experts to ensure training keeps abreast of industry developments and standards. The problem is exacerbated in an area like multimedia when innovation is so rapid and implications of the innovation so profound.

Initiatives like the ISS/Tafe fellowships are a welcome avenue to address this disparity. I am very assured that if Mark were to be awarded a Fellowship the information available overseas that he would be exposed to would be conscientiously acquired and intelligently and appropriately reformatted to pass on to students aspiring to work in the multimedia industry.

Victoria University is very supportive in developing its multimedia training provision. In September four of my labs were upgraded with G4s. The NT lab was upgraded in January. A \$7m Multimedia Learning Centre is presently under construction at our St Albans Campus. The Department has its own server enabling students to publish live from home.

The letters supporting Mark's application specifically address the technical nature of some of the training gaps in the multimedia industry and Mark's ability and willingness to address these anomalies. I would like to strongly endorse Mark's submission for both the nature of the training he is aspiring to address and his ability to exploit it.

Yours sincerely,


John Barmby
Head of Department

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Digital guru USA bound

By Nick Gadd

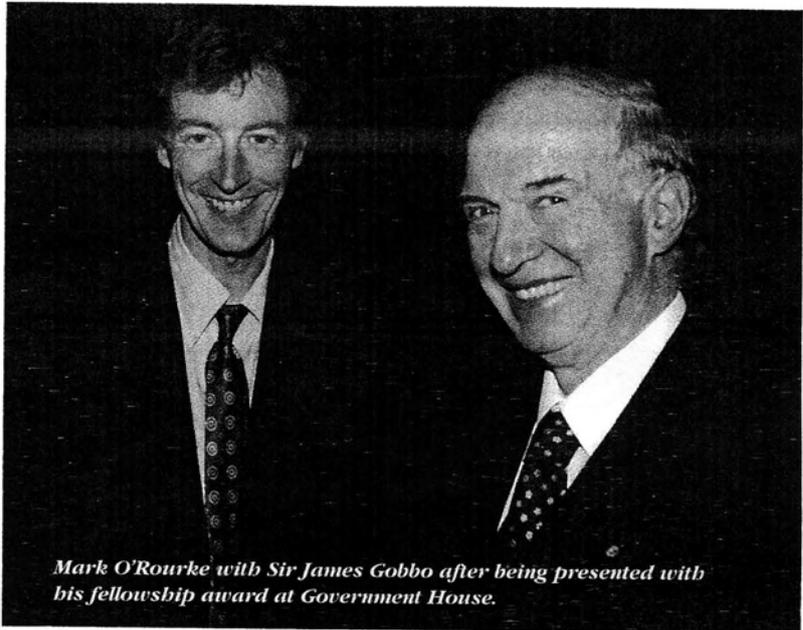
TAFE course co-ordinator Mark O'Rourke is bound for the USA to study new techniques for delivering content over the Internet, thanks to a fellowship awarded by Australia's International Specialised Skills Institute.

Mr O'Rourke, co-ordinator of the Advanced Diploma of Electronic Design and Interactive Media in the Department of Art, Design and Multimedia at St Albans Campus, will attend conferences on video streaming technology and future directions in content delivery over the Internet. The \$7000 award attached to the fellowship will cover travel to the United States and conference fees.

The Advanced Diploma of Electronic Design and Interactive Media teaches a diverse range of skills in the digital arts. Students learn how to merge technology with vision to create artworks using animation, video and computer technology.

The fellowship award was presented by the then Governor of Victoria, His Excellency the Honourable Sir James Gobbo, at Government House in December.

The International Specialised Skills (ISS) Institute is a non-profit benevolent organisation that provides opportunities for Australian artists, craftspeople and professionals to go overseas to develop specialised knowledge and skills.



Mark O'Rourke with Sir James Gobbo after being presented with his fellowship award at Government House.

Each fellowship aims to fill a specific 'skills gap' for which there is a demand but no formal training available in Australia.

Mr O'Rourke said that applying for the fellowship was not a lengthy process. "I completed an application form, had an interview, and was informed within the week," he said.

Mr O'Rourke expects to learn new skills in the area of video streaming for the Internet.

"There are not many moving images on the web because it's very hard to squeeze video down a phone line," he explained. "Vector-

based technology, which I am looking at, is about squeezing more information down a phone line. Vector-based images are smaller, so animated content can be delivered with the existing technology.

"Being a TAFE teacher and course co-ordinator, a lot of time is taken up with administrative work. This is an opportunity to upgrade my skills and learn some cutting edge stuff, away from the responsibilities of organising the course."

He has not yet finalised his plans, but is considering attending conferences in San Francisco, New York and Boston.

Training in interactive DVD production uniquely offered thanks to international fellowship

Coordinator of Victoria University's Diploma of Electronic Design and Interactive Media and online artist, Mark O'Rourke, received one of four fellowships awarded by the International Specialised Skills Institute last year.

The ISS Institute was established in 1990 to help identify areas where skills and knowledge are either disappearing or do not exist in Australia.

To redress the skills gap in the Information Technology / Design industry, Mark received \$7,000 to travel to the United States to undertake training in vector based web imaging applications and innovative imaging processes, digital video production techniques for streaming content via online environments and server configuration and management for streaming content.

According to Mark, Australia needs to rapidly skill its multimedia and IT workers if it wants to compete at any significant level in the global economy. "The current deficiencies in our skill base not only impact on the multimedia industry itself, but also on all those that rely upon it for advertising, communication, technical support and cultural identity."

Mark has had a varied career as a geneticist, molecular biologist, traveller, backpackers' manager, dock worker and film maker. Since taking up computer art in the mid 1990s, his artistic work includes CD-ROMs; web design for the International Diabetes Institute, Experimenta Media Arts and Harm Reduction Centre; super-8 films; and videos.

His multimedia interactive installations and films have appeared at the Melbourne Fringe Festival, Melbourne Film Festival and international film festivals. In July last year, Mark's interactive multimedia work, *Take My Hand*, featured on 'Stuff-art', an online project co-produced by ABC-online, Triple J and the Australian Film Commission.

In March this year, Mark's fellowship took him to Philadelphia where he completed a one day training program in DVD Apple Studio Pro mastering on G4 Macs; to Boston where he spent three days learning advanced video compositing using Apple Final Cut Pro; and to San Diego where he acquired advanced action scripting skills with Macromedia Flash 5.

The training identified two distinct fields for the Australian industry to develop. As Mark explains, "DVD production will become a major field of multimedia production. It solves many of the issues with unknown



The snapshot will never be the same again! Mark O'Rourke in Times Square, NY en route from Philadelphia to Boston. This shot was taken at 4am on a mini DV camera. Mark edited the video on the Powerbook laptop he was travelling with on loan from Computers Now. The trains in the US have powerpoints so you can work while you appreciate the vista, while on the planes he was able to do video compositing at 30,000 feet. But they can't remove the effects of jetlag!

audience bandwidth / platform for media rich content. The new facility at St Albans means we are equipped to offer interactive DVD production which is not currently offered anywhere else in Australia. This field relies on 3D animation and video compositing techniques."

The other trend is in interactive web animation with the acceptance of Flash as a web design tool in commerce and art based sites. "Advanced scripting is becoming increasingly necessary as dynamic content can be integrated into the Flash environment."

From a different perspective, Mark's training was useful in identifying teaching methods for quality learning specifically in the multimedia field. "Being a student again allowed me room to examine the teaching / learning experience from a student perspective. Now that I am skilled up a lot more, I can be of more assistance to students undertaking innovative projects with cutting edge technology and provide greater perception of future industry directions."

Editor details

Talking TAFE is the monthly staff newsletter for Victoria University - TAFE Division.

Please forward any articles, interesting / important TAFE news, events, dates and photos to:

Susan Cronshaw, Publicity Relations Officer, TAFE Division Administrative Services, Footscray Nicholson Campus.

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Final Cut Pro

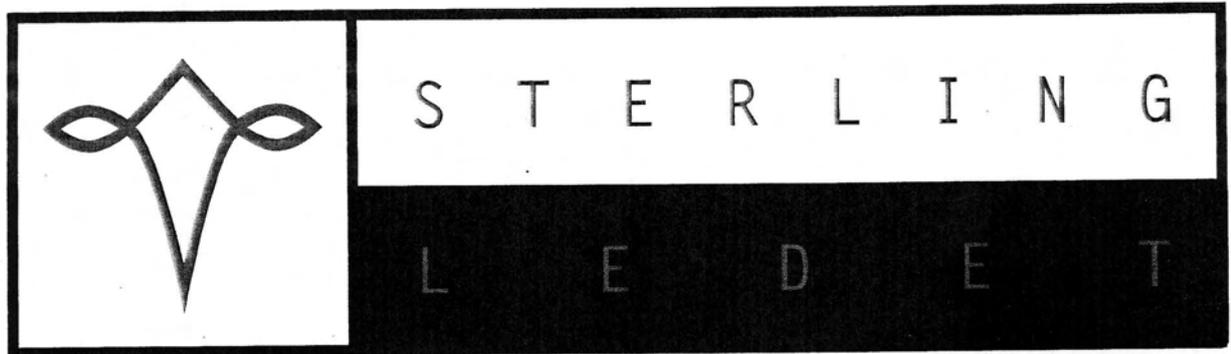
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