CREATING LEADERS FOR
SCREEN INDUSTRIES
DEVELOPMENT IN AUSTRALIA

A Submission to

The House of Representatives
Standing Committee Inquiry into the
Future Opportunities for Australia's Film, Animation,
Special Effects And Electronic Games Industries

By

AFTRS

The Australian Film Television and Radio School

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EXECUTIVE SUMMARY

● The Australian Film Television and Radio School believes it can play a vital role in developing further Australia's position and distinctive voice in global creative content industries.

● The film, animation, special effects and electronic games industries are coalescing into a single screen content industry both in Australia and internationally.

● This industry can be a key cultural and economic asset for Australia in the Information Age.

● Successful evolution of the Australia's convergent screen industry sectors will depend on sustained national investment in high quality, interdisciplinary and industry focused advanced training for potential high achievers.

● Thirty years ago the Commonwealth Parliament established the Australian Film Television and Radio School to supporting the revival of the Australian film industry.

● The School's core attribute was as a specialist centre of excellence providing elite, integrated training for exceptionally talented existing and potential filmmakers in order to 'seed' the new industry to maximize its chances of success.

● This strategy indeed proved successful and AFTRS has produced many of our most successful producers, directors, screenwriters, editors, visual and sound designers and cinematographers.

● AFTRS is now developing a similar approach in relation to education and training for the skills that underpin screen-based digital content by integrating digital media skills and technologies into its screen industry training and research strategies.

● It has underway a range of future facing programs in digital content areas. These include:

   o Development of education and training strategies for digital technologies, visual effects, animation and games and their integration with traditional screen production skills and processes;
   o Involvement in research and standards-making for D-Cinema,
   o Education and training in screen business management in the digital age, including the cross-platform business potential of Australian digital screen content; and,
   o The marrying of content production and IT design and programming.

- AFTRS also seeks to emphasize the ongoing importance of the core skills of storytelling, innovation and creativity for all successful screen content.

- The purpose of this submission, therefore, is to:
  - Inform the Committee of AFTRS' view that advanced, integrated education is crucial for screen industries success, and
  - Provide the Committee with recommendations regarding the development of the digital screen content industries drawn from the school's current education and research activities.

CREATING LEADERS FOR SCREEN INDUSTRIES DEVELOPMENT IN AUSTRALIA

" I think above all we do need a real elite of producers, directors and scriptwriters, people that can show how this can be done, and the best way that I know how to do this is to set up a proper Film and TV School ... "

- John Gorton, Prime Minister, 1968-71

1. Introduction

This submission by the Australian Film Television and Radio School responds, principally, to aspects of the following Terms of Reference in the Committee's Inquiry into the film, animation, specialist effects and electronic games industries:

(e) the skills required to facilitate future growth in these industries and the capacity of the education and training system to meet these demands;

(f) the effectiveness of the existing linkages between these industries and the wider cultural and information technology sectors;

(g) how Australia's capabilities in these industries, including in education and training, can be best leveraged to maximise export and investment opportunities; and

(h) whether any changes should be made to existing government support programs to ensure they are aligned with the future opportunities and trends in these industries.

2. Digital Convergence

An important assertion in the submission is that the creative industries that are the subject of the Committee's Inquiry are increasingly coalescing as interrelated sectors in a single creative, screen content industries both in Australia and internationally.

As a result, industry development strategies need to adopt an integrated approach drawing on both core content production capabilities and new media skills and opportunities.

The coalescence of the screen content industries is occurring as a result of the new flexibility and integration that exists in:

- The tools for the production of screen-based content;
- The delivery platforms for the transmission of that content; and
- The devices through which such content is accessed by viewers/users.

The 'plasticity' that now exists within and between these areas has been made possible by the evolving convergence of almost all communications production tools, delivery platforms and access devices into a common digital realm.

3. Cultural *and* Economic Benefit

In addition, the screen content industries are rapidly developing as a key strategic
asset in the Information Age. Both culturally *and* economically, the wellbeing of our
own community and Australia's progress internationally will increasingly depend on
our success in those activities that reflect the powerful intangibles: creativity,
innovation and communication. The screen content industries are at the leading edge
of these pursuits.

4. AFTRS: Advanced Integrated Education and Training

Thirty years ago the Commonwealth Parliament established the Australian Film
Television and Radio School as a key strategy in the revival of the Australian film
industry. A snapshot of the School's structure and legislative remit is provided in
APPENDIX A.

The remit given to the School by the Commonwealth reflected an important
conviction. It was that the creation of a specialist centre of excellence providing elite
training for exceptionally talented potential and existing filmmakers, with the
expectation that they would be leaders in the industry, was a powerful way of
'seeding' the new industry and maximizing its chances of success.

This conviction, endorsed and supported by successive Commonwealth governments,
proved to be well founded as it has in specialist film schools in a number of countries.
This approach to training, in the context of key creative industries internationally, is
discussed in APPENDIX B.

As the submission demonstrates, this strategy by the Commonwealth has proven
successful. The Australian Film Television and Radio School has produced many of
Australia's most successful producers, directors, screenwriters, editors, designers and
cinematographers. They have won prestigious screen industry awards both
internationally and domestically. Graduates are now beginning to make an impact in
digital media too. Recent detailed research reveals that since its inception over 95% of
AFTRS fulltime course students found employment in the screen industries within 12
months of graduation. (see APPENDIX B)

AFTRS graduate filmmakers have told Australian stories on screens in a way that has
immeasurably enriched us culturally, building our self-confidence and identity as
Australians.

Their productions have also generated, both directly and indirectly, considerable
economic value in local and international markets. Direct benefit has come through
the royalties and license fees flowing from the exposure of those productions on
screens worldwide. The international box office gross of just five of AFTRS
graduates' film productions exceeds $750 million.

A group of 16 graduates' films shown in Australian cinemas has generated nearly $90
million. Indirectly economic benefit has come through the ability of productions to
help market Australia, with related benefits in tourism, business attraction and the
general growth of the nation's profile global profile.

5. AFTRS and Digital Media

In recent years, as our screen industries have faced the coming of the digital era, AFTRS has taken a leadership role in integrating the new technologies and production possibilities into its education and training strategies. It is the only national film school worldwide that has established a fully integrated digital media capability offering training in high-end digital effects, animation and 2 and 3D computer graphics.

In keeping with its remit to conduct and encourage research in relation to the production of screen content, the School has also been involved in a range of research and related activities dealing with aspects of the evolution of the screen content industries in the digital era. Some of the results of this work may be of interest to the Committee as many of the themes relate to its Terms of Reference.

An analysis of the educational implications of digital technologies, visual effects, animation and games is underway at the School. Emerging considerations and results are contained in APPENDIX C.

The School is also developing enhanced business and management education for screen industry students in the increasingly complex and demanding world of content production and its multiplatform delivery. (APPENDIX D)

AFTRS has also been participating in the international consideration of D-Cinema technologies and standards. APPENDIX E contains our analysis the interplay between policies, standards and technologies, at a national and international level, that is determining the evolution of this new and important digital platform.

AFTRS believes the rapid evolution of Australia's convergent screen industry sectors - film and TV production, animation, special effects and electronic games – will depend on continuing national investment in high quality, industry-focused advanced education for potential high achievers.

An important feature of these educational programs must be an integrated approach. In this way skills already well developed in the Australian screen industries can be leveraged to underpin development of sophisticated capabilities in the new range of digital content. At the same time, the new digital possibilities can enhance more traditional content production processes.

Drawing on its proven philosophy that advanced training of highly talented students can produce exceptional results, AFTRS can strongly contribute to the successful evolution of the screen industries for the benefit of all Australians.

In the light of the arguments in this submission and its Appendices, AFTRS recommends that the Committee support the following development strategies:

Recommendation 1.

AFTRS believes that the rapid evolution of Australia's convergent screen industry sectors - film and television production, animation, special effects and electronic

games - will depend on ongoing national commitment to high quality, industry-focused, advanced education for potential high achievers.

[See Appendix B]

Recommendation 2.

Industry and Government support for the development of the infrastructure and opportunities in digital education for aspiring producers, directors and key creative crew is essential. AFTRS's research and experience has identified the following areas for high priority development:

- o Additional teaching modules linked to the radical changes that digitization is making to the traditional skill groupings involved in screen production;
  - Coursework that will equip highly gifted students to more easily work across the range of digital and interactive platforms.
  - Further development of coursework across all key creative roles that takes into account the needs of the animation, visual effects and games industries
  - Continued emphasis and integration of the core skill areas and traditional screen storytelling crafts to inform and provide structure for digital content creation.

  [See Appendix C]

- o The development of a discreet strand of digital interactive and multi-path production training including content development, technology platforms and project management. This will require:
  - Creation of more opportunities for cross over study between arts and computer science
  - Graphics specialist courses in computer science programs;
  - A specialist short course centre to fast-track talent required for animation, visual effects and games to meet the requirements of large upcoming projects and to minimize the need to import overseas specialists on these projects.
  - Incentives to encourage Australian innovation in hardware/ software development in the area of digital content creation.

  [See Appendix C]

Recommendation 3.

The critical need to manage new digital resources and expensive facilities, the demand for Australian creative talent both here and overseas and the rapid growth of digital screen industries has meant that a diverse range of media practitioners recognise the importance of more advanced business skills. AFTRS is seeking to set up a **Screen Business Skills Centre** to develop and deliver the advanced business skills now required by Australian screen industry professionals. A strong partnership between industry and educators is core to the success of such a Centre.

[See Appendix D]

Recommendation 4.

In seeking new strategies to build a strong base to the film, animation, visual effects and games industries there is an ongoing requirement for concrete and systematic data on the state of skills acquisition and deficiencies in these sectors across Australia.

A key recommendation for consideration by the House of Representatives Committee
would be the funding of research into the skills and abilities required by the
Australian screen industries on an ongoing basis. This would ensure industry
compliance and participation in the systematic surveying and analysis of industry
needs. The AFTRS is well placed to steer and manage that research in consultation
with other key agencies and industry bodies.

[See Appendix D]

Recommendation 5.
AFTRS sees merit in the development of a D-Cinema Test Centre to assess the
implications of D Cinema for screen production, distribution and delivery. It could be
hosted at the School. The facility could develop and demonstrate all elements of
digital cinema. This would enable the Australian film industry to develop and adopt
common codes of practice with a view to contributing to international standards
generation. Equipment and system suppliers would have the means of developing and
testing new equipment and technology in an environment designed for workshops and
research. Content creators would have the opportunity to understand and adopt new
D-cinema concepts.

[See Appendix E]

As appropriate, AFTRS will be seeking both Commonwealth and industry support for
targeted initiatives of this kind, designed to strengthen Australia's capabilities in the
management of digital media for the screen industry.

LIST OF ATTACHMENTS

APPENDIX A: ORGANISATION AND OPERATIONS OF AFTRS

1. Legislative Framework

AFTRS is a federal statutory authority established by the Australian Film Television and Radio School Act (1973). Its functions are set out in the Act:

Section 5.
(1) The functions of the School are:
    (a) to provide advanced education and training by way of the development of the knowledge and skills required in connection with the production of programs;
    (b) to conduct and encourage research in connection with the production of programs;
    (c) to conduct such seminars and courses of education or training for persons engaged, or to be engaged, directly or indirectly, in connection with the production of programs as are approved by the Council;
    (d) to co-operate and make arrangements with other institutions and persons for purposes in connection with the production of programs or the provision of education or training of the kind referred to in paragraph (a);
    (e) for purposes in connection with the production of programs or the provision of education or training of the kind referred to in paragraph (a), to provide facilities for, and to offer the services of the staff of the School to, such other institutions or persons as are approved by the Council;
    (f) to make grants of financial assistance to persons to enable or assist those persons to receive education or undergo training of the kind referred to in paragraph (a);
    (g) to award such degrees, diplomas and certificates in relation to the passing of examinations or otherwise in relation to the education and training provided by the School as are provided for by the regulations; and
    (h) to do anything incidental or conducive to the performance of the foregoing functions.

(2) The School shall exercise its functions with a view to enabling and encouraging the production of programs of a high degree of creativeness and of high technical and artistic standards.

2. Mission and Operations

The Australian Film Television and Radio School (AFTRS) is the premier training institution for the screen and broadcast industries in this country. Its mission is to develop the skills of both full time students and current industry practitioners to the highest creative and technical standards to promote innovation and excellence of production in Australia's film, television, radio and new media industries.

The School has an educational infrastructure capable of adapting to the changing needs of industry. During its life, AFTRS has added departments of specialist television training, documentary and digital media to a post-graduate curriculum taught through specialist departments of directing, writing, producing, editing, cinematography, sound, design, radio and screen studies.

After providing intensive full time and part time courses of advanced industry training since its inception, AFTRS started offering courses which conferred formal

postgraduate qualifications in 1997, bringing the School into line with other national film and television schools worldwide.

The full-time postgraduate courses conducted at the School's North Ryde campus offer Master of Arts, Master of Arts (Honours) and Graduate Diplomas for film and television and Graduate Diploma for Radio.

AFTRS, as a national school, has state offices and representatives in Victoria, Queensland, Tasmania, South Australia and Western Australia. Every year, the School conducts approximately 200 short courses in the various States of the Commonwealth. AFTRS has also expanded access to professional film and television training by developing and offering online courses through the Internet. AFTRS has strong links with the film, broadcast visual effects and digital media industries and as such course development is heavily influenced by the identified needs of these industries. Members of the AFTRS governing council and teaching staff comprise leading industry professionals; thereby ensuring training is at the level of industry best practice.

3. Funding

During the past seven years the base appropriation to AFTRS from the Commonwealth has increased from $12,179,000 to $13,205,000. After deducting the now discontinued Capital Use Charge, a number of one-off payments and depreciation and digital leasing funds (see below), the base appropriation figures are as follows

8 Year Appropriations Comparison

	$,000 95-96	$,000 96-97	$,000 97-98	$,000 98-99	$,000 99-00	$,000 00-01	$,000 01-02	$,000 02-03
Appropriation Received	13,064	12,521	12,402	12,047	17,000	17,370	18,144	18,872
less Loan Funds received as Income	-518	-100						
less digital media funding	-350	-250	-250					
less special interim funding	-17							
add notional loan & interest repayments					411	411		
less CUC funding						-3,531	-3,523	-3,535 -3,267
less additional depreciation funding						-1,400	-1,400	-1,400 -1,400
less digitalisation funding							-500	-1,000
Base Appropriation	**12,179**	**12,171**	**12,152**	**12,458**	**12,480**	**12,447**	**12,709**	**13,205**

Note: (1)The Department of Finance and Administration levied the Capital User Charge each year as a charge for the use of capital from 1999-00 to 2002-03. The amount of $3,267,000 for the 2002-03 financial year was drawn-down into our accounts throughout the year and repaid in full to the Government at the end of the financial year. (2)An additional $1,400,000 was added to our depreciation costs with the introduction of accrual budgeting. (3) The 20031 Film Industry Package from the Federal Government added an amount of $1,000,000 (indexed) to AFTRS annual appropriation for the lease of digital equipment.

4. Digital Media

AFTRS was the first film school in the world to establish an integrated digital a training centre. This Digital Media Department (established in 1996), is now a prominent component of the School's overall training in the production of creative content.

In September 2001, as part of its Film Industry Package, the Federal Government announced new funding for the School's lease of digital equipment - $0.5 million for 2001-02 and $1 million (indexed) from 2002-03. This has allowed the School to increasingly train its students using the highest-level digital infrastructure. The Film Industry Package is also allowing AFTRS to plan high-end training in digital television, 16x9 formats and HDTV.

The history of film and television schools is the history of a pro-active relationship responding to industry needs. The future for advanced film and television schools is the future of pro-active training which now responds to the enormous changes which the digitization of tools, platforms and devices is introducing to communications while maintaining a commitment to the key skills of storytelling, innovation and creativity in the screen content.

APPENDIX B: THE EFFECTIVENESS OF INTENSIVE, ADVANCED SCREEN INDUSTRIES EDUCATION

This APPENDIX:

- Describes the international market forces that triggered the growth of cutting edge national film schools as well as the methodology behind the educational structure of schools such as AFTRS;
- Lists key achievements of AFTRS graduates illustrating their success in creating a unique Australian screen identity as well as raising Australia's profile through critical acclaim, international recognition and receipt of prestigious awards; and
- Provides statistics on the employability of AFTRS graduates, drawn from the 2002 AFTRS Graduate Employment Survey.

1. National Film Schools

In the past 40 years the number of worldwide formal education programs in media production has grown dramatically. Hollywood and its international competitors have nurtured a film school generation.

The increasing importance of the screen industries is both cause and effect of an increase in advanced screen education worldwide.

In the face of a globalised Hollywood, the shrinking percentage of national box office has triggered substantial review of screen industries in many countries. The result of this examination has indicated the need to identify and respond to skill gaps and shortages via solid educational needs analysis and program delivery.

Film industry policy reviews, from New Zealand to Ireland and throughout the European Union, point to the need for well-formed educational programs that are systematically linked with key industry bodies.

This commitment is reflected in the number of specialist schools worldwide. There are 109 Schools listed with international film schools association - CILECT (Centre International de Liaison Des Ecoles de Cinema et de Television). Many of these schools are national schools with a specific remit to develop exceptional emerging filmmakers through master classes conducted within a high-end facility.

Several countries provide useful case studies that both support and extend the notion that advanced production education is essential for the growth of national screen industries. History tells the story of the success of national film schools as so many have produced the graduates that have put their national cinemas on the map. From Roman Polanski (Poland) to Lars Von Trier (Denmark), the Fifth Generation Filmmakers such as Zhang Yimou and Chen Kaige (China) and on to Gillian Armstrong or Phil Noyce (Australia), the revivals of those national cinemas speak loudly for the role of elite national schools.

The link between production, advanced education and success is particularly clear in Hollywood where so many high profile schools and their graduates are located. As early as 1983 publicity for the premier University of Southern California (USC) film school noted that "41 of the 42 highest grossing films have USC alumni affiliated with them". [1]

Programs such as those at USC, American Film Institute, New York University and Columbia have produced what Hollywood now refers to as "The Film School Generation" and include such filmmakers as George Lucas, Francis Ford Coppola, Joel Silver, Martin Scorsese and Oliver Stone.

Newer schools, such as North Carolina School of the Arts and Florida State University offer state of the art purpose built facilities and are building a newer generation in regional America.

2. Methodology

In essence, the methodology of the elite film school is to deliver professional development to a talented selection of emerging filmmakers within a mentored production process and a conservatorium style context.

Key features are:
- Low student teacher ratios;
- Industry professionals as teaching staff;
- Focus on specific industry specialisations;
- Production work as the integrated and applied focus of learning;
- Production work as the key form of assessment;
- Access to production house/studio style high-end facilities featuring leading edge technology.

As previously noted this kind of approach characterises the national European schools such as the National Film and Television School in the UK (NFTS), LODZ in Poland, La Femis in France, The Danish Film School and the European Film College in Denmark.

There are also several schools in Asia such as the Beijing Film Academy, National Taiwan University of Arts and the Ngee Ann Polytechnic, Singapore.

The key to the methodology is intensive, structured and targeted training and education with strong industry input and state-of-the-art facilities. The ability to provide flexible, at times customised, training and education is a significant aspect of the approach to delivery. It is also essential that the program is responsive to industry changes, both short and long term trends, while at the same time continuing to experiment and seek new directions with which to lead industry.

Since its establishment AFTRS has applied this approach to screen industry training in Australia producing strong results.

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[1] Belton, John American *Cinema/American Culture* Quebecor-Book Press. 1994. Page 302

3. Some Key Achievements of AFTRS Graduates

A quick glance at the Australian film industry in the past few years reveals a solid contribution by AFTRS graduates over a cross section of screen productions and genres. This section describes industry contributions in two screen industries sectors – feature films and digital media.

FEATURE FILMS

From critically acclaimed local films such as *Alexandra's Project* (Writer/Director **Rolf de Heer**), *Dirty Deeds* (Director **David Caesar**) and *Walking on Water* (Director **Tony Ayres**; Editor **Reva Childs**; Sound Designer **Liam Egan**; Composer **Anthony Partos**) to international large budget productions including *Charlotte Gray* (Director **Gillian Armstrong**), *Chicago* (Cinematographer **Dion Beebe**) and *Lord of the Rings: Fellowship of the Rings* (Cinematographer **Andrew Lesnie**).

In the last two years, AFTRS have celebrated an Oscar© win for **Andrew Lesnie's** work on *Lord of the Rings: Fellowship of the Rings* and two Oscar© nominations – one for **Dion Beebe's** Cinematography on *Chicago*, and the other in the category of Live Action Best Short for the AFTRS film *Inja* (Producer **Joanne Weatherstone**; Director **Steve Pasvolsky**). As well as being nominated for an Oscar© this year, *Inja* screened at over 24 international film festivals and won numerous awards including: Best Student Film in Aspen 2002; Best Short Film – St Kilda Film Festival 2002; Best Achievement in Writing for a Short Film – St Kilda Film Festival 2002; Best Short Film – Nashville 2002.

AFTRS graduates are also a driving force behind the telling of indigenous stories with award winning features such as *One Night The Moon* (Director **Rachel Perkins**), *The Tracker* (Director **Rolf de Heer**), *Australian Rules* (Producer **Mark Lazarus**) and *Beneath Clouds* (Director/Writer **Ivan Sen**; Cinematographer **Allan Collins**; Editor **Karen Johnson**).

Soon to be released is the highly anticipated *L'Idole* (Director **Samantha Lang**) and *The Rage in Placid Lake* (Writer/Director **Tony McNamara**).

Two recent AFTRS graduates have their first features in pre production. These are Writer/Director **Cate Shortland** with *More than Scarlet* and Writer/Director and Oscar© nominee **Steve Pasvolsky** with *Deck Dogz*. Also involved with *Deck Dogz* are AFTRS graduates Cinematographer **Denson Baker** and Designer **Aaron Crothers.**

The formation of crew on *Deck Dogz* highlights how the networking and collaborative processes learnt at AFTRS reach beyond the School. It is a place where longstanding professional alliances are formed. Most Australian films and television series feature the contribution of AFTRS graduates in one or more key creative role.

Despite achieving international success, many AFTRS graduates remain based in Australia. Others have returned to Australia, after time spent overseas, to make films

that support our local industry and tell Australian stories - a tribute to the respect for the Australian film industry instilled whilst at the School.

In the 2002 AFI Awards AFTRS graduates made up 33% of nominations in categories taught at the School.

AFTRS graduates' contributions are not only recent. Since the School's inception in 1973 AFTRS graduates have been fundamental in the shaping of Australia's unique screen culture. Notable success stories include:

Gillian Armstrong [Directing 1974] - In 1979 Gillian was the first woman to direct a feature film in 50 years with *My Brilliant Career*. The film, which remains an Australian classic, received AFI awards for Best Film and Best Director, as well as winning the Best First Feature award from the British Film Critics. Since then her career has gone from strength to strength and she has continued to make groundbreaking and thought provoking features with strong female characters. Examples include *High Tide, Oscar and Lucinda* and *Charlotte Gray*.

Phillip Noyce's career [Directing 1974] has taken him all over the world. Following strong Australian films like *Newsfront*, his international credits include *Clear and Present Danger, Patriot Games* and *The Bone Collector*. In 2001 he returned to Australia to direct *Rabbit Proof Fence* for which he received an AFI award for Best Film in 2002.

Jane Campion [Directing 1984] was nominated for two Academy Awards® in 1993 for her film *The Piano*. She won the Oscar© for Best Original Screenplay and was also nominated in the highly competitive Best Achievement in Directing category (one of the only two women ever nominated in this category). She was also the first Australian to win the overall Palme d'or award in Cannes for the same film. In 1999 **Campion** directed *Holy Smoke* bringing international actors Harvey Keitel and Kate Winslet to Australia and she has recently completed *In The Cut*, a film she made with Oscar© nominee, **Dion Beebe** [Cinematography 1990].

Chris Noonan [Directing 1974] was nominated for an Academy Award® in 1995 for Achievement in Directing and Best Original Screenplay for the film *Babe*. Other credits include writing and directing the acclaimed TV mini-series *Vietnam* and *The Cowra Breakout*.

Andrew Lesnie [Cinematography 1979] worked with **Noonan** on *Babe* and *Babe: Pig in the City*. As at June 2001 *Babe* had grossed $36,776,544 in Australia making it the fourth most financially successful film in Australian box office history at that time. **Lesnie**, who won an Oscar© for Achievement in Cinematography in 2002 for his work on *The Lord of the Rings: The Fellowship of the Ring* was also awarded the AFI Best Cinematography award in 1997 for *Doing Time With Patsy Cline*.

Rolf de Heer [Directing 1980] has made a career out of making controversial and award winning Australian films. His work is consistently successful, including titles such as *Bad Boy Bubby, The Quiet Room* and most recently, *Alexandra's Project*. In 1994 **de Heer** won the AFI Award for Best Achievement in Direction for *Bad Boy Bubby*. Two of his films, *The Quiet Room* and *Dance Me To My Song* were selected

to screen in the official selection at Cannes, and his film *The Tracker* was nominated for Best Direction at the 2002 IF Awards, Film Critic Circle Awards and AFI Awards.

Samantha Lang's [Directing 1995] third feature is *L'Idoles*. Her first two, *The Monkey's Mask* and *The Well* were both critically acclaimed. The Producer of *The Monkey's Mask*, **Robert Connolly** [Producing 1995] also produced *The Boys* and *All Men are Liars*. *All Men are Liars* was directed by **Denny Lawrence** [Scriptwriting/Directing 1998], with **Steve Arnold** [Cinematography 1979] as cinematographer. *The Boys* was directed by **Rowan Woods** [Scriptwriting 1994]. In 2001 **Robert Connolly** made his directing and writing debut on *The Bank*.

Pip Karmel [Editing 1989] was nominated for an Academy Award for her work on *Shine*. She went on to direct of *Me Myself I*

Stavros Kazantzidis' (Efthymiou) [Design 1992] feature *Horseplay* was released in May. Other credits include writing and directing *Russian Doll* and *True Love and Chaos*. He also wrote and produced *Strange Planet* and *Love and Other Catastrophes*.

Safina Uberoi [Directing 1996] was writer/director of the highly successful documentary *My Mother India,* which was also made with the following AFTRS graduates: Producer/script editor **Penelope McDonald** [Producing 1990]; Cinematographer **Himman Dhamija** [Cinematography 1996]; and Editor **Reva Childs** [Editing 1996].

DIGITAL MEDIA

AFTRS Digital Media Graduates have been working across a range of significant productions. A snapshot:

Chris Young (Computer Animation 2000), 3D Animation – Scripting Specialist has worked at Photon on *Ghostship,* currently at WetaFX working on *Lord of the Rings* 3 using Massive (AI Animation system).

Marcus Wells (Visual Effects 2000) has worked as a Visual Effects producer on *Scooby Doo, Inspector Gadget 2* and *Ghostship.*

Peter Richards (Visual Effects 2002) is working in Animal Logic's Design Department on a NSWFTO Visual Effects Traineeship Scheme

Bill Chen (Computer Animation 2002) is a 3D Animator at Postmodern Sydney working on Broadcast Design and TVC's primarily.

Simon Alberry (Computer Animation 2001) was recently Animation Director on the *Wiggles Space Movie* – 3D animated children's video finished at Sydney's Plastic Wax.

Nicki Bern (Visual Effects 1999) is a Senior Flame/Inferno Compositor at Animal Logic and has worked on *The Matrix.*

Jonathan Hairman (Computer Animation 1999) is a Senior Flame/Inferno Compositor at Animal Logic and has worked on *The Matrix.*

George Zwier (Broadcast Design 2000) is a Flame/Inferno Compositor at Animal Logic and has worked on *The Matrix*

Martin Crouch (Visual Effects 2000) worked on production design team *for Matrix Reloaded* and *Matrix Revolutions* and designing all screen graphics work for on-screen playback.

Awards won by digital media students have included:

Australian Effects & Animation Festival, Sydney, Australia, 1999
Antoinette Starkiewicz (*Zipper*)   Honourable Mention

Alias/Wavefront Student Competition, Toronto, Canada, 1999
Jonathan Hairman   (*Satellite*) Best Student Animation

Palm Springs International Short Film Festival, USA, 1999
Niki Bern (Midas) 2nd prize, Student Animation

Australian Animation & Effects Festival, Sydney, Australia, 2000
Dylan Yeo (Mozzie) Best Student Film

Brussels International Independent Film Festival, Belgium, 2000
Andrew Tamandl (*Has beans*) Best Animated Film

Australian Effects and Animation Festival, Sydney, Australia, 2001
Mike Daly (Intransit) Best Student Film

Prix Ars Electronica, Linz, Austria, 2001
Mike Daly (*Intransit)* Honorable Mention for Computer Animation & Visual Effects

St Kilda Film Festival, Melbourne, Australia, 2001
Norah Mulroney (*The collective*)   Best Special Effects

Imagin@ 02, Monte Carlo, Monaco, 2002
Peter McDonald (*Harvey*)   Schools/University prize

Prix Ars Electronica, Linz, Austria, 2002
Peter McDonald (*Harvey*)   Distinction for Computer Animation/Visual Effects

"Short Circuit", Australian Sci-Fi Film Festival, Sydney, Australia, 2002
Peter McDonald (*Harvey)*   Audience Award for Best Short Film

Palm Springs International Festival of Short Films, USA, 2002
Anna Tow (*Pending*) 2nd Prize, Student Animation category

Australian Effects & Animation Festival, Sydney, Australia, 2002
Anna Tow (Pending) Winner (joint), Student category

International Festival Henri Langlois, Poitiers Student Film Festival, France, 2003
Mike Daly (*Binary*) Special Jury Prize

"Films de Femmes" International Womens Film Festival, Créteil, France, 2003
Anna Tow (Pending) Canal Plus Prize for Best Short Film

St Kilda Film Festival, Melbourne, Australia, 2003
Lee Pregnall (Pending) Best Achievement in Special Effects

Antonia Fredman & Peter Richards (*The Amateur Developers' Handbook*)
Best Use of Digital Technology

4. Employment Statistics

A 2002 employment survey of AFTRS graduates since the 1970's found that AFTRS graduates quickly find employment and maintain it:

- 95% of graduates had found paid work in the industry within 12 months of graduating.
- Three out of four graduates (72%) were working in the industry at the time of the survey.
- This almost certainly under-represents employment levels, given the sporadic nature of employment in this industry.
- Incomes varied, but at least half (51%) had an income over $40,000.
- Nearly 10% were earning over $100,000 per annum.

Retention rates are favourable, with most AFTRS graduates likely to remain in the industry. Most (56%) said they had spent almost all their work life in the industry, and on average, graduates had spent three quarters (77%) of their work life in the industry.

On average graduates had worked in more than three different domains or key creative roles. This indicates that although they may have started out with one area of specialisation, they are multiskilled and have worked on a range of screen genres, as the graph below demonstrates:

Diversity of Productions

Types of Production Worked on/Mainly Worked on
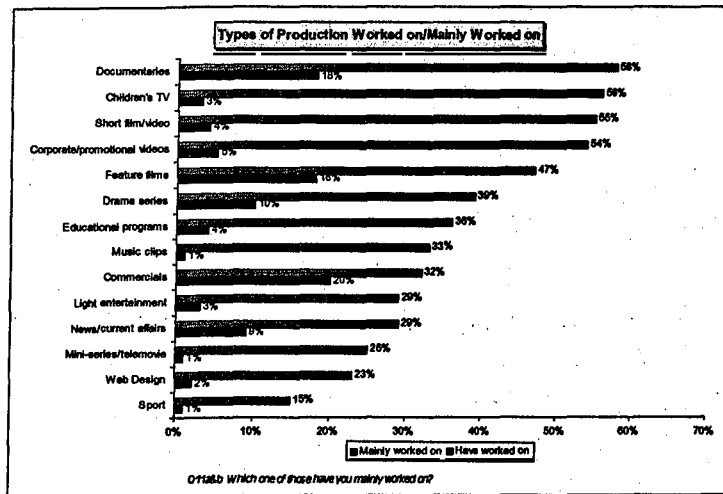
APPENDIX C: EDUCATIONAL IMPLICATIONS OF DIGITAL TECHNOLOGIES, VISUAL EFFECTS, ANIMATION AND GAMES.

1. Introduction

New technologies are playing a major role in driving the future growth of the film, animation, special effects and games industries. The challenge for educators has been to deliver new skill sets while integrating these with ongoing production processes, traditional creative practices and the identification of outcomes that serve new markets. AFTRS has developed key areas of this agenda in regard to educational programs for visual effects and animation and is seeking to move forward on the integration of games industry skills.

Overall educational programs must:

- Respond to the dramatic technological change and its impact on traditional skills;

- Recognise the opportunities provided by innovative visual effects systems;

- Recognise that multi-platform-ing and enhancement of linear programs requires education in production for interactivity.

2. Integrating Traditional and Digital Skills

The rapid and continuing development of computer graphics technologies create opportunities for moving imagery (rich media) to be used in a wide range of entertainment products including games, telecommunications, the world wide web, television and feature films. This trend is set to continue and Moore's Law (the 1992 prediction of a doubling of computer power every 5 years) is now considered extremely conservative. The speed of technological change puts pressure on educators to meet demands of industry. However, new technologies often take a long period to be utilised efficiently after their uptake. Strong educational foundations in traditional skill areas can offer structure and context for students entering these industry sectors.

For the film, games, animation and special effects industries, skills such as traditional animation, cinematography, production design, model making, production management and editing can offer useful foundations for new areas of study.

Leading visual effects houses Weta (Wellington) and Industrial Light and Magic (San Francisco) both have strong foundations in practical visual effects and production design. Visual effects work on *Star Wars* or *Lord of the Rings* entails collaboration between designers, animators, practical effects specialists, cinematographers and digital artists. Many of the most complex visual effects shots are created using a combination of practical, design and digital techniques. While computer graphics technologies are powerful tools, their use is not always appropriate or efficient for a particular shot or technique. Overall computer graphics work is becoming more specialized with the maturation of the visual effects, games and animation industries.

3. Animation, Visual Effects and Games

Skill areas relevant to film, animation, special effects and games industries include:

- *Computer IT skills – administration and management*
- *Animation (craft skills) – 2D, 3D*
- *Scriptwriting*
- *Game play – writing*
- *Visual effects – traditional and digital techniques*
- *Production design/model making/practical effects*
- *Cinematography*
- *Editing*
- *Producing/coordination specific to new industries*

Experienced practitioners in digital media are as keen to focus on creative issues as much as technical issues to ensure that story remains strong across all platforms.

Since 1998 AFTRS has been delivering one of the very few fully integrated visual effects and animation courses and has increasingly extended the programs to include students pursuing careers across a wide range of specialisations within the media production industry. The School continues to research industry needs and apply new training strategies in these areas.

Focusing specifically on the visual effects sector the following list of positions is a small sample taken from the Industrial Light and Magic web page (www.ilm.com) describing jobs available at that company. It clearly indicates the diversity of opportunities available for skilled screen industry professionals in this sector.

1. software engineer	22. Previsualization/animatics artist
2. character animator	23. Producer
3. compositor	24. Production assistant
4. Computer graphics artist	25. Production software engineer
5. Computer graphics technical assistant	26. Resource assistant
	27. Resource analyst
6. Creature developer	28. Rotoscope artist
7. Database systems administrator	29. Script programmer

8. Database systems developer	30. Script/tools programmer
9. Data wrangler	31. Storyboard/concept artist
10. Designer	32. Systems administrator (UNIX)
11. Digitate artist	33. Systems administrator (Macintosh)
12. Digital matte painter	
13. Digital post production tech support engineer	34. Systems administrator (nt)
	35. Systems developers
14. Visual effects editor	36. Tape operator
15. Edit assistant	37. Technical assistants
16. Enveloper	38. Technical director
17. Film I/O operator	39. View painter
18. Flame/inferno operator	40. Visual effects art director
19. Manager, information systems	41. Vfx supervisor
20. Match mover	42. Webmaster
21. Modeler	

Many large-scale projects now occur simultaneously across a range of media platforms – eg *Matrix Reloaded* simultaneously launched a feature film, an electronic game and a DVD of associated short animation films. While there is often separation between the production teams that work in games, television and film there is evidence of hybridisation of form between the actual products.

SPECIFIC GAMES INDUSTRY SKILLS

This area requires substantial ongoing analysis to ensure a clear path is developed to increase understanding of opportunities and to address skill gaps.

A matrix for analysis needs to cover:

- o Roles and occupations
- o Tasks and functions
- o Best practice software
- o Current national standards in relation to international standards
- o Shared skills, principles and software systems across industries – Games, Interactive Media, Visual effects, Animation.

Most games practitioners recognise the following traditional screen production skill sets apply but they must be refined/redirected to match the games world.
- o Storytelling
- o Budgeting
- o Production management
- o Marketing – and the link to other platforms in particular Cinema.
- o Graphic design
- o Animation – 2D and 3D
- o Drawing skills and traditional animation techniques and aesthetics
- o Compositing
- o Software use and management
- o Previsualisation
- o Sound and image capture skills
- o Editing skills

o   Sound post

A key feature of training for the games industry is the added understanding of multipath, role-play and immersion features of the games experience.

The industry notes that there are few practitioners in Australia with more than 5 years experience in many games production areas and thus production staff must be imported. Educational programs are needed to meet and to lead growth in this area.

4. Digital Technology and Traditional Media Production Education

o PRODUCERS

Producers require greatly expanded knowledge of all aspects of post-production and digital photography. Understanding of the implications of new technology (eg HD and Digital Video), both in terms of cost and the balance of impacts for production and post production, require sustained development.

The production and post production chain for visual effects and animation are evolving constantly both as a result of creative and technological developments. Producers at AFTRS are gaining skills in this field and the program is being reassessed and refined as innovative and increasingly complex but effective approaches are developed in industry and by students themselves.

o DIRECTORS

Directors require enhanced skills in cross-production team work. Digital visual effects are the result of even more complex technical and creative collaborations than previously experienced.

While directors have always required a thorough knowledge of film editing - essential to correct placement of cameras for coverage and editing – this must be enhanced as a result of the rapidly changing opportunities for new kinds of 'editing'. Layering of images, graphics and image sequencing effects are now readily accessible elements.

Up-to-date knowledge of new technology and equipment, a thorough knowledge of grip and camera equipment; new shooting formats, computer-generated imagery (CGI), animatronics and digital effects are all essential given the total revolution in the screen storytellers toolkit.

o CINEMATOGRAPHERS

Regardless of the capture format (i.e. 16mm, 35mm, digital, etc) the job of the Cinematographer is fundamentally the same. The set has to be lit, the camera has to be used creatively and appropriately for the most effective end result of telling a story. Cinematographers are generally embracing new technologies as additional choices for them, especially in the area of digital post production. These new developments are not a threat to the art and craft of Cinematography, but are welcome additions to the toolkits, to the range of creative choices.

However the role of the Cinematographer is changing. In the past the job of the Cinematographer (Director of Photography) has ended on the last day of the shoot, with the exception of the colour grading sessions. Today the job of the Cinematographer carries over into the post production area. As long as the image is being manipulated in any way, it remains the business of the Director of Photography (DOP).

Indeed, many choices that the DOP makes during the shoot, deliberately involve postproduction processes. For example - the choice to add or remove grain, the choice of whether to filter on the lens or create it digitally in postproduction. Education in

these choices and processes must be part of the emerging cinematographers development and must also be available for the retraining of experienced professionals.

o DESIGNERS

It is in the merging of live action with digitally generated images where Production Designers and their team are developing key new skills. Their traditional skills in visually interpreting and realizing a story have provided a strong base to adapt to the increase of this kind of production activity.

Nevertheless previsualisation skills for all involved in the production of visual effects are key. With the ever increasing costs of live action drama production, it will become even more imperative for scripts/stories to be previsualised right thought to the edit stage. The skills required for that combine the teaching skills and resources associated with visual effects, animation and production design.

Each day the industry sees more and more software come on to the market and while there are many places that teach the programs, there are few places where the software is applied to product – in the production of finished material. Production Designers increasingly need skills in programs like Photoshop, illustrator and Vectorworks. There is a strong need to add visual story telling and interpretation skills to those who are already have these graphics based software skills.

o POST PRODUCTION

Digitized technology has now become a major player in post production. There is a constant stream of new systems and formats emerging in both sound and picture domains. This technology can be a major drain on resources or on story quality if all key creatives are not well versed in managing the new opportunities. Therefore an understanding of digital systems is essential to all practitioners in order to exploit these tools wisely and retain the creative integrity of a production.

For filmmakers who come from a more traditional background, the teaching of what this technology does and how to use it is a vital tool in modern day filmmaking. Also a preparation for the rapid changes in technology, which they will encounter on a regular basis and need to understand, is a must. This knowledge will empower them and allow them to push the creative envelope.

The basics of filmmaking and storytelling should not be lost in the rush to embrace technology. The choices a film editor makes in how shots cut together and the effect this has on the final edit still require the same level of intellectual and artistic skill that they always have. Being able to feel comfortable using the technology to freely make these choices is the key.

Highly computer literate individuals are now entering the post production fields. These people have grown up with computers and a wide range of visual formats, having access to software programs that were not available to earlier generations. Their experience however is not so vast in the traditional areas of filmmaking. They are essentially self-taught. The fields of post production into which they are entering

have been traditionally apprentice based. These traditional apprenticeships have been a vital source in the instruction of the traditional crafts in filmmaking. There is a great deal to be learned from the experiences of those who went before, and the quality of earlier filmmaking is testament to this.

o SOUND

The revolution in digital sound technology happened in the late 1980's and early 1990's and has to a large extent been incorporated into professional practice and educational strategies for some time. However the technology continues to get smaller and cheaper ensuring that skills can be aquired across a broader range of media producers. These opportunities can be further enhanced by connectivity and by new products and platforms such as the internet, broadband and games.

5. Digital Opportunities Case Study: Audio and Digital Content

VOICEOVER SKILLS

Australia has many competent actors and radio presenters who make a living from the Voiceover industry. At the top level they are highly paid and survive on only their Voiceover (VO) work, while at the bottom level they use VO work to supplement other sources of income within the arts, broadcast and performance industries.

Voice actors get work in areas such as animated films, electronic games, radio advertising, tv voiceovers, phone-on-hold systems and shopping centre announcements.

Currently most of Australia's better-paid Voiceover talent is based in Sydney and Melbourne because the major production, broadcast, games and advertising houses are in those markets. But the advent of technology such as ISDN, MP3 Audio Compression and Internet Audio file transfer (FTP) is bringing a change to this business model. There are now a growing number of voiceover professionals who are beginning to live and work in country areas, but who can still earn their living from VO work by recording in their homes or at their workplaces and transferring those files to a production house or advertising agency in a capital city for mixing. Improved microphone technology now makes it easier to work in a wide range of acoustic environments, rather than just the high cost studio environments that were required in the past. Digital recording, ISDN lines, FTP transfers and MP3 audio emailing allow the audio to be instantly moved from one location to another.

Supporting the progress of this technologically driven trend could help decentralise the some of the audio production aspects of VO work and could encourage small businesses to grow in regional areas. The main requirements for this trend to continue are:

- Continued roll out of digital broadband telecommunications services to regional areas;
- Continuation of the trend that is decreasing cost and increasing capability in the computing and audio electronics industries.

"But that's how a nine foot tall Banana in Pyjamas talks!"

Australian accents and character voices are in demand in this country and around the world. The ABC's Bananas in Pyjamas program was not dubbed with American accents for its sale into the United States because an Australia voice was considered to have just the right accent for a talking banana.

AFTRS Radio Branch teaches regular VO courses, where we train voice actors to develop their range of skills in both natural voices and animation character voices. There is constant demand for this course and there are always more applications than we can accommodate. We have expanded the course to Brisbane through the AFTRS Queensland office because of the demand in that city, which seems to be driven by work in the Gold Coast's film studios. NIDA also runs VO workshops, as do some singing teachers and individual voice coaches.

If film and games production continues to grow in our region of the world, there are possibilities that the work for English speaking and Multilingual trained voiceover actors may increase. If they can deliver their work easily to anywhere in the world (see Voiceover Technology section above) from anywhere in Australia the benefits could be:

- That Australian accents will be heard more internationally;
- That in-bound economic benefits may flow to Australia from film and games production in the Asia-Pacific region.

To further develop this capacity:

- More VO courses need to be taught around Australia;
- Australians need to be able to speak more languages in more accents through the continuation foreign language training and the development of Australians with NESB backgrounds.

LOW END AUDIO EDITING TECHNOLOGY

Like Voiceover recording, the Audio Editing technology that is required for Multi-track audio production is also getting cheaper, smaller and easier to use. It is now possible to engineer quality audio soundtracks on your home computer which, in years gone by, would have required a full recording studio.

The same audio production skills required to make a radio ad are now being used to create the soundtracks of games and the messages you hear when on-hold.

The implications of this are similar to what has been outlined above. More small businesses will be able to undertake outsourced audio production work for games, animated films, internet film teasers, advertisements and phone systems from anywhere in Australia to anywhere in the world. The Harry Potter website (http://harrypotter.warnerbros.com/web/hogwarts/index.jsp) is an excellent example

of the use being made of on-line games and movie trailers as an integrated marketing tool for the promotion of larger film projects.

There are implications for training in this area as well. Because of the ready availability of audio and video editing software now on every teenager's desktop computer, the entry level of participants coming into audio engineering, radio and television courses is much higher than it was ten years ago. This has meant revision of many aspects of our AFTRS course curriculum and also has implications for technical courses taught by TAFEs and in Schools.

DIGITAL RADIO AND DIGITAL CONTENT

The Australian Radio industry is currently evaluating the technology required for Digital Radio Broadcasting (DRB). DRB, combined with the convergence of receiver technologies, will also present new opportunities for the games and animation industries.

DRB technology introduces the possibility of radio stations sending logos, screen savers, animated gifs, small games, ring tones and many more small interactive files to receiving devices such as mobile phones or laptops. The take-up rate of games within mobile phones has been very high in the younger demographics and will only continue to grow. This capacity within Digital Radio will readily be exploited by marketers, games creators and advertisers, to develop new and innovative ways of communicating with their clients.

6. Educational Priorities for the Digital Media Industries

Recommendations:

Industry and Government support for the development of the infrastructure and opportunities in digital education for aspiring producers, directors and key creative crew is essential. AFTRS's research and experience identified the following areas for high priority development:

- o Additional teaching modules linked to the radical changes that digitization is making to the traditional skill groupings involved in screen production;
  - Coursework that will equip highly gifted students to more easily work across the range of digital and interactive platforms.
  - Further development of coursework across all key creative roles that takes into account the needs of the animation, visual effects and games industries
  - Continued emphasis and integration of the core skill areas and traditional screen storytelling crafts to inform and provide structure for digital content creation.

- o The development of a discreet strand of digital interactive and multi-path production training including content development, technology platforms and project management. This will require:

- More opportunities for cross over between arts and computer science
- Graphics specialist courses in computer science programs;
- A specialist short course centre to fast-track talent required for animation visual effects and games to meet the requirements of large upcoming projects and to minimize the need to import overseas specialists on these projects.
- Incentives to encourage Australian innovation in hardware/software development in the area of digital content creation.

APPENDIX D: SCREEN BUSINESS SKILLS FOR A COMPLEX INDUSTRY

1. Background

The increased challenges of a globalised, digitised and multiplatform screen industry have underlined the need for enhanced business skills for producers, directors and writers and others in the production process. The demand for Australian creative talent both here and overseas has also meant that a diverse range of practitioners – from Cinematographers to Sound Designers– have come to recognise their need for more advanced business skills.

The growth of a successful visual effects industry - recognised internationally through the Academy Award for *The Matrix*– has been paralleled by the development of animation and games industries. The commerce of screen practices and the critical need to manage resources and expensive facilities has become increasingly clear to many in the industry. Despite the globalisation of Hollywood and significant market constraints, the Australian industry has built on its commercial and critical successes and begun to provide established careers and businesses for screen industries personnel. The kind of educational support for the industry has changed over time.

In the first instance it is in the continuous development of a professionally educated body of screen producers that will sustain and build the Australian industry. Both in Australia and overseas, as indicated in reports from the UK, Ireland and New Zealand emerging and established Producers have expressed the need for a range of key skills for work in an evolving market.[2]

Producer skills gaps tend to cluster in the following areas:

- Business management and company development,
- Business planning (e.g. a 'mixed business' approach in order keep the business and finances operational between productions),
- General management
- Budgeting and Scheduling for conventional and new platforms
- Contract negotiation and management,
- Occupational health and safety and risk management
- *Finance, from cash flow to high level; funding and fund raising, both domestic and international, including:*
    - *Deal structures*
    - *The requirements of the financial community*[3]

Directors, like Producers, have always required a very broad mix of 'soft skills' in people management, negotiation, and communication. There will be an ongoing requirement to provide those skills to emerging directors and at times to established

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[2] Hewell Taylor Freed and Associates. *Developing UK Film Talent* - Final Report of the Film Skills Group Research Project. February 2003. Due to some similarities with the Australian context this UK report has been a useful starting point for the discussion of skills deficiencies in Australia.
[3] Ibid . P 57

directors shifting from one format or budget framework to another. On top of that the more commercial aspects of business management are increasingly relevant to directors.

- Contracts and contract negotiation
- Copyright
- Health and Safety legislation
- Changing business environment
- The market and the audience

In Australia, there is also a lack of what might be defined as 'development personnel' who support producers and production companies in the identification and development of potential projects and properties. In order to build this layer of personnel Australia will need to analyse the deployment of this function within the American and UK industries.

Typically **development personnel** [4] require strong content analysis and the ability to communicate their perspective with directors, writers and producers. They will also require globally relevant business skills.

- Awareness of how the industry works - the chain of production.
- Understanding of financing, sales and distribution processes,
- Knowledge of marketing, writing effective treatments and synopses for marketing purposes and, when sourcing material, of what is marketable.

As might be expected in an increasingly commercialized, multiplatform development phase where high stakes and funds are attached to the development of projects, **Scriptwriters** need to draw on and develop enhanced business skills.

Scriptwriters therefore require skills in
- Analysing the global market place in order to position their scripts appropriately
- Communication with key players in the development phase – managing relationships between directors, producers and others.
- Contract negotiation
- Copyright legislation

Key creative crew

Key creative crew in the film, animation and visual effects industries are predominantly freelance moving from project to project on contracts from as little as several weeks to contracts of over a year. Business skills are key to their survival. The growth of Australian films in budget and complexity has been paralleled by the increased presence of foreign productions that hire a range of Australian personnel. In fact part of the attraction of Australia for foreign crews was the professionalism and creativity of its well-trained crews. With larger crews, higher budgets and more complex projects Australian crews have stretched their existing skills. However the layer of business skills to assist Australian crew in managing that work for the long

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[4] Ibid. p 47. The UK study notes the need for skill development in this role that is well established in the UK. This submission notes the need for increased recognition of this role and more skills development.

term has been lacking. In order that key creative crew keep apace with the evolution of the Australian screen sector from cottage industry to international business the following package of skills need to be delivered on an ongoing basis.

- Contracts
- Health and Safety
- Financial management
- Tax legislation
- Communication
- People Management

2. Business Skills for a Globalised, Digitised Screen Industry

Underpinning the recognition of business skills for an expanding industry is the constant pressure of technological change and increasing digitisation. Many of the above mentioned skill requirements are doubly significant as Australia builds its profile in Animation, Visual Effects and Games.

As previously noted the increasing globalisation of the industry as well as the introduction of new digital tools and platforms have together created the need for business skills for all members of a film production team. In order to provide the skills to manage this complex environment AFTRS makes the following recommedation:

Recommendation
The critical need to manage new digital resources and expensive facilities, the demand for Australian creative talent both here and overseas and the rapid growth of digital screen industries has meant that a diverse range of media practitioners recognise the importance of more advanced business skills. AFTRS is seeking to set up of a **Screen Business Skills Centre** to research, develop and deliver the advanced business skills now required by Australian screen industry professionals. A strong partnership between industry and educators is core to the success of such a Centre.

3. An Australian Screen Skills Research Program
Ongoing, systematic research into skill gaps, technological change and industry trends is required to create a strong foundation in the further development of educational strategies for the Australian screen industries. Over the past decade the British film industry has focussed on this key aspect of industry support. Through UK Skillset a strong partnership has developed between industry and educators in order to identify and develop skills. This approach is at the heart of the development of the British film industry[5] and provides a useful case study from which Australia may draw some appropriate strategies.

Case Study: UK Skillset
"We simply won't have an industry at all if we don't invest in people." - *Filmmaker and Chair of the UK Film Council, Alan Parker in 2002.*

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[5] Hewell Taylor Freed and Associates. *Developing UK Film Talent* - Final Report of the Film Skills Group Research Project. February 2003

Parker identified three key factors for a sustainable UK film industry: "Effective distribution of films to the global market place, a stable but cutting edge film infrastructure to service the global industry and thirdly, but perhaps most importantly, a world class workforce" (Quoted by Stewart Till CBE)[6]

"Our ability to compete in terms of skills and creativity is at least as important as our cost base." - Stewart Till, CBE, Chair of Film Skills Action group (UK)[7]

The United Kingdom has been pursuing a comprehensive, ongoing analysis and review of screen industry skills since the early 1990's in particular through Skillset which has the remit to survey and report on industry skills and educational strategies for the entire screen industry. They have surveyed the industry several times throughout the last 12 years and developed their strategic advice in close consultation with industry. This approach has, over time, lead to ever increasing industry support and participation in the considered identification of skill gaps and the role of education in building an industry. This kind of compliance and business focus on having a professional workforce is a mark of the size and maturity of that industry and has positioned the industry for substantial multi-layered success in recent times.

Skillset Film Policy Review Group (97 to 98), Audio Visual Industries Training Group 2000 and the Film Council (Set up in 2000) have together developed a wealth of understanding of the state of the industry and future directions. In particular the report: "Developing UK Film Talent" (Prepared by Hewell, Taylor, Freed and Associates) launched in February 2003, provides a useful role model for a systematic analysis of skill deficiencies and existing educational programs. The findings of that report are detailed across each key crew role in the film industry.

Australia does have effective institutions for the identification of required skills (AFTRS, CREATE), surveys of industry employment and production (AFTRS, AFC, ABS) and for the development of educational programs that mark the way forward. However the scale of analysis and response requires further funding to be as comprehensive as the UK model.

Recommendation

In seeking new strategies to build a strong base to the film, animation, visual effects and games industries there is an ongoing requirement for concrete and systematic data on the state of skills acquisition and deficiencies in these sectors across Australia.

A key recommendation for consideration by the House of Representatives Committee would be the funding of research into the skills and abilities required by the Australian screen industries on an ongoing basis. A designated Commonweath centre for this work would ensure industry compliance and participation in the systematic surveying and analysis of industry needs. The AFTRS is well placed to steer and manage that research in consultation with other key agencies and industry bodies.

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[6] Ibid. Page 3
[7] Ibid. Page 4

APPENDIX E:
D-CINEMA: NEW DIRECTIONS IN ACQUISITION AND EXHIBITION

1. Defining Digital Cinema

The purpose of this APPENDIX, which draws on AFTRS research and involvement in D-cinema development at an international level, is to introduce the digital cinema concept, give an overview of progress to date and offer recommendations for future direction especially in regard to the Australian screen industries.

Digital Cinema or D-cinema, as it will become known, can be defined in several different ways. Some definitions are based on the components of the film making process that have become digital, others go further and set a quality level that has to be achieved within each of these components.

Digital tools have been used within the film industry for some time affecting different aspects of the chain of production and post production. The remaining elements in the chain that are yet to be consistently digitised are at either end of the production: image acquisition and exhibition. 35mm film has been the preferred capture and exhibition medium for more than 100 years. With the advent of higher resolution digital cameras and projectors, filmmakers such as George Lucas are pressing those final frontiers with films such as *Star Wars: Attack of the Clones,* which was shot and released digitally.

2. Digital Production

In a partial form D-cinema has existed for just over decade, as the many facets of post production have become digital.

In the early 1990s digital technologies emerged in the fields of animation and special effects, and were quickly integrated with the previous methods of optical illusion, miniature models and hand-drawn or painted animation plates (cartoons).

Title designers used digital or computer technologies for credits and captions as well as by production designers enabling complete film sets to be designed using computer-aided design software. The next step was the development of "paint" software, used to electronically remove unwanted articles within the frame or generate totally artificial scenes.

The next revolution occurred in the mid-1990s with the advent of digital non-linear editing systems. Technological advances - which have resulted in extraordinary increases in processing speeds and similarly notable reductions in the cost of data storage. The educational strategies for managing digital change in work practices associated with editing, sound design and visual effects have been evolving for some time. AFTRS continues to build and refine its program in this regard (see Appendix C).

3. Acquisition

Currently another component of the production chain – digital acquisition – is receiving extensive attention from producers, director and cinematographers.

Some notable movies have been digitally captured using standard-definition television quality cameras from the mid-1990s onwards (e.g. *Blair Witch Project*), but it was not until the release of digital high-definition television cameras in the late 1990s that digital acquisition was seriously considered for "blockbuster" movies, the first being *Star Wars Episode II*.

The use of HD cameras as part of the production chain requires substantial analysis and re-skilling to ensure that the entire chain of production and post production is suitably managed to integrate changed opportunities on set and new parameters in production. AFTRS has already employed this format on student productions and is analysing the long-term opportunities for integrating HD cameras into the fulltime and professional development programs.

It is expected that producers will need to understand the substantial cost savings at the point of image capture, due to savings on film stock and laboratory costs, but will also need to analyse the full impact of HD capture on other production processes.

4. Archiving

The issue of digital archiving is also receiving attention. One of the principle arguments used for taking time to get D-cinema right is that film has been around for 100 years or so, and as such has passed the test of time. Film shot many tens of years ago, if correctly looked after in an environmentally controlled store, can be displayed using any of the projectors in use today. In most cases, although the colour may have faded slightly, the pictures will be of an acceptable standard.

Pictures stored using electronic techniques, such as recording onto magnetic tape; be it in analogue or digital format, do not have the same shelf life. As many television broadcasters and production companies have come to realise in ideal conditions magnetic tape has a shelf life slightly in excess of twenty years. Thereafter, playing the tape, should the hardware be available to do so, will probably result in the oxide that gives the tape its magnetic properties becoming detached. In most cases old tape will only stand one more pass (i.e. play) and that is usually reserved for recording the output onto a new archive medium.

This problem is not restricted to older technologies. Experts believe that the shelf life of modern digital storage technologies such as CD, DVD or optical disk (as opposed to photographic film which uses a chemical process) will not be significantly greater than that of magnetic tape.

In addition, if a digital storage technology could be found that had a shelf life similar to celluloid film, with the rapid rate of change in technology currently being

experienced it is unlikely that the equipment needed to recover the material stored on that medium would exist or be able to be technically supported.

There are many D-cinema issues that have to be tackled, and ultimately long-term digital archive will be one of them. For the foreseeable future, it is likely that motion pictures produced in the totally digital domain, from acquisition to exhibition, will end up being archived on 35 mm film.

5. Distribution and Exhibition

The main focus of activity and interest in D-cinema in recent times has been in distribution and exhibition.

Most motion pictures are currently distributed to cinemas as 35 mm celluloid film and exhibited using a 35 mm film projector with the costs associated with this well known. It is believed that there are cost and storage saving benefits related to distributing motion pictures in a digital format, but this remains unproven. There is an on-going debate amongst industry professionals regarding what D-cinema picture quality should be, what communication method (e.g. cable, satellite or terrestrial) should be used and whether the film should be transmitted real-time ("streamed") or non real-time ("downloaded"), all of which have a significant bearing on the amount of the bandwidth (i.e. "pipe" size and duration) needed. Alternatively, motion pictures may be distributed as data files on low-cost digital media such as DVD or magnetic tape. There will be a trade off between "bandwidth" or digital media costs and the cost of the many thousands of feet of 35 mm film that is used to produce the number of release prints needed. Currently, most motion picture releases are "staged", or staggered, so that the same 35 mm copies (known as release prints) can be reused in other locations and countries. Obviously, this is not a practical option if the film studios wish to do a "same day" worldwide release to overcome piracy and distribution on the black market.

Secure digital distribution would overcome many of the problems associated with having a large number of release prints made, as well as the significant logistical exercise required to get these release prints to all the necessary locations. Release prints are not secure and the majority of the pirate copies of a recently released film would have been made from release prints. Distributing motion pictures in the digital format with a very high level of encryption applied will reduce or delay this piracy problem but it is unlikely to be totally overcome.

6. Standards

There are many differing opinions surrounding the development of D-cinema. One group of individuals and organisations believe that equipment should have a video threshold equivalent to a new 35 mm release print (the highest quality currently seen in cinemas) before it receives a D-cinema rating. A different group believes the target should be that of 35 mm answer print or higher, as they do not want to settle for less than they are currently achieving. However, several groups believe that D-cinema should start at a much lower threshold, for example, productions made with

equipment built to the current high-definition television (HDTV) standards. Others believe it should also include those productions made to the standard definition television (SDTV) digital standards. The one thing that each of these groups have in common is that D-cinema should comprise a tiered hierarchy of technical standards which will be expanded upwards as technology advances, although predictably, there is disagreement about where the hierarchy should start.

ITU, HOLLYWOOD AND MICROSOFT

The establishment of D-cinema standards has now become extraordinarily political with much of the recent action played out within the activities of the International Telecommunications Union (ITU). In order to set standards for digital exhibition, a range of major international players from the cinema, television and computer industries are competing to lead the approach and therefore obtain the commercial advantage. This competitive activity could be disruptive to the effective implementation and take up of this important digital tool. Australia needs to establish its own forum and expertise to ensure that the exhibition industry integrates digital exhibition in a way that best serves our media industries.

Many different national and international standards organisations have become involved, as have the various national and international industry associations, professional guilds, interest groups and fringe industries (e.g. television broadcasting). In addition, several alliances and interest groups have been set up - some providing an open forum for debate, investigation and development of D-cinema standards, whilst others are of a more commercial nature with the aim of keeping the development of D-cinema not only within national boundaries but to a particular geographical region within those boundaries, namely Hollywood.

The strongest argument used by those individuals and organisations that believe the film industry should be left alone to take its time in establishing D-cinema standards as it did with celluloid film (e.g. 8 mm, 16 mm super-16, 35 mm, etc.) is that film has been around for 100 years or so, has stood the test of time and is still serving the industry well. They argue that the available digital technology does not provide anywhere near the same overall quality and flexibility, and that the high-end digital equipment, in particular, cameras and projectors, that are available now or in the near future cost significantly more than the film equivalent. However, it is believed, that over time digital equipment will be developed that does provide the quality that the film industry aspires to, at an acceptable cost.

While the US motion picture industry strives the keep television broadcast interests out of the D-cinema standards debate, Microsoft the world's largest software company makes large inroads. On 3 April 2003 Microsoft and Landmark Theatres announced *"that they are equipping 177 screens in all 53 Landmark Theatres across the United States with digital cinema playback systems based on Microsoft® Windows Media® 9 Series. This unprecedented agreement represents the largest digital cinema theatre circuit installation to date in the United States. For the first time, a critical mass of the independent film industry's infrastructure will be wired for digital distribution. This helps address the escalating costs of releasing theatrical films, which weighs heaviest on the independent sector, as it must pay the same costs*

to release a film as the major studios. The creation of a complete digital alternative represents a major breakthrough in these economies that will help guarantee greater diversity and access to the marketplace for independent filmmakers and distributors alike.".

The press release continued *"that Landmark exhibits over 250 film a year and all too many of these films succeed or fail due to market economics rather than artistic accomplishment. The newly outfitted theatres will be able to screen films encoded digitally in Windows Media 9 Series, which enables high-resolution, theatre-quality experiences with up to 7.1 channel surround sound. The network rollout is expected to be completed by the end of this year [2003]."* Landmark President and CEO Paul Richardson has been impressed by the enormous breadth of interest in digital cinema and believes "that we will look back at this moment as one when we were able to fundamentally change the business model in a way that will allow far more of these films to compete successfully".

Digital Cinema Solutions (DCS) will work with Microsoft and Landmark to deploy the network. *"The DCS Cinema System employs a networked PC architecture that integrates into existing theatre infrastructure. Once the network is in place, Windows Media 9 Series allows films to be sent to theatres over private networks, on CD-ROM or on DVD-ROM, all protected with Windows Media Digital Rights Management technology".*

EUROPEAN APPROACH TO STANDARDS

Following liaison between the Swedish Work Group for E-cinema (Swedish Film Institute), the DTI/DCMS Group on Digital Film Production and Distribution (UK) and Groupe de Travail Cinéma Numérique (CNC/CST, France) a European Digital Cinema Forum (EDCF) was formed in Stockholm on 13 June 2001 at a meeting which gathered thirty representatives from institutions, companies and trade associations within the European film, TV, video and telecom sectors.

The EDCF is open to all those involved in the chain from film production through distribution to exhibition, as well as film institutes, national administrations, the European Commission and trade associations.

The EDCF has identified three modules:

- Commercial Module
- Content Module
- Technical Module

The aim of the EDCF Commercial Module (EDCF COM) is to express the common needs and market requirements for the sustainable development of digital cinema in Europe. The main focus is the contribution of digital cinema to the theatrical experience, for spectators, exhibitors and distributors. The module will devise migration scenario for cinema distribution and exhibition from analogue to digital, using networks when appropriate, and will discuss business models for the sustainable

financing of the migration and technology market requirements for a realistic digital operation.

The EDCF Content Module (EDCF CONT) plans to co-ordinate the information that is available on digital content - rights and material for films or any kind of alternative content in order to increase the supply and demand of digital content in cinemas. The module focuses on three main areas:

- The European digital production manual
- The archival of digitally produced material
- A database for alternative digital content

The principal aim of the EDCF Technical Module (EDCF TECH) is to co-ordinate study into all of the engineering areas related to D-cinema and its potential derivatives. Of particular importance is the liaison with other standards bodies and potential users, as well as the EDCF Commercial Module and Content Module to ensure that technical recommendations and decisions are made in a practical and commercial environment.

UK D-CINEMA TEST BED FACILITY

A consortium of sixteen British and other international organisations has applied to the British Government's Department of Trade and Industry (DTI) for funding to help establish a test bed and demonstration facility for digital cinema exhibition at the British Film Institute's National Film Theatre (NFT) on the South Bank of London. With the intention of running the facility for two years, it is to be used as a workshop, demonstration and testing area for British and international organisations that are already involved in or are interested in digital technology and its potential for use in cinema exhibition. With no digital cinema test bed facility in Europe, Britain has seized on the unique opportunity to take the lead in this field for this region.

7. Risks and Opportunities for the Australian Film Industry

The biggest concern regarding the political and commercial wrangling regarding D-cinema is the threat to open and well-defined standards for the global film industry. The result could be an array of proprietary standards such as the *Microsoft® Windows Media® 9 Series*, or a totally closed system owned and operated by a consortium of US-based motion picture companies. These companies are already talking to the projector manufacturers about the development of an appropriate electrical interface. It is also envisaged that in an effort to eliminate piracy, the decryption circuitry and key will be embedded within the D-cinema projector therefore allowing the video data to remain encrypted right up to the final output device.

The cost of high-quality D-cinema projectors is likely to remain significantly higher than that of a 35 mm film projector for some time. This has lead some to ask why the cinema chains and independent cinema owners would discard the investment they have made in 35 mm film projectors and install higher cost D-cinema projectors. It is believed that the motion picture companies would either have to subsidise the cost of

D-cinema projectors, in a similar way as mobile phones are subsidised by telecommunications companies, or purchase the projector themselves and lease these back to the cinema companies.

The main concern is that in order for the large motion picture companies to recoup their D-cinema development and/or installation costs, these companies may insist that the D-cinema projectors installed in cinemas and multiplexes must only have the encrypted-signal interface. This would prevent equipment complying with open standards, such as HDTV (Recommendation ITU-R BT.709), from being connected to these projectors and would force small independent filmmakers and distributors to pay a fee or subscription to get their independent films encrypted and distributed - a business model not dissimilar to that of BSkyB in the UK.

AUSTRALIAN D-CINEMA FORUMS

Digital Broadcasting Australia (DBA) is an organisation set up *"to gain the co-operation and co-ordination of the free to air broadcasters, consumer electronics suppliers, retailers and installers in the promotion of the introduction of digital free-to-air television into Australia, to ensure the transition from analogue to digital occurs efficiently and effectively, and to the benefit of the television and associated industries, viewers and consumers."* To achieve its mission, the DBA undertake to provide and disseminate relevant information to its members, customers and to the industry as a whole, to encourage a range of training programmes and to promote a high standard of equipment (hardware and software) and support services.

The formation of new organisation – for example, "Digital Cinema Australia" (DCA) - could have similar advantages for Australia with the introduction of D-cinema. The organisation would promote co-operation and co-ordination of the film production, post production, distribution and exhibition industries, equipment manufacturers and suppliers as well as the film agencies that comprise the Arts portfolio at the Department of Communications, Information Technology and the Arts (DCITA). This would ensure the transition from celluloid film to digital occurs efficiently and effectively, and to the benefit of the Australian film and associated industries, viewers and consumers.

8. Recommendation: An Australian D-cinema test centre

A Digital Test Laboratory in Hollywood has proved successful in attracting technological development activity and the BFI/NFT Digital Cinema Test Bed in London will provide Britain with the same opportunities to facilitate collaboration with its US counterpart and put Britain at the heart of the discussion about international digital standards.

Australian companies such as Greater Union and Village Cinemas have some experimental facilities but an industry-wide facility would be able to foster working relationships between the entire array of organisations from equipment manufacturers to film producers, educators to consultants, media analysts to publicists to encourage

them to put considerable time and the latest digital equipment into a demonstration facility.

The objective of an Australian D-cinema test centre would be:

- To establish a facility in Australia to develop and demonstrate all elements of digital cinema.
- To enable the Australian film industry to develop and adopt common codes of practice with a view to contributing to international standards generation.
- To offer equipment and system suppliers the means of developing and testing new equipment and technology.
- To offer content creators the opportunity to understand and adopt new D-cinema concepts.
- To create awareness and understanding within the industry through consultation, demonstration and dissemination of information.

The AFTRS is keen to host such a facility. As a training institution rather than a commercial cinema organisation it would be seen as even handed in operations, and has been at the heart of the Australian film industry for thirty years. The School would provide a neutral venue to bring together a wide range of companies and individuals allowing discussion and development of relevant ideas in a non-competitive and state-of-the-art environment.

An AFTRS D-cinema test centre could serve the industry in Australia, and possibly the South East Asia region. AFTRS would offer considerable access to the facility allowing participants to study all aspects concerning digital cinema. It would provide a unique venue where state-of-the-art equipment could be demonstrated and tested over a long period of time. Apart from providing a large, comfortable cinema equipped with the latest equipment, AFTRS offers a range of other facilities for breakout sessions, ranging from fully equipped film stages and/or television studios, large and small meeting rooms to various informal surroundings.

Recommendation:
AFTRS sees merit in the development of a D-Cinema Test Centre to assess the implications of D Cinema for screen production, distribution and delivery. It could be hosted at the School. The facility could develop and demonstrate all elements of digital cinema. This would enable the Australian film industry to develop and adopt common codes of practice with a view to contributing to international standards generation. Equipment and system suppliers would have the means of developing and testing new equipment and technology in an environment designed for workshops and research. Content creators would have the opportunity to understand and adopt new D-cinema concepts.