

**Expanding the Menu:
Re-Imagining Film School for an Evolving Landscape**

Daniel Lincoln Wagner

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Abstract

This research will examine two rapidly evolving industries: motion picture and tertiary education, and will explore methods for broadening specialist film skills training to include the development of capabilities that address the realities of today's rapidly changing digital landscape.

The moving image industry today is in a period of transformation and growth in both its technology and its scope. With seeds sown by the breakup of the studio system in the late 1940's, and gathering momentum with the advent of the digital revolution over the past two decades, the business of making movies, the avenues for distributing movies, the means of watching movies - even the definition of what a movie is - have been undergoing fundamental change.

There are now more ways than ever before to create, consume, and interact with moving image content. The paradigm-shifting cultural and technological transformations of recent years have given rise to wholly new models of creation, circulation, usage and spreadability of moving image storytelling. Emerging tools and methods are challenging traditional notions of story and expanding story horizons.

These shifts also see redefinitions of some of the old job roles involved in creating moving image content, which, in turn, necessitates a relook into how to teach students who will soon be seeking employment in the new marketplace.

Higher Education is also experiencing deep and rapid transformation internationally. The ubiquity of information available online, serious economic challenges and competition from a variety of new education models are among the forces at work which call on legacy educational institutions to relook at their mission and their delivery philosophy. Understanding the nature of teaching and learning has been developing as well, bringing new approaches to pedagogy.

However, much of moving image education still has one foot in the past. Many institutions are still primarily teaching conventional approaches to film production. Many film school students will graduate into an environment that is very different from the one for which they trained. Whether working as solo practitioners or collaboratively in teams, as contractors or employees, tomorrow's moving image graduates will be entering the evolving creative industries landscape. With much specialist knowledge now readily available online and the tools to make movies now widely affordable and able to be carried in a backpack, moving image education must quickly self-reflect and adapt to provide relevant guidance to tomorrow's moving image creators.

Through an exploration of the ways in which contemporary moving image education might refocus its content to address a rapidly changing world, this Thesis proposes an integrated, future-focused moving image programme aimed at fostering independence and lateral thinking, creative proactivity in the arena of opportunity creation, and innovative approaches to content creation and delivery. It is hoped that the programme set forth here might support moving image education to edge one small step closer to a new way of framing learning for tomorrow's creative practitioner.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Daniel Wagner
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Ethics Approval

Ethics Approval (15/442) from the AUT University Ethics Committee was gained on 18 December 2015, before the commencement of the study and written informed consent was obtained from each participant before the commencement of data collection.

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Chapter One

INTRODUCTION

Preamble: Accelerating Change

"The world is swiftly changing and with each day the pace quickens. The pressure to respond intensifies." Richard Paul, internationally recognised authority on Critical Thinking (2012).

Underpinning the changes in both the film industry and the education industry is the theory of Accelerating Change, which holds that the rate of technological change is increasing exponentially. We are witnessing an ever-increasing growth in the rate at which new tools for information, dissemination and consumption are introduced and adopted (Smart, 2012). According to Paul, not only is change occurring at an exponential pace, but so is the intensity of complexity. He questions whether we can deal with constant change and intensification without revolutionising our thinking (Paul, 2012). Kurzweil (2001) posits, in his version of the theory, which he dubs Accelerating Returns, that the exponential growth of technology, a natural outgrowth of human evolution, will continue to snowball until a dramatic shift occurs in the nature of what it is to be human.

One popularly accepted model for Accelerating Change is Moore's Law. As originally asserted, Moore's Law holds that the number of transistors that can be put on a microchip will continue to double every year or so (Robinson, 2012). Gordon Moore, co-developer of the silicon chip and founder of Intel, says he was just trying to make a point about how processors continue to get smaller and cheaper. However, the import of this assertion has been extended to describe the exponentially increasing changes in the entire technological universe, including information and communications technologies such as entertainment, journalism, and social media (Collins, 2015). Indeed, all Spreadable Culture (Jenkins, Ford, & Green, 2013) has been tied in one way or another to the effects illustrated by Moore's Law.

With Accelerating Change as the backdrop for the transforming moving image and education industries, this inquiry explores ways in which the higher education student may acquire a sense of themselves as empowered participants in an ever-evolving new media landscape.

The Research

The film industry is in the midst of a sea change brought on by the development of digital media tools in both the professional moviemaking sphere and on the consumer level, and by the burgeoning of the Internet as a vehicle for creation and delivery of new media.

The past twenty years have seen transformations in the business of making movies, the avenues for distributing movies, the means of consuming movies - even the definition of what a movie is. The evolution of digital technologies for acquiring, manipulating and delivering visual and audial information, combined with cultural shifts enabled by the Internet, has caused both the craft of movie making and the role of movie consuming to redefine themselves (Ganz & Khatib, 2006).

These cultural and market shifts also see redefinitions of some of the old job roles involved in creating movies, which, in turn, necessitates a re-look into how to teach students who will soon be seeking employment in the new marketplace.

This Thesis addresses the following research question:

In what ways might contemporary film education re-focus its content to address a rapidly changing world?

To delve into this question with greater granularity, the inquiry is refined with the following questions:

In what types of new capabilities will tomorrow's media industry practitioners need to become adept?

What legacy skills can we bring forward from the past into the future and what must be left behind?

What pedagogical shifts need to occur in order to prepare students:

- to stay current with a constantly changing toolset;
- to remain flexibly adept in a constantly evolving market; and
- to make proactive contributions to the world in transformation?

Methodology

The substantiating information in Chapters Two and Three is largely gathered from a review of the relevant literature. Chapter Four consists of the findings and analysis of an informal survey of 63 tertiary institutions and looks at the curricular offerings within their film/media schools. The proposal for a new moving image programme, set forth in Chapter Five, combines the viewpoints

expressed in two semi-structured interviews with experts in different aspects of the Creative Economy. Both run businesses that have emerged out of their creative practice, and each has rich experience in the nexus of entertainment content and connectivity in the new creative digital landscape. These viewpoints are combined with those of the researcher, who has thirty years' experience in the Film and Television industry, followed by twelve years' experience in the Higher Education industry.

Structure

Chapter Two looks at how the **film industry** has evolved, and how it continues to transform. It explores the rapidly transforming new media landscape, beginning with the death of film per se as a medium for capture and delivery. Chapter Three details the shifting sands of **higher education** and enumerates some of the recent transformations in teaching and learning. Chapter Four examines the current state of **film education**: what's on offer and what's missing. The case is made that there is a wealth of opportunity for the film school graduate beyond the now rather limited output options of purely cinema-based film training. Chapter Five proposes a **new concept for a moving image education programme** that integrates a variety of disciplines, and aims to create an environment in which an aspiring filmmaker can learn to utilise a multiplicity of media tools to communicate holistically across a variety of platforms.

Limitations

The intention behind the combination of methods detailed above is to provide a wide angle snapshot of two global industries in the midst of dramatic transformation. In order to capture this broad view, the lens through which said snapshot is taken requires certain filters. Four such filters that colour this endeavour are Location, Data, Time and Space:

Location: The ideal vantage point from which to gain a full picture of the rapid changes occurring in the moving image industry might be somewhere between Hollywood, Silicon Valley, nestled among the film centers of various cities around the globe, and attendance at the many international film markets. Efforts to cover from New Zealand the rapid transformations of the global moving image landscape come with inbuilt challenges.

Data: The choice of institutions and interviewees selected in this research is made with the intention to frame possibilities for the future of moving image education on a local level by first incorporating an international perspective. Further research would benefit from a wider net being

cast to gather additional data and to canvass the experience and viewpoints of a wider diversity of institutions and industry professionals.

Time: In the short amount of time it takes to construct a Master's Thesis, the ground will have already shifted. Funding models will have evolved, new technologies will have emerged, higher education courses will have been dropped and new ones added. A work that would faithfully capture up-to-the-minute changes in these two industries might take the form of a continuously updated website, an effort which is outside the purview of this introductory document.

Space: In that the author has chosen a very large area of research with a global scope, coverage within the context of a Master's Thesis must necessarily be a broad-brushstrokes endeavour. The intention is to provide an overview of current movements within the spheres of moving image and higher education. A detailed examination of the full scope of international change - and the broad range of skill sets required in the fast changing world of global entertainment - is an undertaking far greater than can be accommodated by a volume of this nature. The author acknowledges that there are, therefore, certain omissions resulting from the summary approach required by the space limitations of this platform. Further research might carry these lab saplings to an open-air farm, and plant them in the earth where they can grow to their full potential.

Chapter Two

Moving Image

2.1 The Film Industry Redefines Itself

2.1.1 Introduction

This Chapter places the current transformation of the film industry within an historical context to paint a fuller picture of the unbundling of film. It seeks to illustrate how the film industry has undergone several stages of mutation since it became an industry.

The word 'film' has taken on different meanings. In the first instance, it refers to the physical medium, which was used for just over a hundred years to shoot, post-produce and exhibit movies. Film has also come to refer to both the art form and to the industry as a whole: a 'film' is a movie, and working in 'film' means working in the motion picture industry. However, as the physical medium film has ceased to become the material on which moving image entertainment is shot and shown, a newer, more appropriate term might be in order. In this work, when discussing the art form, the industry, and the schools that teach the skills to future practitioners of the craft, the terms 'film' and 'moving image' will be used interchangeably.

2.1.2 End of the "Golden Age"

The film studios in the 1930's and 1940's, the so-called "golden age" of Hollywood, operated under a model in which all stages of the production process were located at, and fully controlled by, the given studio. Writers, directors, designers, production crew, editors, composers, sound stages, back lots, film labs and equipment were all co-located within the walls of the small city that was a motion picture studio. American audiences watched movies in theatres owned by the studios that produced the films. Films produced by Paramount Pictures, for example, screened in theatres owned by Paramount, and most of these theatres were called The Paramount.

The late 40's and early 50's saw the decimation of the American studio system, precipitated principally by the Hollywood Antitrust case of 1948, which forced the studios to end their vertically integrated lock on the cinema market.

The breakup of the studio system resulted in a burgeoning of independent film production companies between the early 1960's and the mid-1980's, and opened the door to a new breed of filmmaker, as well as to new avenues for film distribution. This movement came to be known as "the New Hollywood" (J. Collins, Radner, & Collins, 1993).

Creatively and financially disruptive to the outgoing studio system, the New Hollywood brought in a wave of commercially successfully independent films, many of them taking more risks in their content than had been seen before in major markets.

2.1.3 Enter Electronics

Another significant factor in the demise of the studio system was the introduction of television, which redirected audiences away from the movie house, and offered them a completely new set of entertainment choices. TV contributed to an increased need for program content.

At the same time that television was hitting its stride as a major conduit for content delivery (in today's parlance), another wellspring of content creation emerged. The social revolution of the 1960's represented the wavefront of a new culture of discourse and celebration, fostering a blossoming of literature, music, and art. One aspect of this groundswell was a phenomenon that combined art, technology, and politics into what could be described as the people's video movement. In 1967, Sony introduced the first portable video recording setup, known at the Portapak (Boyle, 1992; P. Ryan, 1988). This liberating technology enabled both artists and activists to begin creating their own videos. This was a revolution of sorts; up to this point, videotape had been used only in the broadcast TV industry (the tool of the makers), and now it was in the hands of the audience (who, heretofore, had been merely the users). Shamberg (1971) argued that those who were unhappy with the establishment-perpetuating television industry needed to transcend mere criticism and begin making their own television. In his words: "Growing up in America on television is like learning how to read but being denied the chance to write". Books such as Shamberg's Guerrilla Television (1971) and Expanded Cinema (Youngblood, 1970) encapsulated the groundswell of empowerment that people were experiencing with the unleashing of the tools of television. This foreshadowed by thirty years the YouTube phenomenon and the notion of participatory culture (Benkler, 2006; Delwiche & Henderson, 2013; Jenkins, 2006). Thus sprouted the seeds of the user-maker, a phenomenon which has given rise to an explosion of content and a series of new business models for the creation and delivery of moving image works. It is within the user-maker space that we can begin to find a part of the film/education puzzle.

The economic crash of 2008 saw a significant drop in major motion pictures going into production, largely because of a sharp decline in production financing. Reacting to the market changes that resulted from this downturn (Christopherson, 2013), producers were prompted to innovate in their use of digital technology. These innovations are facilitated by "...the leveraging of Internet-enabled content (extra video, online games, cross-platform storytelling) and dissemination tools (social networks, blogs, streaming and download services) to create greater consumer demand and increased revenues by creating a more popular experience or product" (Franklin, Searle, Stoyanova, & Townley, 2013).

Despite the burgeoning of new creation tools and distribution changes, the teaching of traditional moviemaking still has its place, as many of the fundamental conventions of visual storytelling that developed in the first hundred years of film are still applicable to the newer forms. However, the arenas for visual storytelling that have developed since the latter half of the twentieth century – particularly those that have emerged in the first two decades of the twenty-first century - have brought forth new spectra of storytelling expression, and have begun to forge new directions in cinematic language. These, too, need to be addressed in contemporary moving image education.

2.2 The Moving Image Market Shifts

This section looks at moving image financing in order to explore what legacy skills tomorrow's moving image practitioners can bring forward from the past into their future, as well as what newer areas of capability they will need to develop. It is important for tomorrow's independent moving image practitioners to place themselves historically within the context of the greater creative digital economy. If they are to empower themselves to produce works that compete on a global scale with other creative work, they will need to learn to avail themselves of current funding methods. To begin this journey, a sense of history will add perspective to their efforts as they gain abilities to resource their larger projects.

2.2.1 The Evolution of Financing and Distribution Deals

In addition to disruptions in content for - and engagement with - moving image media, the last fifty years have seen several disruptions in the ways films are financed. Before the breakup of Hollywood's vertical integration, the studios financed and oversaw every stage of production and distribution (Bakker, 2010).

After the breakup, Hollywood studios gradually moved away from being production factories for the cinema and focused more on distribution of their film properties. In the 70's and 80's, independent talent agencies, such as CAA and ICM, would assemble "packages", usually consisting of a script, a star actor, a name director and a studio distribution deal. This package would be leveraged to procure production financing.

In the 90's, film market pre-sales provided a more decentralised funding vehicle. In this model, a sales agent shops the package around at film markets globally (e.g. AFM, Sundance, etc.), where they sell the project rights in different "windows" (theatrical, pay-tv, video-on-demand, DVD, etc.) to distribution companies, who are then licensed to market the film within these windows to different international regions. The package, now with seed money from the sales of these distribution rights, then raises the remainder of its production budget, mostly from bank loans, investment firms, as well as from a portfolio of private investors (Brown, 2015a).

While the agency packaging model and the film market pre-sales model still exist, film financing schemes in the 2010's are exhibiting more parallels to funding models adopted by Internet startups, including the use of angel and venture capital investors, equity crowdfunding, online investment syndicates and peer-to-peer lending. The online film financing platform Slated is one interesting example of peer investment. Slated offers "introductions to projects, talent, financing and sales," by using networked information vehicles to provide an information resource whereby film-friendly investors can track the progress of individual projects that seek startup funds (Brown, 2015b).

Slated is a momentum-driven platform where interest breeds interest. The most successful projects on the platform tend to surround themselves with influential champions and as much 'social proof' as they can muster in terms of compelling videos, social media mentions, and any available metrics demonstrating film comparables, global book sales, YouTube hits, fan-base followings, and other evidence of early traction and a predisposed audience. By shedding light on this byzantine process, using the familiar organising and network-building principles of social media, Slated has tried to make it as simple to invest in films as it is to buy shares in a listed company – or a start-up. (Brown, 2015b)

Today's networked media environment has given rise to a proliferation of creative moving image works, across a continuum of resourcing and scale, and, to a certain extent, has levelled the playing field for makers.

One through-line of this Thesis promotes an empowerment of moving image-makers with smaller-scale DIY capabilities to produce independent work. In the initial phases of a self-run business, such as a small independent content creation company, many of the resources required for

creating outputs can be assembled on a shoestring budget. However, as their business grows, tomorrow's moving image creators will need access to more substantial up-front project capital. In order to reach more targeted audiences worldwide, tomorrow's moving image practitioners will need a basket of funding strategies in order to create work that can reach the desired audience and that can yield income streams appropriate to the scale of the production. Ryan and Hearn (2010) suggest that viable new business models need to be found to enable next generation filmmakers to secure "revenue streams in segments of the value chain traditionally controlled by distributors".

2.2.2 Multiple Income Streams

As mentioned above, the networked digital economy has brought about shifts in the ways in which ventures are funded, the ways in which products are brought to market and the ways in which consumers are accessing content.

New moving image companies of all sizes are calling on angel investors and venture capitalists, and creative projects across the continuum of scale are attaining production financing through crowdfunding.

Alternative methods of moving funds around have also developed, from PayPal, which enables users to transfer conventional monies, to the Blockchain model of peer-to-peer virtual currencies, such as Bitcoin, Mastercoin, Namecoin, etc. Tomorrow's moving image creator will need to develop fluency in both conventional and alternative currencies if they are to function fully in the creative digital economy.

2.2.3 Freemium Content

One popular disruptive business model for monetising content, on a maker-to-user level, is the Freemium strategy. Content is offered at no cost as a lure to establish initial user interest and loyalty. This free engagement is often converted to paid engagement when users who've become enamoured of the provider's content seek enhanced value through access to the *better* content that the website or app offers. The business reasoning here is that the return on the investment from paid users exceeds the cost of servicing the free users (Maltz & Barney, 2012). The Freemium model is most prevalent in the domain of web platforms and mobile apps, but portability

into freemium's use with mobile video content gives rise to new possibilities for the moving image creative practitioner (Kotliar, 2011).

2.2.4 Crowdfunding

Until a few years ago, the most commonly tread paths to attain project financing were those discussed above (talent agencies, film market pre-sales, a few significant investors, bank loans, etc.). More recently, however, moving image content creators have turned to Crowdfunding. This method utilises the Internet and leverages the power of group behaviour to raise capital in a public arena. It often involves a large number of contributors each investing a relatively small amount of money through a crowdfunding website (Beaulieu, Sarker, & Sarker, 2015). The types of projects that have been crowdfunded are many and varied, but what's relevant to this volume are moving image works. With the high up-front costs associated with production funding, non-professionals previously were shut out of creating projects of even modest budgets. However, with the ability to raise capital in a manner where the risk is spread out over a large number of "believers", access to funding has become more widespread. Combine this with the affordances of peer-to-peer distribution, and we begin to understand how the technologically enabled creative network economy has become a powerful creative enabler (Braet, Spek, & Pauwels, 2013). In addition to project-based Crowdfunding sites for moving image projects, such as Junction, Indiegogo, Seed & Spark, and Slated, creative content makers can also pursue the subscription-based path of artist patronage through sites such as Patreon. The artist subscription model is another empowering option which contemporary moving image education would be wise to explore; it is one funding pathway that could be started whilst the artist is still studying. What better place to germinate a following than one's own tertiary institution!

While the ostensible outcome for the crowdfunding contributor is to receive some sort of return on their investment - in the form of (usually small) profits, advance sales on a product or even swag from a film - sometimes the project loses money, leaving no material returns forthcoming. But Schwartz (2015) points out that there are also important *non-financial* rewards to be derived from participating in a crowdfunded project. These include the sheer entertainment value of seeing a favoured project come to fruition; contributing to an endeavour as a gesture of political expression; the satisfaction derived from being a patron of the arts; the altruistic appeal of making a contribution to the efforts of others; being part of a community; and the pride of ownership that comes from being part of the creation of something. These values are important to cultivate as part of an overall ethos that education of the user-maker should engender.

2.2.5 The Gift Economy

Conventional approaches to monetary exchange and value have been re-evaluated over the past quarter century, and the idea of the Gift Economy has been gaining momentum in the digital society (Frosio, 2015). This is an alternative paradigm to the market economy. Rather than a product or service being distributed in exchange for monetary value, the Gift Economy is built on the "pay it forward" idea, whereby something considered of value is shared freely, with the understanding that if and when the user can contribute - either monetarily or in-kind - they will (Eisenstein, 2011). Examples in the online sphere include Wikipedia, open source software, and the sharing ethos that underpins the ethical hacker community (Isaacson, 2015).

In peer- and user-generated production, community recognition supersedes economic incentives. User-based creativity thrives on the idea of "playful enjoyment", rather than economic incentives (Frosio, 2015, p. 1983).

Appreciation of, and conversance with, the Gift Economy is another significant component in which tomorrow's moving image creator will need encouragement and coaching; some students might find it challenging to shift away from the mindset associating moviemaking with huge financial reward.

2.2.6 Creative Commons

One outcropping of the Gift Economy is a shift in approach to intellectual property. Rather than holding tightly to one's creative output as a piece of owned property (the notion of copyright), content creators often license their work under a Creative Commons license, whereby users are granted the right to use the content freely under the proviso that they credit the creator. There are four basic Creative Commons licensing categories, including:

- **Attribution**, where users simply need to credit the maker;
- **Share Alike**, where the user is granted the right to "copy, distribute, display, perform and modify" the maker's work, but must do so under the same terms under which the work was shared;
- **Non-Commercial**, which allows free use for any purpose other than for monetary gain; and
- **No Derivatives**, whereby users can "copy, distribute, display and perform" the maker's work, but only in its original form.

Creative Commons licenses frequently are granted with a combination of the above provisions. [\[https://creativecommons.org/\]](https://creativecommons.org/)

This spirit of open exchange underpins the inherently spreadable nature of creative content in the networked digital economy. It has given rise to new modes of thinking about creative IP, and has facilitated new paradigms of engagement with creative content. In their explanation of the benefits to businesses of all scales, the website SmallBusiness.com invokes Benjamin Franklin touting the virtues of the open sharing of content:

As we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours; and this we should do freely and generously.

Creative Commons licensing is not limited to small businesses. Even mega-providers, such as Vimeo and YouTube provide for their user/makers to distribute their works under Creative Commons licenses (Verdugo, 2010; YouTube, 2016). CC is another essential piece of the moving image education puzzle.

2.2.7 Pay What You Want

PWYW is a participative pricing mechanism in which the seller does not set the price. Instead, the user renders the sum that they feel the content warrants. It has been shown to be a fairly successful format, the research indicating that buyers will, more often than not, pay what they feel is fair (Weisstein, Kukar-Kinney, & Monroe, 2016), sometimes even paying more than what the vendors had expected. This latter scenario can often depend on a loyal following (Chao, Fernandez, & Nahata, 2015), and is clearly connected to the user's experience of value.

PWYW can be a valuable income strategy for some creative moving image works, but only if the up-front production funding is pre-sourced. Nevertheless, it's another arrow in the quiver of business strategies for tomorrow's creative digital content creator, and, as such, needs to be part of their business training.

2.2.8 Local Government Support

Internationally, government film boards have arisen to provide subsidies for independent local filmmakers and tax credits for foreign companies to incentivise relocating production(s) to their shores (Dawtre, 2009). The New Zealand Film Commission (NZFC) is one such example. The

NZFC provides support for New Zealand films, offering a variety of funding schemes from small seed development grants to equity funding for feature films of all budget levels (<http://www.nzfilm.co.nz>). Created by the New Zealand Film Act of 1978, the NZFC set out to promote a “national film culture”. The Commission is the main source for funding of independent film in this country, prioritising productions with “significant New Zealand content”. Yet questions have been raised about the body’s parallel engagement with “global Hollywood”, having provided, for example, a reported NZ\$200 million of tax payer-funded subsidies to the Lord of the Rings trilogy (King, 2010) . Nevertheless, the NZFC has enabled local independent film production to blossom to a degree far greater than before its creation.

We've looked at a few shifts in the economic landscape for the funding of creative moving image works. The makers of tomorrow will no doubt have even more options for engaging audiences in supplying financial support for creative moving image projects. If they are to thrive in this turbulent market, creative moving image-makers need to be empowered with capabilities for gathering the kind of financial support that is most appropriately suited to each creative output. These capabilities would best be woven into the fabric of creative training from the outset, as these skills take as much time to be absorbed, as does the creative training itself.

2.3 The Moving Image Workflow Evolves

This section will explore the how the transformation of the conventional filmmaking process into a digital workflow has reverberated through all stages of Acquisition, Manipulation and Delivery of moving image content.

2.3.1 Acquisition

The format change from film capture to digital capture has brought about changes in shooting method, which will affect how moving image is taught. This section will look at some of the transformations from film to digital in production, and will address some ways in which moving image students will need to alter their practice to adapt to those changes.

More Freedom = More Footage

The high cost of shooting on film has been greatly reduced in the transition to digital. The expense of the unexposed film itself, plus the costs of processing, then transferring to video and finally outputting to a medium that could be ingested into an editing system means that the front end of

a film-capture workflow is very expensive. With digital capture, however, the recording media is relatively inexpensive, can be used over and over, and each card can accommodate from 30-120 minutes of record time, as contrasted with the 11-minute limitation of 1000-feet of 35mm film. This has added a new freedom to the shooting process.

But according to Nicolas (2013), what has taken the place of this danger is the temptation to shoot endless re-takes. Poirot-Delpech (2013) agrees, pointing out that whilst digital cameras offer more freedom - due, in part to the affordability of shooting digital, as well as certain technical advantages - the downside is that editors then end up with hours and hours of shot material, which they must then wade through. In a professional context, the consequence of overshooting is not an inexpensive proposition either.

The Seductiveness of Immediate Feedback

The advent of digital cameras in film schools has presented both opportunities and challenges to moving image educators as well as to students. In the film days, because the negative had to be developed and then either printed or transferred to video, the shot footage could not be viewed until the following day. If a technical error occurred (e.g. scratches or inadvertent light leaks on the undeveloped negative), it was often not discovered until it was too late to reshoot. This delay between shooting and viewing required filmmakers to employ a great deal of imagination and pre-thought as well as trust in the skills of all supporting technicians. With digital cinematography, however, the crew is able to instantly see the recorded image, significantly lowering the danger of making huge mistakes. The challenge this poses to the educator, however, is to develop the discipline of thorough pre-visualisation and planning, even though the image is no longer "hidden". (Okk, 2013).

Moreover, students' attention is often too easily drawn to the on-set video monitor. According to Poirot-Delpech (2013), students must train themselves to trust their eyes as they regard a film set, and not rely solely on the video to inform creative/technical decisions. Additionally, the constant availability of on-demand review takes focus away from the actual production process, and thus serves as a time-draining distraction. The loss of the "hidden image" adds extra layers of challenge for moving image educators, as they find creative ways to encourage students to see.

More Integrated Shoot-Post Image Workflow

The effect of the digital transition on post-production also offers new ways to think about, and practice, moviemaking. Nicolas (2013) points out that cinematography now has a more integral relationship to grading (a.k.a. colour-correction, or colour timing) and post-production than it did in the film days. This is echoed by Coulanges (2013) who adds that they are both part of the same process, and that the future will see grading as a connected component of cinematography. This has already begun to be recognised by bodies such as the German Federation of Cinematographers, who have invited graders to become members.

This shift in creative province is being reflected in moving image education programmes, which are beginning to incorporate this new synergy into their curricula. Colour correction and editing, for example, have been identified as new components of cinematography teaching, enabling the students to see how the images they shoot can be changed as they move through the production & post-production process (Trastulli 2013). Other areas that have been targeted for inclusion in cinematography education include image management from set to post, virtual cinematography, videogames cinematography, digital lighting, grading, visual effects, digital manipulation, high frame rate, stereoscopy, etc., giving rise to a new breed of cinematographer, one who has creative oversight of the entire digital workflow. A new title has even been suggested, from Director of Photography to "Director of Imaging", denoting responsibility for the look of the film from beginning to end (Carey, 2013).

More Elements

Additionally, as more and more films involve digital effects – which often composite many layers (foreground, mid-ground, background, all created separately), image acquisition often becomes more about capturing individual elements, a process that brings with it what some feel is an inherent sterility (Tudor, 2010). Moreover, concern has been expressed that “shooting a film is and should remain a creative process. It should not become a gathering of people who are simply making options for later treatment (in post-production)” (Mennel, 2013). Controversy arose around Claudio Miranda’s 2013 Oscar win for Best Cinematography for “The Life of Pi”, as film craftspeople, including renowned cinematographers Christopher Doyle and Roger Deakins, questioned the amount of actual cinematographic art that was involved, given that the majority of the film was a combination of live action shot against a green screen combined with computer generated images. Doyle called the award “a(n)...insult to cinematography...the award is given to the technicians, to the producers, it’s not to the cinematographer” (Jagernauth, 2013). However, Emmanuel Lubezki, three-time Cinematography Oscar winner for films including the effects-

dependent “Gravity”, feels that the cinematographer is an integral part of all films, including those where the live action elements are shot separately. “Who is going to decide how these actors are lit at the end? It’s still an extension of cinematography. You still need a craftsman to decide how this actor should look, and then how to marry these actors to the background. (On Gravity) I was able to do all the lighting for the movie, and to collaborate on the framing and design of the shots. Who better than a cinematographer to understand what light should be doing in a scene?” (Hardy, 2013)

At the heart of this shift in focus is the filmmaker's ability to maintain control of the artistic process while using modern technology (Kleijn, 2013).

Technology's Effects On Moving Image Acquisition

Throughout most of the twentieth century, many technological innovations in the motion picture industry were in the filmmaking process itself. This continuous forward movement in filmmaking technology (e.g. the dolly, the camera crane, synchronous sound, colour film, optical compositing, the blue screen process, lightweight and portable cameras, computer generated images, the Steadicam[®], etc.) dramatically affected not only the creation pipeline with each innovation but also significantly disrupted the delivery infrastructure with added equipment, and therefore cost. In later years, television, cable, and video/DVD distribution caused major shifts in the way people received moving image entertainment. However, until the rise of the Internet, these innovations affected the viewing audience solely as content consumers.

Within the last two decades, however, the lines between audience and creator have blurred, and many of today's technological leaps also enhance the participatory capabilities of the user experience (Delwiche & Henderson, 2013). Of course, the cinema and television industries are still alive and well and many people still prefer to remain mere receivers of entertainment content. Nevertheless, as the ability to create and distribute moving image works continues to become more accessible, the creator base will continue to expand (Meyer, 2015). With social media as the backdrop, creation and UX trends are tending more toward immersion and interactivity (Dyson, 2009).

2.3.2 Manipulation

Once the province of the Moviola, then the Steenbeck, film editing saw its days numbered with the advent of the first non-linear video editing system, the CMX600 in 1970 (Rubin, 2000). Several

other systems quickly took hold (from EditDroid and EditFlex in the 1980's on through Avid, Premiere Pro and Final Cut Pro in the 1990's), and the cutting world hasn't looked back. Today, there are several options for non-linear editing available to both professional and consumer.

In film's heyday, visual effects for Cinema were accomplished by manual means (such as rotoscoping for creating travelling mattes), and compositing was achieved with an optical printer. Today, simple VFX capabilities are bundled with most consumer editing software, and more sophisticated work can be accomplished with dedicated programmes, such as Adobe After Effects and Blender. Higher-end digital image manipulation occurs on hardware/software solutions such as Maya for 3D modelling, animation, effects rendering and compositing, and Flame for a host of visual effects, compositing, and editorial finishing work.

There are now multiple editing, effects, and animation apps for mobile devices, which brings moving image creation fully into the pockets of today's user/makers.

The plethora of options for manipulating visual images has resulted in a more straightforward path between the imagination and the screen for today's and tomorrow's moving image maker, and has opened new pathways of storytelling possibility (McClean, 2007).

2.3.3 Delivery

As acquisition and manipulation options have expanded, so have the pathways for delivering moving image content to an audience. No longer limited to theatrical and television release, the recent past has increasingly seen content finding multiple paths to the user, including on-demand streaming services, online sharing sites and mobile apps. With each successive technological step (Cinema, TV, Videotape, DVD's, Online), the user has received more control over the choice of how, when and where to consume programme content (Napoli, 2011). The connected culture has given rise to (virtually) all digital content being spreadable and the pinnacle of success for shared content (by some measures) is its achieving "viral" status.

Monetising Movies Online

Entertainment content - at one time solely bound for cinemas, now has a ubiquitous presence and finds its way to us through many vehicles. Nick Pinkerton, writing in Sight & Sound, asserts that "...a revolution in viewing habits has taken place...movies are experienced now as digital files of variable resolution viewed on an assortment of glowing rectangles of descending size, from the

movie-sized screen to the living room flatscreen to the tablet to the phone - and on most of these multipurpose devices the 'movie' is just one of a bevy of entertainment options." (Pinkerton, 2015)

Now, there are varieties of options for moving image creators to monetise their work.

The Screening Room is one proprietary attempt to offer viewers first run films at home, from the first day of their release. Its founders intend The Screening Room to increase revenue streams for major distributors, who are experiencing steady declines in box office income (Robey, 2016; Smith, 2016). The platform is still in its pre-release testing phase, yet it's already generating a bit of discourse about whether it will help the cinema industry or hurt it. Proponents see The Screening Room as a way to bring first-run movies to those who might not get out to theatres, and as an attempt to subvert piracy. Critics feel it will destroy "the sanctity of the in-theatre experience" (McNary, 2016) and threaten the very existence of the cinema itself (Reisinger, 2016; Lang, 2016). Time will tell what effect it has, if any.

In the connected information economy, programme content is on tap 24/7. No longer regarded as merely viewable, increasingly delivered content can be interacted with by viewers. Additionally, content is increasingly generated by its own users, and is no longer merely deliverable but also malleable, mutable and spreadable (Jenkins, Ford, & Green, 2013).

There are several options for independent filmmakers to digitally distribute their films (PBS, 2016), the largest being YouTube, Vimeo On Demand, and Amazon Video Direct. Viewers under 20 are now spending more time watching content online than on television (Coughlan, 2016) and the competition for eyeballs is fiercer; now, the challenge becomes finding an audience for the independent film.

Analyses of YouTube's functions and effects on both content creation and distribution are plentiful, much of it falling outside the purview of this discussion. But worthwhile to note here is Burgess & Green's identification of "the two YouTubes":

YouTube has now arguably achieved mainstream media status; but just what kind of a medium is it? In YouTube, new business models and more accessible tools of production are provoking new and uncertain articulations between alternative media and the mainstream commercial media; and throwing up anxieties about issues of media authority and control. These uncertainties could partly explain the oscillation between two dominant explanatory frameworks for the website

YouTube as a player in the commercial new media landscape on the one hand (the top-down view), and YouTube as a site of vernacular

creativity and lawless disruption on the other (the bottom-up view). YouTube is not just another media company, and it is not just a platform for user-created content. It is more helpful to understand YouTube (the company and the website infrastructure it provides) as occupying an institutional function - operating as a coordinating mechanism between individual and collective creativity and meaning production; and as a mediator between various competing industry-oriented discourses and ideologies and various audience-or user-oriented ones. (Burgess & Green, 2009, p. 36)

YouTube content creators ("partners") earn money for YouTube by bringing viewers to the ads placed on their channels. YouTube, in turn, pays a commission to the partners. This method for user/makers to monetise their content has worked out quite nicely, particularly for YouTube's top-end independent video makers (Glenn, 2013).

Vimeo has also established itself as a monetised distribution channel, initially providing its "tip jar" model, whereby viewers contributed voluntarily to their favourite videos (Koo, 2012). The Tip Jar, a PWYW model, was discontinued in 2015, due to lacklustre participation (Marine, 2015), and now the service is touting their Vimeo On Demand model, wherein content creators can sell their works directly to users (<https://vimeo.com/ondemand/startselling>).

[Amazon.com](https://www.amazon.com) has also entered the user-generated content delivery market with Amazon Video Direct (Perez, 2016), which offers a variety of methods for makers to monetise. Creators can rent or sell their videos or they can enable them to play free of charge, supported by ads. Also available is the option to offer the works as part of a subscription to Amazon Prime Video.

Transmedia

The examples above address shifts in delivery and funding models for more traditional moving image work made to be viewed on a single screen (of any size). But other pathways for creation, delivery and consumption of moving image narrative have arisen over the past few years, such as transmedia storytelling, which involves spreading a story world (a.k.a. story universe) - a complex structure of interweaving but independent stories - across a variety of platforms. By targeting each story toward the medium that is most appropriate for it, transmedia storytelling affords the "story architect" an opportunity to weave narrative threads over a larger fabric, providing the potential for broader expression than is possible on a single screen. As different platforms appeal to different market sectors, the opportunity exists to expand the audience beyond what a story played out on a single medium might attract. Further, the interactive affordances offered by many of the

platforms on which transmedia stories are played out contribute to its capacity to immerse and engage audiences (Jenkins, H. 2006a).

Therein lies the challenge of transmedia. Norman (2010) asserts that whilst transmedia has been used to great effect in the world of commerce, it's real power is to unleash the creativity inside the user:

The new design challenge is to create true participatory designs coupled with true multi-media immersion that reveal new insights and create true novel experiences. We all participate, we all experience. We all design, we all partake. But much of this is meaningless: how do we provide richness and depth, enhanced through the active engagement of all, whether they be the originators or the recipients of the experience? (p. 15)

The challenge to create work that enables meaningful engagement should be central to contemporary moving image education. Additionally, moving image students will need to embrace the concept of the story world, which is part of the new currency in immersive moving image work – from narrative 2D cinema through transmedia and reaching to the heart of games creation and virtual reality.

New Realities: Augmented, Virtual and Mixed

More recently, additional story canvasses have arisen, and are rapidly gaining momentum.

Virtual Reality has been in development since the first motion-tracking head-mounted display was created in 1961, although the name wasn't coined until 1987 ("History Of Virtual Reality", 2015). Early on, it was thought mostly useful for industrial simulation, then was taken up enthusiastically by the game development community. Recently, however, the development of VR as a storytelling platform has been snowballing with increasing momentum.

VR presents the opportunity for a refreshed narrative paradigm centred on a new cinematic language. In this regard, there are several challenges that this poses for the moving image storyteller. The familiar tools of cinema grammar are gone, and the audience now has greater control of the narrative. This control will become even greater when headsets are no longer tethered to computers and mobile becomes the key enabling technology for VR (Fitzsimmons, 2016).

A variety of theories is developing around the use of these new tools, but, according to Andrew Cochrane, Digital and New Media Director of Guillermo del Toro's Mirada Studios, the form is still in its infancy; we're at the Muybridge stage. The technology is just now fledging as a creative tool, and Cochrane maintains that VR creatives should not wait until the technology improves or until the language for its use is defined; he argues that VR makers should just start making. The material created will become the defining canon of VR storytelling (Logan, 2016).

Augmented Reality is also gaining much credit in its own right. Rather than being fully immersive, as is VR, AR is regarded as being a bridge between real-world activities and digital experiences, and is seen as holding huge potential for artistic expression in moving image entertainment, as well as for developing creativity in an educational context (Zünd et al., 2015).

Mixed Reality (MR) represents the next step in the evolution of technological realities, blending AR and VR. Intel is developing Project Alloy, a headset that brings these two enabling technologies together (Shah, 2016). Microsoft's MR platform, Windows Holographic enables placement of objects and people, through use of a head-mounted display, in 360 degrees in a real environment (Moorhead, 2016). Further, Peter Jackson serves on an advisory panel for Magic Leap, a proprietary MR platform, which is branding itself as a creative and educational pathway to the future of moving image (Hamilton, 2016).

The stage is set for the next chapter in moving image content to bring new layers of creative reality into common reach. Today's moving image student is entering the creative digital content arena at a dynamic time in its history. How will their education prepare them to become storytellers who are conversant and agile users of these new tools?

The Changing Audience

Along with the transformation of mediated content comes the evolvement of the users of said content. Once content to sit back and receive delivered programmes, the user base is now leaning forward and choosing, engaging, and even making content of their own. Some scholars of audience behaviour have been challenged to find appropriate methods to study the new user base, as the boundaries have shifted considerably (Livingstone, 2004), particularly considering the raft of legal and illegal (hence unquantifiable) delivery platforms for receiving content.

Jenkins, Ford and Green (2013) illustrate another step beyond the transition from "consumer" to "user/maker", pointing to the common proclivity for users to reuse and remix received content and reissue it with their own participatory stamp, which they refer to as "Spreadable Media". This

describes another layer of content input-output in which media is easily shared and re-shared, and they call on makers to design content for spreadability. To this end, a course is now offered, at Occidental College in California, called “Remix Media and Culture Jamming” (Wilson, 2016).

Modes of engagement with content are continuing to evolve, which is resulting in media industries learning to understand and interact with their audiences in different ways (Napoli, 2008). Users increasingly have to repeatedly re-train themselves in new technologies and in new paradigms of interaction, a phenomenon that, harkening back to McLuhan (1994), is extending human consciousness. This rapid growth is part of the landscape into which new moving image-makers (will) find themselves learning to create and deliver creative content. As such, becoming aware of the changing nature of their audience (of which they are a part) needs to become an integral part of their learning.

User Experience

Connected to the consideration of changing audiences in the context of creating digital content is the necessity to regard the User Experience (UX). This is a deep consideration of the particular audience for a story, platform, particular delivery mode, website or app (<http://uxdesign.com/ux-defined>). UX design applies to a number of modalities in which some form of content is delivered to users, and is utilised to ensure that the content is received, and able to be interacted with, clearly, easily, and sometimes even enjoyably. The very existence of UX consultation and design companies is indicative of how far new media culture has come from mere Film and TV in a short period, and its inclusion in a palette of learning experiences is essential to the moving image practitioner in training.

The Long Tail

For many film students, the brass ring has long been working on a major motion picture. Blockbuster success and triumph at Cannes and the Oscars have long been regarded as the Everest of achievement for some in the film world. However, markets for content are rapidly evolving. Film-viewing audiences now have a much wider palette of viewing options. Rather than a handful of films from which the entire movie-going public have to choose, there are now more niche market moving image works, and more available avenues to deliver them to very narrowly targeted audiences who appreciate them. This is The Long Tail. Chris Anderson (2008) expresses the idea that the aggregate of numerous niche markets for any product type sells more, in the end, than the more expensive and heavily promoted iterations of the same product type. The multitude

of smaller independent films, for example, collects more eyeballs (and thus dollars) than the blockbuster titles, of which there are fewer. As Gauntlett (2014) interprets it: "...the key thing about The Long Tail is not exactly about the size of markets, but rather that it describes an ocean of independent amateur activity that's as big as (or bigger than) the produce of the mainstream and professional brands – and richer as well as wider, with a thousand independent ideas for every one professional message." This is significant in the discussion about the new face of moving image education because of the likelihood that most of tomorrow's moving image content creators will be conducting the bulk of their creative practice in the Long Tail. As cinema *per se* becomes just another option in an ever-broadening palette of selections, and narrower bands of interest are able to be catered to with the explosion of technological options, it will behoove the creative practitioner to develop skills around identification of the niche markets best suited to any given creative work.

User/makers are generating (and remixing) their own content, and spreading it via their own channels, adding another layer of complexity to the choices for consumption of programme content.

2.4 The Creative Industries

Graduates from tomorrow's Film Schools will be entering into an arena that is completely different than it was even thirty years ago. The evolution of economic models for moving image is part of a larger transformation that involves a broad base of creative output inside a loose structure identified as The Creative Industries.

As discussed above, the rise of digital tools for creation and distribution of stories, combined with a shift in the moviemaking power base has given rise to a groundswell of creative output. This has opened up new markets for the creation and consumption of digital media. These newer avenues, in turn, require new skill sets, including "a range of functional and creative thinking skills related to information, media and technology." (Malita & Martin, 2010)

Emerging technologies are radically transforming the ways we use, spread and even talk about creative content; they are now enabling the generation of new forms of media, blurring the boundaries between creative supply and demand, and lowering the barriers to entry into creative markets. Inexpensive, high-quality tools have enabled more users to produce professional-level content. In distribution, a plethora of websites, services, and platforms now enable creators to reach huge numbers and open up new marketing opportunities. Collaboration tools and

crowdfunding sites can now facilitate new partnerships and expanded funding opportunities across the planet (Bakhshi, Hargreaves, & Mateos-Garcia, 2013).

Over the past fifteen years, the Creative Industries, in fact, the Creative Economy as a whole, have become significant players in the wider economic system (Meitzner & Kamprath, 2013), and the creative workforce is growing at a faster rate than the overall economy in several markets (Bridgstock, Goldsmith, Rodgers, & Hearn, 2015).

The changes resulting from the burgeoning of communication technologies have given rise to a raft of new avenues for moving image to flow. The Creative Industries have enabled new types of enterprises, using new business models, to form, and to produce new forms of creative work in evolving arenas. These emerging businesses offer new opportunities to creative media graduates who, until recently, might have envisioned themselves simply as filmmakers. Additionally, there is increasing employment for creative workers in non-cultural sectors, as the demand for cultural production and creative services grows across an array of industries. Creative workers, of which film and new media practitioners are a subset, have been identified as being "[vitally important] to economic growth in post-industrial economies, via the addition of creative and cultural value to national innovation systems." (Bridgstock et al., 2015)

A moving image education framework for tomorrow will need to focus on an integrated collection of skills and capabilities in order to prepare graduates to be responsive to constant change and to foster their ability to earn multiple streams of income.

2.5 Discussion

The moving image industry has gone through many transformations in form, methods, and structure since its inception, but none more fundamental than those that have occurred over the past two decades. The growth of the internet and the spread of creation tools of ever higher quality, which are ever more affordable, have transformed audiences into participants, and have enabled these millions to produce creative content from a pocket-sized device and distribute it to the world. One oft-held image associated with this shift is that of the autonomous user/maker, free from the constraints of the corporate cinema and television machine, independently creating their own content for sharing as they wish. However, corporate interests are not absent from the user-generated content business, they have merely shapeshifted with the times.

The breakup of the studio system gave rise to a flood of opportunities for new forms of content to arise. Sony's marketing of the Portapak in 1967 held great promise for new media artists and

political activists alike to begin using video to facilitate cultural change. Despite a short burst of innovation in the early years of video, the widespread transformation of society through video did not happen as hoped. There is a modest body of research that analyses the aspirations many had for YouTube as a platform for video activism against its actual affordances. Far from being a grassroots-driven “people’s medium”, YouTube is, in fact, a corporate-run service provider. Whilst radical organisations are free to post their videos on YouTube, the service, like the entire internet, is a “pull-medium”, and so mostly reaches those who are already pre-disposed to the messages being imparted (Askanius, 2012). Whilst YouTube positions itself as being a bottom-up public utility where consumers become creatives, the YouTube model, as is the case with most user-generated content sites, profits hugely from the content created by others (Cammaerts, 2008). Therefore, YouTube can also be seen as a top-down content supplier who utilises a billions-strong free-labour creative workforce to generate content from which it profits bountifully. Thus, User Generated Content is a double-edged sword: at once enabling and exploitative. The internet was originally based on a philosophy of democratic sharing of ideas and resources, centred around a non-profit ethos, but recent history has shown the content provision side of the internet to have become another arm of what Youngblood (2012) refers to as state media.

The above is not to discount the positive, enabling effects that both the internet and accessible video creation tools have had on the world community of makers. Today’s networked media environment has given rise to a plethora of independent moving image works, but it is still a game for those with resources. As Ivey & Tepper (2006) warn,

Increasingly, those who have the education, skills, financial resources, and time required to navigate the sea of cultural choice will gain access to new cultural opportunities. They will be the ones who can invest in their creative hobbies....They will discover new forms of cultural expression that engage their passions and help them forge their own identities, and will be the curators of their own expressive lives and the mavens who enrich the lives of others. At the same time, those citizens who have fewer resources — less time, less money, and less knowledge about how to navigate the cultural system — will increasingly rely on the cultural fare offered to them by consolidated media and entertainment conglomerates....They will consume hit films, television reality shows, and blockbuster novels, their cultural choices directed to limited options through the narrow gates defined by the synergistic marketing that is the hallmark of cross-owned media and entertainment. (p. 88)

Jenkins (2009) calls on us to educate and upskill *all* students in order to bridge what Ivey and Tepper define as an impending cultural divide.

One recurring word in this Thesis is “empower”. The word carries with it a subtextual imperative to make this teaching available to those who might not otherwise be able to avail themselves of a twenty-first-century moving image education. The delivery mechanics for doing so are beyond the scope of this particular writing. But a broad-based, integrated programme that imparts contemporary visual communication skills only to those with sufficient resources (money and time) to engage in education is to only selectively serve the democratic information-sharing intentions upon which the internet was originally founded (Berners-Lee, 2010).

In this researcher’s considered opinion, what is needed is a programme that is economically accessible yet still broad in scope. Naturally, a programme that is affordable to students must accordingly be an affordable endeavour for the institution to undertake. The interdisciplinary programme proposed in this Thesis is advanced under the proposition that already-existing (i.e. already-funded) departments contribute content to a new structure that blends a variety of specialised teaching into an innovative mashup that addresses current and future needs. What is new here is the manner in which the content and the delivery is organised and approached. Rather than running a programme that just teaches filmmaking skills, for example, the institution, under this model, also avails itself of the rich knowledge found in their Art, Design, Business, and Computing departments to create a combined, hybrid pathway. Other than certain emerging technologies that will need to be acquired, this programme can accomplish many of its aims with already-existing resources. It can be argued, in fact, that the simpler the available resource palette is, the more the students will be forced to be clever and innovative.

As detailed in the Programme Aims statement in Chapter Five, one significant goal of this programme is to foster independent thinking in the creation of innovative approaches to audio-visual storytelling, accomplished across a range of platforms, many of which are freely available. It is not suggested here that freeware be the sole resource base for the proposed programme, merely that already-existing institutional resources can be augmented with publicly available and open source options. It is important that creative practitioners learn to generate creative solutions to complex problems. Often, in the case of moving image, this will involve utilising a range of enabling technologies - from the high-end state-of-the-art to the internet-enabled publicly available. Because tomorrow’s moving image practitioner will need to keep current with the continually evolving development of creative technologies across the continuum of sophistication, a broad-based technical training is an important component of the programme.

Chapter Three

EDUCATION

3.1 The Shifting Educational Landscape

This chapter discusses changes taking place in higher education; changes to the education industry as a whole, as well as changes in teaching and learning approaches, which have a direct impact on evolving pedagogical methods. This is relevant to this research because it is important to understand why an entirely fresh approach to moving image education needs to be adopted. It is not enough to refresh the content of the existing moving image curriculum. To educate tomorrow's students for a rapidly evolving industry, the teaching and learning experience must also adapt to the new landscape – and proactively propose new pathways through which to function actively within it.

While modern technology is transforming every area of society, the fundamental models around which higher education are structured - “brick-and-mortar colleges and universities where progress is marked by time spent in a classroom and is denoted by highly simplified transcripts controlled by the institutions awarding them” (Merisotis, 2016) - have changed very little in the last hundred years. However, many of these models have been called into question amidst global changes in higher education. Over the past decade, numerous reports have been generated that attempt to identify these changes, and that call for a variety of measures to respond to them. Such reports approach the “education crisis” from a variety of viewpoints, and many of them are driven by political and economic agendas (Gildersleeve, Kuntz, Pasque, & Carducci, 2010). That said, within them can still be found worthwhile explorations of the widening disconnect between higher education and the evolving world.

In the 2012 Ernst & Young report University of the Future, a Thousand Year Old Industry on the Cusp of Profound Change, the main drivers of change are encapsulated into five key trends:

1. Democratisation of Knowledge and Access
 - The instant availability of knowledge across the globe, combined with increased international access to Higher Education, results in a deep shift in the role of educational institutions as the gatekeepers of knowledge.
2. Contestability of Markets and Funding
 - Institutions of higher learning are finding themselves in an increasingly competitive environment. Dwindling financial support from governments is increasing the pressure on institutions for funds.

3. Digital Technologies

- Digital technologies are transforming educational delivery models and challenging the value of on-site institutional learning. The report identified three ways in which this is happening: "Bringing the university to the device" (referring to the rise of online learning); "Bringing the device to the university" (addressing the employment of digital technologies in face-to-face, on-campus models of learning); and Blended Learning (which weaves online and face-to-face in a variety of combinations).

4. Global Mobility

- Educational institutions compete globally for enrolments as students increasingly travel far and wide to pursue tertiary options. This increases pressure on the institutions; it also provides opportunities for new transnational partnerships, as well as for wider access to student and academic talent.

5. Integration with Industry

- The trend of change is toward a broadening and deepening of the education's relationship with industry, who is not only a customer and a partner of tertiary education providers but who is increasingly a competitor as well.

The report identifies the need for educational institutions to develop new, leaner business models to remain agile in challenging economic times and to be able to compete for academic staff, for students, for funding and partners.

There is also considerable discussion in this piece around a broad versus a narrow selection of subject offerings. On one hand, the authors suggest that institutions seriously consider their ability to remain competitive by continuing to offer a wide range of programme choices. On the other hand, they also predict that institutions will increasingly "exploit profitable market niches, while others will create new markets and sources of value" (Srivastava, Narayanan, Singh, Gendy, & Yoganya, 2012). (This seeming duality describes a two-tiered approach, and is reflective of the moving image programme proposed in this Thesis, which suggests both a broad survey of available platforms for creating and distributing moving image entertainment and also niche training in the specialisation that most piques the students' interests.)

In the 2013 report, An Avalanche is Coming: Higher Education and the Revolution Ahead, the Institute for Public Policy Research (IPPR) argues that higher education needs to undertake "deep, radical and urgent transformation" if it is to survive such changes as:

- An increasingly "suffering" global economy,
- Higher education costs that are increasing faster than inflation,
- The declining value of a degree,
- Ubiquitous content that is instantaneously available
- Increasing competition for students.

The report's title references a quote from historian Norman Davies, in an interview with Financial Times: "Historical change is like an avalanche. The starting point is a snow-covered mountainside that looks solid. All the changes take place under the surface and are rather invisible. However, something is coming. What is impossible is to say when." (Barber, 2012)

The report outlines how many of the familiar elements of a traditional university are under threat from the coming avalanche. These elements include:

- Outputs, such as Research and Degrees;
- People, including Faculty, Students and Governance and Administration; and
- Programme, i.e. Curriculum, Teaching and Learning, Assessment, and Experience - of both the student and the community around the institution.

The Institute's report suggests that institutions now need to think laterally to take on new approaches and methods lest they get swept under the avalanche of change. Global forces are providing competition to universities, not only from other institutions worldwide but from "the emergence of entirely new models of university which are seeking to exploit the radically changed circumstances that are the result of globalisation and the digital revolution." Two examples of newer varieties of educational models include private online providers and the corporate universities.

Private concerns, such as Coursera (<https://www.coursera.org/>), SkillShare (<https://www.skillshare.com/>) and General Assembly (<https://generalassemb.ly/>) provide highly specialised online learning modules in which students can engage when and where it is practicable for them to do so.

The corporate university model is also giving the traditional institution a run for its money (Akram A. El-Tannir, 2002). Companies - such as Motorola (<http://bit.ly/MotorolaUni>) and MacDonalds (<http://bit.ly/HamburgerUni>) offer (sometimes require) employees (to avail themselves of)

continuous learning independent of traditional qualification regimens. Corporates use this training as a vehicle to keep their workers upskilled in current methods and concepts related to their business, as well as inculcating them into their corporate culture.

In exploring the different avenues down which higher education is now traveling, its expansion into the corporate arena gives one pause to consider the evolving continuum between an education that contributes to the body of world knowledge and an education that generates and maintains productive workers (Gildersleeve, Kuntz, Pasque, & Carducci, 2010).

In the next section, I'll look at current changes in Teaching & Learning with an eye towards ways in which moving image education can re-focus its content and delivery to address a rapidly changing landscape.

3.2 New Directions in Teaching and Learning

3.2.1 Philosophical Approaches to Learning

Over the past three decades, approaches to teaching and learning have been undergoing fundamental transformations in efforts to bring education beyond the lecture-based instruction, that has been dominant for the past century. These newer strategies for curriculum planning, learning design and delivery methods are aimed at the student achieving deeper learning than what the industrial era style lecture format provides (Dede, 2014). They're based on honouring the individuality of the student and on encouraging them to take ownership over their learning. Educators are encouraged to take a student-centred approach to learning, whereby the student constructs an authentic learning journey, often through collaborative problem solving. The lecturer is said to be less the "sage on the stage" and more the "guide on the side" (Armarego, 2009). Learning is seen to be a continuously unfolding process. The lecturer, now often referred to as "facilitator", is not as much there to transmit information into the students' brains as to point them to resources and to marshal the wisdom garnered from the facilitator's experience, so as to provide a guiding perspective on the students' own journey (M. Barber, Donnelly, & Rizvi, 2013; U.S. Dept. of Education, 2016).

3.2.2 Socially Constructed Learning

Rather than being mere vessels into which a lecturer loads information, students are called upon to collaboratively engage in their own self-directed enquiry and to meld their collective findings

with their own prior learning in order to construct their world view (Svinicki, 1999). In the case of moving image education, this process mirrors the types of thinking graduates will likely be encountering in a professional context while working on a collaborative creative team that is developing storytelling media artefacts. In that story is a method of creating meaning and order out of a seemingly disorderly world (Cazden, 1994), an effective way to learn and practice the process of collaborative storytelling (through moving image, in this instance) is through engagement with socially constructed learning activities.

3.2.3 Connectivism

The traditional ("old school") learning theories, Behaviorism, Cognitivism and Constructivism (Svinicki, 1999) have been re-evaluated and brought forward into the information age with the theory of Connectivism. Siemens (2005) argues that Behaviorism, Cognitivism and Constructivism, while articulating different models of how learning occurs, are all based on the assumption that the learning process happens solely inside the learner. However, the exponential speed with which information is now growing in our connected environment (another example of Accelerating Change) necessitates a new understanding of the nature of learning, indeed of knowledge itself, which, Siemens asserts, should be regarded as a networked, shareable asset. The ability to synthesise the increasing abundance of information overshadows the need to hold much of it as primary personal knowledge.

The capacity to form connections between sources of information, and thereby create useful information patterns, is required to learn in our knowledge economy.

Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialised information sets, and the connections that enable us to learn more are more important than our current state of knowing....The pipe is more important than the content within the pipe. Our ability to learn what we need for tomorrow is more important than what we know today....As knowledge continues to grow and evolve, access to what is needed is more important than what the learner currently possesses....Connectivism presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilised. (Siemens, 2005)

Siemens' notion of networked, shareable knowledge is reflected in Jenkins' idea of spreadable culture (2013), which holds that media, particularly that created by the greater user/maker base, is part of a collective body of work that is shared "across and among cultures in ... participatory ...

ways". User/makers create, acquire, remix, and mash up media, availing themselves of content that originates from the collective body of media as much as (or more than) it does from them. Both Jenkins and Siemens have captured the inevitable fusions and syntheses that result from a connected culture that is overflowing with information content. These are the underlying principles with which the programme proposed in this research work is based.

3.2.4 Authentic Learning

Herrington & Herrington (2006) describe an authentic learning environment as one that "reflects the way the knowledge will be used in real life". It is not enough to discuss or illustrate the issues around the subject at hand; students need to engage in realistic problem-solving models within "rich, relevant and real-world contexts". This often involves collaboratively grappling with complex issues in a manner whereby the subject content is deeply embedded in the learning activities; one in which students can explore different facets of a problem from a variety of perspectives. Emphasis is placed on reflection as a collaborative process that enables collective construction of meaning from the activity. Authentic assessment needs to be seamlessly integrated into the learning activity and provide meaningful opportunities for the students to be "effective performers with acquired knowledge and to craft products or performances in collaboration with others".

With the accelerating growth of technology, of information, and of vehicles for communicating story and image, students building skills and savvy in the new information economy will need to develop knowledge in an authentic environment if they are to develop the *internal tools* to stay flexibly adept in a constantly evolving market.

3.2.5 Pedagogical Approaches

There are a few approaches to pedagogy that will prove useful for creating socially constructed, and authentic learning experiences in today's connected environment. This is relevant to the research because these approaches will underpin the delivery philosophy of the proposed programme.

With the variety of eLearning solutions and the growth of technology-enhanced teaching and learning environments, today's students have more opportunity than ever to collaborate with their peers to co-construct knowledge using a range of tools and methods that facilitate deeper learning experiences and interactions. The affordances of enabling technologies provide students with the

ability to access, exchange, and shape information in new ways, empowering them to take responsibility for their learning and skill development. They will evolve into creative practitioners who are flexible and adaptable to an ever-changing environment (M. Barber et al., 2013; Siemens, 2005), who innovate in their fields, and who lead the way into the future of moving image creative practice.

A robust approach to progressive moving image education would utilise strategies that transcend the transmission model of teaching and learning, opting instead toward a flipped classroom approach, and would employ a highly blended integration of online and face-to-face engagement. There is an added layer of appropriateness to using learning technologies to deliver a programme that has moving image technology as one of its core drivers.

Ako

The Māori concept of Ako refers to the two-way relationship between teaching and learning. Ako means both teaching and learning and describes learning as an interaction, a reciprocal relationship in which both facilitator and student can learn from one another. Ako recognises that insight and knowledge can be constructed from shared learning experiences and acknowledges that each participant in a learning environment has unique knowing to bring into the exchange (NZ Ministry of Education, 2009).

Tuakana-Teina

This is a model originating from an older sibling (Tuakana) teaching a younger sibling (Teina). The idea extends to the moving image learning environment where students with greater experience or knowledge can buddy-up with students who are not as far down the track. Linked with the Ako concept, the Tuakana-Teina model recognises that these roles can reverse whenever appropriate, as each learner brings their collage of experience and knowledge to a course (Winitana, 2012).

The proposed programme in this research will embrace Ako and Tuakana-Teina as motivating ideas behind the pedagogy.

3.2.6 Assessment

Evolutions in approaches to teaching and learning have caused re-evaluations in not only assessment methods but also in the very nature and intention of assessment itself, as well as in how assessment affects educational practice (Boud & Falchikov, 2007). The educational research community groups assessment into three basic methods of engagement: *Assessment of Learning*, *Assessment for Learning*, and *Assessment as Learning*. While varying in their philosophical view of the relationship between the student and the learning, they are not entirely mutually exclusive, and individual pedagogical frameworks can utilise combinations of these assessment approaches.

Assessment of Learning (Summative Assessment): Most often found in courses using a transmission model of teaching, summative assessment, an endeavour to measure and certify learning, tends to be conducted as a separate process to the learning activities, and usually occurs once in the middle and once at the end of a module or a term. Standard metrics are applied to students' performance in examinations or submissions, and the students' work is measured against teacher-determined learning outcomes. Shephard (2000) observes that summative assessment is often accompanied by the tacit assumption that the test scores equal the learning gained. Nelson & Dawson (2014) note the inherently stressful nature of most summative assessments and liken it to placing the student on trial. They add: "Though the study leading up to the examination may or may not yield long-term learning, the examination itself is not a learning experience but is solely conceived as proof of learning having taken place" (Nelson & Dawson, 2014, p. 198).

Assessment for Learning (Formative Assessment): Teaching and learning research over the past two decades has acknowledged that assessment has a direct effect on learning itself (Thomson & Falchikov, 1998), and calls for greater integration of assessment with learning activities. Embedding assessment into the learning process, and providing continual (or at least more regular) formative feedback to the students as they continue to build on their insights, is seen as a more progressive step toward providing a deeper and more profound learning experience, especially when the students are included in determining how they will be assessed (Fletcher & Shaw, 2012). Engaging in "self-regulated learning", where students are empowered with setting their learning goals, strategising how they will achieve these goals, and negotiating methods for assessing said goals results in confident, flexible thinkers (Nicol & Macfarlane-Dick, 2006).

Assessment as Learning (Meta-cognition): A growing body of research points to the importance of developing students' meta-cognitive capabilities as a way to facilitate and enhance their engagement in the learning process. The development of critical skills to evaluate one's learning

process through peer and self-assessment has been associated with a deeper level of engagement and a higher rate of academic success (Akyol & Garrison, 2011). Through the self-reflective process, students develop the skills to explain their process of cognition and become first-person participants in their learning journeys. When student peer groups share these processes with one another, firm collaborative foundations are built. Methods for metacognitive assessment vary, but in general, students are assessed on the quality, depth and rigour reflected in their understanding and communication of their learning processes (Akyol & Garrison, 2011; Gibbs & Taylor, 2016; Saraç & Karakelle, 2012; Schraw & Dennison, 1994).

In addition to its empowering benefits for the student, the self-reflective process also allows students to watch themselves grow over the timespan of their studies. This student-centred approach blends assessment into learning and provides more coherence to the entire learning process.

Despite the recognised virtues of Assessment as Learning, it has not been adopted on a wide scale. This slow uptake is partially attributable to a lack of buy-in on the part of academic leadership and delivery staff resulting from resistance to changing established methods of assessment, as well as compromised academic infrastructures for capability development. This development would address support for teaching staff in both implementing new assessment methods and expanding students' perspectives on their new role in the processes of learning and assessment (Volante, 2010).

A new approach to moving image education would need to balance these three different assessment approaches in measures appropriate to the content. For example, in situations where specific technical data is required to accomplish a task, such as photographic exposure compensations, a summative assessment approach would ensure that accurate calculations based on fixed parameters were adhered to. However, the development of capabilities around the formulation of design strategies for problem solving, or of collaborative methods for constructing creative content, would best be assessed meta-cognitively.

There have been many inroads in the use of technologies for assessment. These include using blogs for peer and self-assessment, online collaboration tools, and ePortfolios. JISC (Joint Information Systems Committee) in the UK is one of many valuable resources that offer a wealth of information and tools related to the transformative use of technology for learning and assessment [https://www.jisc.ac.uk/guides/transforming-assessment-and-feedback]. These resources are wholly appropriate for technology learning in a contemporary moving image programme.

3.3 New Learning Environments & Tools

With the acknowledgement that learning is not necessarily a thing that occurs in a conventional classroom with students sitting in rows of desks, comes a relook, and often a redesign, of the learning environment itself to better reflect evolving approaches to teaching and learning. These newer approaches include more open-plan, modular spaces; groups of students sitting around tables, facing one another, not the teacher; technology-enabled areas where student teams can research and construct learning together; breakout spaces for smaller groups, or individuals, to get away from the larger cohort for quieter think sessions.

With the growth of student-centred pedagogies come learning technologies that connect students to the networked body of global information (aka the Internet) and one another. A plethora of collaborative platforms such as Google Drive, Trello, Padlet, Stormboard, etc., allow students to co-construct knowledge through joint projects and then present them to the larger cohort.

Mobile learning affords the student the collaborative potential that their laptops have, with the bonus of anywhere-anytime access to their specific learning content, to the networked body of global information, to their facilitators, and, of course, to one another. As a tool for learning moving image craft, mobile devices are perfect teaching tools for use as visual diaries, for composition and framing practice, and as a shot previsualisation sketchpad. Numerous apps exist to support all aspects of moving image creation.

Mobile moviemaking is a growing force in its own right. Mobiles have shot a handful of theatrical features to date, and mobile moviemaking festivals - which feature short narrative movies, as well as the new version of Video Art – have established a presence around the globe. Students of moving image will require learning around the growing area of mobile content, and possess the appropriate learning technology right in their pockets.

The number of connected platforms – in web and mobile versions – used in a variety of learning contexts is too voluminous to enumerate here. However, students who will be studying moving image skills in the networked environment of today and tomorrow could not be better candidates for the technologies that are enabling connected learning.

3.4 Discussion

Changes are afoot in both the Education Industry as a whole and in approaches to, and methods for, Teaching and Learning in particular. The market for tertiary education is shifting away from the idea of the local university as the trusted provider of expertise in the community. Global competition for students, the accessibility of the world's information 24/7, and the re-invention and re-branding of higher education by private companies are forcing traditional tertiaries to rapidly redefine themselves and their roles. This redefinition, particularly in the polytechnic sector, has brought with it a new imperative to solidify engagement with industry. This has a few aims:

- Industry relevance: Maintaining close ties to industry can assist the institution to ensure its continued educational relevance in a climate of swiftly changing technologies and markets. This has positive effects on the institution's brand;
- Considerations related to Human Resources (personnel): The use of industry professionals to co-deliver content can be a cost-saving measure, allowing the institution to retain fewer tenured academic staff;
- Considerations related to Success and Retention: The promise and delivery of seamless career pathways for graduates reflects positively on an institution's record of student success & retention rates, which translates into continued governmental co-funding and approval;
- Sponsorship: A close relationship with industry (including inviting captains of commerce to sit on institutional advisory boards) opens the door to commercial sponsorship of institutional programmes and initiatives.

All the above considerations have economic drivers at their core. Much of the literature, particularly the commissioned reports, around educating for the Creative Industries relates to education's role as a career training ground. This implies higher-level economically driven imperatives trickling down to the institution's self-perceived mission (and also neo-liberal governments' understanding of higher education's principal function) as being the deliverer of skills to train for careers. This has caused some observers to opine that knowledge-development seems to have taken a back seat to employment-readiness. Gildersleeve, Kuntz, Pasque, & Carducci (2010) see increased educational emphasis on skills as part of "conservative modernisation":

Conservative modernisation shifts the social foundations of education to be primarily economic. Students serve as both consumer and

product, albeit in different forms. One purpose of education is to serve the economic interests of society by producing future workers with what has been named, “twenty-first century skills” to succeed in the knowledge economy of the global marketplace. As such, education becomes a tool for class warfare, premised on a need for students to learn “real knowledge”—the content of which is based solely in a Western European frame of reference.

Ultimately, conservative modernisation serves to undermine certain conceptions of democracy and freedom in education and supplant them with conceptions that serve the ruling classes and their private interests. (p. 89)

Of course, students should still use the tertiary experience to acquire skills that will empower their creative and economic self-sufficiency. Indeed, that is one of the important functions of higher education (Short, 2002). However, the role of the academic institution is also as a cultivator of new knowledge and of critical thought around established knowledge. This must not fall by the wayside in the quest to re-groom higher education in service to economic development.

Perhaps a key to reconciling the two ideas for a new moving image programme orientated to a creative digital economy is consideration of the fact that employers across the spectrum of new media today seek well-rounded individuals who are capable, flexible, *thinking practitioners*; creative technologists who are agile and adaptable and who know how to continually learn and grow. These are qualities that are important not only for employees but for fledgling creative entrepreneurs as well. Graduates who see the big picture and who are comfortable with independent thinking and self-reflection, based on a well of both internal and externally sourced knowledge, will be well armed to create the new culture in an uncertain future. These are the creative practitioners that the programme proposed herein aims to foster.

Chapter Four

The Current State of Film Education

4.1 Survey of Current Film School Offerings

A survey of 63 international tertiary institutions was conducted, analysing the course offerings of 115 Undergraduate and Post-Graduate Programmes that represents 278 qualifications related to film or digital media. The purpose of this survey was to learn how schools are approaching the teaching of moving image. How many schools are still teaching conventional filmmaking methods; how many are integrating new media into their curricula; how many are offering just new media?

The degrees to which the film/digital media programmes integrate an array of specific bodies of knowledge into a moving image curriculum were analysed to address the multi-disciplinary needs of the evolving creative digital economy. As this research is proposing a programme that integrates different knowledge areas (Design, Film, Business, Soft Skills, etc.), the survey also examined how many schools also integrate these knowledge areas into their curricula, and, if so, to what extent and in what combinations.

4.1.1 Methodology

The principal sources for the surveyed schools were lists from CILECT (The International Association of Film and Television Schools: <http://www.cilect.org/>) and IMAGO (The European Federation of Cinematographers: <http://www.imago.org>).

Each school's website was scoured for programmes and qualifications related to moving image. Some institutions were dedicated film schools; others were universities, polytechnics, or design schools with broader offerings that included such moving image-related programmes as Communication & Media, Integrated Media, Motion Media Design, and Visual Effects. Both undergraduate and postgraduate offerings were included, as the intention was to gain the widest possible overview of current moving image offerings.

To quantify (however informally) the total offerings of the sample institutions, the required information was organised in the following way:

The **Knowledge Areas** covered by the programme proposed herein were enumerated.

Those Knowledge Areas were then broken down in detail to understand, with greater granularity, the content areas of each school. These are referred to as the **Schools' Content Areas**.

School's Content Areas data, once gathered, was then organised into broad divisions to place each institution into one of four categories, related to content and method, called the **Film Teaching Types**.

From the totals of the Film Teaching Types, a simple analysis was attained related to how many institutions are teaching what mixture of moving image (and related) skills.

The plan, simplified:

- Six **Knowledge Areas** of the programme proposed in Chapter Five
 - To better study the schools' offerings, these Six Knowledge Areas were broken down into the...
- Sixteen **Schools' Content Areas** (i.e. – what they teach)
 - Once the Schools' Content areas were ascertained, each school is then grouped into one of the...
- Four **Film-Teaching Types**.
 - This was a way of grouping the schools by their method and content related to old/new moving image skills.

The same plan, in a little more depth:

4.1.2 Knowledge Areas

These are the Six **Knowledge Areas** that will be offered by the programme proposed in Chapter Five of this Thesis: They include historical and theoretical understandings of, and practical, hands-on experience with:

1. Basic Design skills;
2. The convergence of Art and Technology;
3. The art and practice of Film Making;
4. New Digital Media skills (e.g. Basic Coding, Game Development, AR, VR, Mixed Reality, Website and Mobile App Development, etc.);

5. Basic Business skills (including the fundamentals of financing as well as capabilities for developing entrepreneurial skills within the context of newer business models that have emerged in creative digital economies); along with
6. A Professional Practice component (which includes such areas as collaboration, presentation, developing and promoting one's online brand, networking, soft skills, etc.).

4.1.3 Schools' Content Areas

Each set of course offerings from the institutions surveyed were mapped against an extended list of the various content areas that this Thesis is proposing to integrate into a hybrid moving image programme. "Extended" because while there are six Knowledge Areas mentioned above, this **Schools Content Areas** list (coloured squares on the chart in Appendix A) refines them into the following sixteen areas:

1. **New Media Technologies** – such as Augmented Reality and Virtual Reality;
2. **Web/Mobile/Social Media** – conversance with and content development for online platforms;
3. **Mobile Moviemaking** – the art and practice of creating narrative and video art with mobile devices, particularly smartphones;
4. **Animation and Visual Effects** (VFX);
5. **Game/Interactive Media** – content design and development;
6. **Digital Art** – any of the static arts (including illustration, photography, etc.), multi-media, the use of digital technology per se for creative innovation;
7. **Art/Design/Creativity/Performance** – Art Studies (history, techniques of various media); principles & elements of design; study of and development of creativity; performing arts (theatre, dance, music, performance art);
8. **New Media Story Challenges** – course content that relates to the inherent storytelling challenges presented by new technologies (e.g. – how does cinematic language translate into the VR world?);
9. **Trans/Cross/Multi-Media** - any combined, hybrid or integrated media projects;

10. **Programming/Coding** – “under-the-hood” computing knowledge;
11. **UX** – User Experience Design or User Experience Analysis;
12. **Grading/Post-Correction** – stylistic grading; colour correction for image consistency;
13. **Professional Practice** – project management; presentation skills; networking skills; collaborative group dynamics; ethical issues; copyright and IP; appropriate comportment (on a film crew, in a meeting room, etc.); academic literacies; self-management; negotiation; other soft skills, etc.
14. **Conventional Business** – basic business skills; how the entertainment business works; producing for moving image; management; marketing; accounting; etc.;
15. **New Business Models** – newer business structures (e.g. Collaborative Collectives; working at home on an international team); newer funding models (e.g. crowdfunding, etc.);
16. **New Career Concepts** – being an independent agent artist with an online practice; business innovation; portfolio careers; Creative Trident-related content; creative practice in the Long Tail, etc.

4.1.4 Film-Teaching Types

Based on the data gathered related to specific course offerings, graduate outcomes, possible post-academic career pathways and educational philosophies, each programme was assigned to one of four broad categories. Here are the categories explained, followed by the number of occurrences and the percentages of prevalence found in the survey, rounded up to full percentage points. These figures were derived from the 115 Programmes surveyed:

1. Conventional Moviemaking Approach (27 occurrences - 23%): These are the programmes whose film tuition is based on time-tested cinematic narrative approaches; legacy cinema workflow models; and the traditional hierarchy of above-the-line leadership and below-the-line crew positions. These schools impart skill sets in the familiar film roles, which include variations of Screenwriting, Directing, Production, Camera, Lighting, Sound and Editing. The skills training centres around a traditionally structured film crew, and the outputs were largely focused on cinema or television screens.

Examples of programmes that deliver a conventional approach to moviemaking include MFA's in Cinematography, Directing, Editing, Producing, Production Design and Screenwriting at the *American Film Institute Conservatory* in Los Angeles; the BFA in Film and Video and the MFA Programme in Film at *City College of New York*; the professional qualification offered by the Department of Cinema Studies at *Japan Institute of the Moving Image* in Tokyo; and the professional qualification offered by the School of Cinema and Television at the *Rome Film Academy*.

2. Conventional + (54 occurrences - 47%): These were the programmes which add varying degrees of contemporary approaches or techniques on top of the conventional filmmaking methods that are at the centre of their training. Some of these programmes have progressive approaches to integrating the additional topic areas or skill sets, but still largely rely on time-tested film traditions and assumptions relating to visual storytelling capabilities needed for the future.

Specific combinations of course offerings were as varied as the sample's population. Examples include the six Bachelors and eight Masters degrees at *Art Institute of Broadcast* in Louvain-la-Neuve, Belgium, who add web design and development, multi-media and animation to their moving image programmes; the MA in Filmmaking at *Goldsmiths University* in London, whose approach to filmmaking addresses the transferrable skills it affords to web drama, video games, art gallery installations, interactive mixed media and live performance, and music videos; and the Bachelor of Film and Television at *Wits School of the Arts* in Johannesburg, South Africa, who adds animation, digital art and a course in creative arts management to its moving image options.

3. Cross-Disciplinary Approach (26 occurrences - 23%): These are programmes that value the integration of skills and knowledge in ways that address a more integrated creative practice, and which - to varying degrees - are aimed at cultivating the t-shaped person (with a breadth of knowledge across different specialist areas and with a depth of knowledge in one specialist area). While these programmes offer courses that reach across specialisation boundaries, they tend to do so within relatively narrow discipline streams. In almost all cases, the variety of specialisations offered all fall within one department of the institution. This can be seen to provide different facets of one gem, as opposed to offering an array of different gems, each with many facets, and all of which together add up to an integrated practitioner. This limitation to departmental "silos" has its roots in the

way an institution funds its different discipline areas based on student numbers. In most New Zealand higher education institutions, a department is funded based on its EFTS (equivalent full-time students), and a move is on at some institutions for "global EFTS", which would lodge all tuition fees into a single pot. The EFTS limitation prohibits full flexibility for a student to receive a truly integrated education.

Cross-Disciplinary examples include the MFA in Integrated Media Arts at *Hunter College* in New York, who offer courses in Web Documentary, Animation, "Advanced Interactive Expression", "Hypertexts and Cross Media Narrative", "Cultural Activism", and "Site-Responsive Narrative Media". At *The National Film and Television Institute of Ghana*, in Accra, students can take courses from the more conventional "Film Artistic" and "Film Techniques" tracks, and also from the "Multimedia Production" track, which includes Digital Imaging and Photography; Typography, Layout and Electronic Pre-Press; Video Production and Sound Design; Animation and Visual Effects; and Interactive Media Design.

4. Inter-Departmental Options (8 occurrences - 7%): In these instances, students can assemble a pathway from different departments within their institution. Examples are described in Section 4.2.2 below. While the Inter-Departmental examples in the survey come the closest to the inter-disciplinary programme proposed herein, they do not incorporate the full range of disciplines that this research has found to be important for tomorrow's moving image practitioner to integrate and synthesise. These current pathways are based on skills for *doing*, with very little apparent attention paid to the skills for *being* that this research has identified as vital the practitioner to thrive in today's dynamic climate.

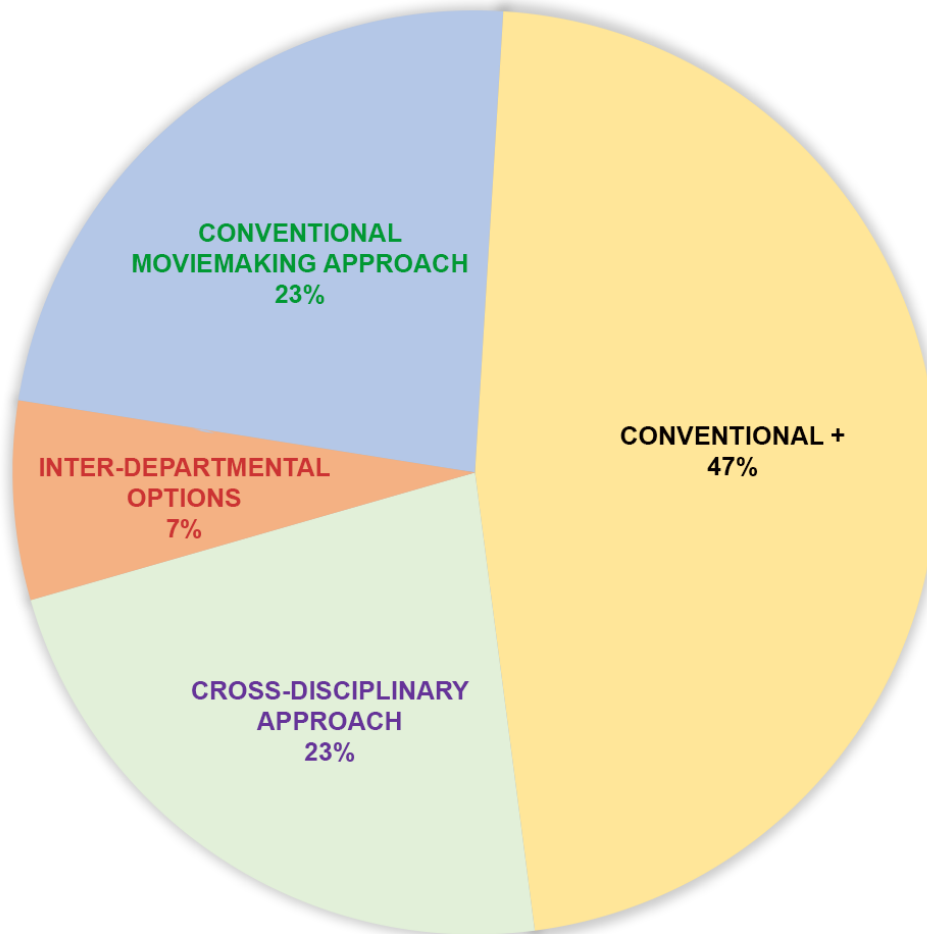


Figure 1 - Moving Image Education Survey: "Film Teaching Types"

4.2 Findings

4.2.1 Conventional and Conventional +

Of the 63 institutions informally surveyed, 23% (Conventional) are still adopting a traditional approach to filmmaking as a discrete craft, while 47% (Conventional +) have broadened their scope somewhat to also teach additional platforms. In many instances, these platforms (e.g. web design, gaming, VR, etc.) are add-ons to conventional filmmaking teaching. Some of these institutions, however, offer full pathways centred on the secondary platforms, but these discrete high-tech pathways are offered as an alternative to, and therefore, separate from, filmmaking.

While there are indications of Higher Education's curricular expansion beyond the teaching of conventional film skills, it is worth noting that 70% of those institutions surveyed still base their moving image programmes around variations of the legacy approaches to content acquisition, manipulation and delivery. Specialisations are siloed within departments, the curriculum is focused on the familiar output formats (cinema, television and now the Web) and there is little cross-pollination with other creative disciplines. Many students entering into a moving image creative practice in the next few years will likely be underserved by a film education based solely on legacy structures. In the networked creative digital economy, practitioners often need to marshal cross-disciplinary strategies to flexibly respond to the often multi-layered creative demands of the evolving market.

4.2.2 Cross-Disciplinary Approach and Inter-Departmental Options

In the Cross-Disciplinary arena, 23% of the Film Teaching Type groupings offer courses across a range of topics. Some include digital technology along with arts-based training; others also include a Professional Practice component, such as collaborative practice and research, project management, leadership, etc. There is a variety of combinations of the 16 Schools' Content Areas (see above) throughout the Cross-Disciplinary range, each prioritising a different blend of specialisations as important skills for tomorrow's practitioners to have.

The programmes that offer Inter-Departmental Options, comprising 7% of the sample, represent only four institutions. These schools have bravely addressed the complex administrative and budgetary issues involved in offering pathways that enable students to attend courses housed in departments outside of the one offering moving image. Here is a short description of these four institutions' pathways:

- At the Arizona State University's Herberger Institute for Design and the Arts in Tempe, Arizona, USA, the Bachelor of Arts Digital Culture runs a mix of courses from the Departments of Anthropology, Architecture, Art, Computer Science & Engineering, Dance, Electrical Engineering, English, Interdisciplinary Arts and Performance, Journalism and Mass Communication, Music, Psychology, Teacher's College, and Theatre & Film. Not every concentration (a.k.a. pathway) within the degree offers courses from the above list. Rather, these departments feed appropriately into the Design, Music, Art, Theatre, Film, and Arts & Design Studies concentrations. Their stated aim is to enable students to create highly flexible degrees, "where you get to design your own experience tailored to your creative and digital interests and aspirations."

-
- Students at Auckland University of Technology can enrol in the Bachelor of Business and Bachelor of Communication Studies Conjoint Degree where they can “develop a thorough understanding of core business disciplines as well as knowledge of the media and communication industries, advertising, creative industries, digital media, journalism public relations, radio or television.” Here, students choose a major within each department and study them simultaneously. Different from a double degree, this scheme enables students to earn two degrees within one programme of study. As the two departments are set up to work together on this conjoint programme, students can avail themselves of the synergies that occur between the two fields of study.
 - The Integrative Design, Arts & Technology Network (IDeATe) at Carnegie-Mellon University in Pittsburgh, Pennsylvania, USA, is also a highly integrated series of programmes, offering a number of qualifications from across the University. IDeATe offers degrees such as the Master of Integrated Innovation (a joint effort of the College of Engineering, the School of Design and the School of Business) and the Bachelor of Computer Science and Arts (a collaboration of the School of Computer Science and the College of Fine Arts, which includes Architecture, Art, Design, Drama and Music).
 - The MA in Creative & Cultural Entrepreneurship: Media & Communications Pathway at Goldsmiths University of London includes a Creative Practice module that features sub-modules from the Departments of Computing, Design, Fashion, Media & Communications, and Music.

Thirty percent of the surveyed institutions integrate varying amounts of other creative, technological and business-related content. Both the Cross-Disciplinary and the Inter-Departmental approaches better address the current need for multi-skilled creative practitioners than do the two Conventional modes. The structural difference between Cross-Disciplinary and Inter-Departmental, however, suggests a variation in depth and scope of content delivery. Each discipline (e.g. Film, Design, Fine Arts, Business, etc.) has its own unique set of operating principles around how the world works, around what constitutes a problem, and around what questions to ask to find a path toward solving those discipline-defined problems. When students can immerse themselves in learning content that arises out of a different discipline than their own, they have the opportunity to also immerse themselves in the culture of the discipline. This adds a breadth of perspective to their practice. It is encouraging that many institutions are adopting a cross-disciplinary approach to moving image education. However, a variety of disciplines all offered within the safe purview of a single department runs the risk of an insularity that is counter to the broad scope into which the connected creative digital landscape is continuing to expand.

4.3 What's Missing – Where Moving Image Education Needs to Head

Noticeably absent from Twenty-First-Century moving image education is a programme that brings together the full breadth of knowledge, skills and capabilities essential to foster a fully-integrated creative practitioner; fully integrated in the sense of 'know-how', 'know why' and 'know who'. As can be seen from an examination of the course offerings detailed in Appendix A (Moving Image Education Survey), many institutions offer some combinations of this content. Nevertheless, what is called for here is a full complement of the subject areas required to develop and maintain a portfolio career in the Creative Industries. These include:

- Art & Design
 - Drawing, Painting, Illustration, Graphic Design, CAD, and other hard skills
 - Contextualisation of Art through history and analysis
 - Study and practice of the Principles and Elements of Design
 - Design approaches to practical problem-solving
- Business/Entrepreneurialism
 - Fundamental understanding of basic business law (locality dependent)
 - Basic business and self-promotion skills needed to be an independent-agent artist with an income-producing creative practice
 - Understanding the elements of entrepreneurialism; what it takes to convert an idea into an enterprise
 - Knowledge of new funding models sufficient to finance creative projects
- Soft Skills
 - Communication, collaborative abilities, problem-solving, adaptability, etc.
- Traditional Film Conventions
 - Cinematic storytelling
- Film financing and distribution
 - Film history, theory and criticism (in a measured amount)
 - Technical craft and artistry behind film creation
 - Production
 - Storyboarding
 - Camera
 - Sound
 - Editing
 - VFX
- New Communication Tools and Models
 - Web-based

-
- AR
 - VR
 - Mixed Reality
 - New approaches to Story
 - Greater viewer choice
 - New cinematic language for VR
 - Lightfield focus choice
 - Gaming
 - Game studies
 - Game design and development
 - Mobile, incl.
 - Geolocate layer to interactive story
 - Mobile moviemaking
 - Apps
 - Conversance with
 - Development of
 - Emerging technologies and enabling platforms
 - Tilt Brush
 - Photogrammetry
 - Reality Browser
 - Broader Perspective
 - Effects of emerging technologies
 - On culture
 - On creative practice

4.4 Discussion

The qualitative survey discussed above is admittedly limited in scope, as it is based wholly on the information provided within the websites of these 63 institutions, most of which supply detailed information about their courses and some of which supply just enough to garner a reasonable impression. Deeper research will need to include interviews with the academic leadership of these providers, along with as much access as they will grant to their programme and course documents. Nevertheless, this is an introductory effort to define the general terrain of film and digital media programme offerings internationally.

In order to foster the kind of practitioner who will be able to flexibly navigate a mutable environment, maintain a sustainable creative practice, and provide creative leadership in the

specialisation of their preference, an institution of higher learning needs to be able to deliver a multi-faceted programme that provides foundational skills in certain required areas, yet remains customisable in its specialist focus. This will require an element of baked-in administrative flexibility for adopting institutions, most of who are still driven by their current department (college/faculty)-focused structures. It will also require a degree of shared vision and a commitment to relooking at the changing needs of today's student. In the following chapter, a suggestion will be offered for the types and nature of content that needs to be covered to address these changing needs, and a structure will be proposed within which to contextualise this broader array of content.

Chapter Five

A Way Forward

5.1 Introduction

This chapter begins with a brief exploration of a few key elements underpinning the new career culture into which graduates will be stepping. A tertiary programme will then be proposed that enables students to learn moving image in a way that addresses the realities of today's changing landscape and that prepares them to become and remain flexible and adaptable creative practitioners in an ever evolving marketplace.

Throughout this chapter, I will intersperse excerpts from two interviews I conducted with industry experts Helen Baxter and Keiko Bang.

Helen Baxter was chosen as an interviewee for this research because of her knowledge, experience, and perspective on independent creative entrepreneurship and the future of content. (See Appendix C for Biography and Transcription of Interview.)

Keiko Bang was chosen for this research because of her knowledge, experience, and perspective on bringing creative digital content to large audiences, and for her commitment to the blending of art and technology. (See Appendix D for Biography and Transcription of Interview.)

The selection of the two interviewees encompasses a continuum of scope between independent artist and international organisation. While there are intersections of interest, opinion and knowledge areas between them, they each approach creative digital content from different vantage points and experience bases. Each provides differently shaded responses to the research questions guiding this work.

5.2 The Backdrop

5.2.1 New Career Pathways

In addition to finding employment in existing businesses, a large percentage of creative graduates are creating their own opportunities by working as sole traders or in micro-businesses that tend to change the nature of their output frequently, adapting to the changing needs of the market and to

the vagaries of creative popularity. Thus, adaptability is considered a key competency of today's new media graduate (Bakhshi et al., 2013).

These developments now provide a new set of career pathways for the new media practitioner, including authoring, design, software development, digital content, publishing, packaging, and marketing. This expansion of career pathways has also necessitated a new set of competencies required of them. Among them are technical knowledge across a range of media; a functional understanding of new markets, such as the internet and its ancillary platforms; the development of business administration abilities, including project management; and a basic understanding of business law. Each of these knowledge areas has an important part to play in any curriculum that feeds the Creative Industries (Meitzner & Kamprath, 2013).

5.2.2 Portfolio Careers

Many creative graduates are forging "Portfolio Careers", which piece together a variety of creative and non-creative jobs, including project-based work and self-employment ventures (Bridgstock et al., 2015), as they learn to adopt a "multi-tracking approach to working" (Ball, Pollard, & Stanley, 2010). This shift has given rise to the notion of T-shaped skills, involving a breadth of knowledge across the various disciplines that inform a creative area (the horizontal part of the T), and a depth of specialist knowledge in one particular area (the vertical part) (Hansen, 2010). According to the Manifesto for the Creative Economy, "in this intensely multi-disciplinary environment, professionals with the right fusion of creative and technical knowledge and skills are at a high premium" (Bakhshi et al., 2013).

Helen Baxter elucidates on the T-shaped person, and describes how her animation company welcomed an applicant who demonstrated T-shaped skills:

So you need to have that broad top of the T to understand all of the different roles in your industry. It's important to understand what people do and how it all fits together. It's important to have one stroke, which is your area of core competency, and one thing that you are best at. Then over time, you get to my age and it becomes a cone, it's no longer a T because you have all of these, you have had time to go deeper into these different areas. [...] What we look for when we have a new crew coming in is what we call *specialist generalists*. People who very much have [...] a skill that they are coming to us with - so, as an illustrator primarily, or an animator. However, it's really useful to have illustrators who have got print experience but also understand about storyboarding because the two halves of the data driven storytelling, the static info graphics and also the linear animation, the linear

storytelling. What we look for is people who actually have multiple interests, so a case in point would be, a young guy who has just joined the crew recently. He had a brilliant approach. He had illustrated his C.V. So immediately my attention was hooked, I liked the way he presented himself, it was in a creative, playful way that also showed his graphic design skills and his comic book layout skills. So it was an immersive approach. What really appealed [...] was his wide range of interests. He works in the props house, he acts and performs, he draws, he makes his own content, and he works with kids teaching animation. He's perfect for us because the skills that he was bringing in perfectly matched the need that we have now. Look, we don't know what we are going to need down the line, because we are already starting to work on our own content, and starting to create our own stories. And we don't really know what the format is going to take, but I know that he has not only the broad range of interests and the broad skill set, but he's got the attitude of, 'hey I'll give that a go! I may not know much about it but I know how to learn.' This is the thing about this lifelong learning approach, [...] that just in time knowledge. Being comfortable with saying, 'hey that's interesting! I don't know much about that right now but I know how to find out more'. (Baxter, personal communication 5 April, 2016)

5.2.3 The Creative Trident

In the process of mapping employment in the creative workforce, Higgs & Cunningham (2008) identified three distinct "occupational situations" within which cultural sector jobs occur. These are:

1. Creative occupations *within* the core creative industries, which they call "**Specialist Creatives**";
2. Non-creative occupations within the creative industries, which they refer to as "**Support Workers**" (business and managerial occupations, for example, such as running a small arts festival); and
3. Creative occupations *outside* of the creative industries, which they call "**Embedded Creatives**" (one example could involve creating instructional videos for a large pipe manufacturer).

Based on analysis of the job distribution data from amongst these three segments within the Australian economy at the time of the study, between the Specialist and the Embedded creative jobs, the majority of work falls in the Embedded category. There are more people working in

creative occupations outside of specifically creative industries than there are people working in creative occupations inside the creative industries. In that the creative industries are built largely around providing *entertainment* product, it follows that those businesses outside of the creative industries, engaged in other sectors of the economy, use creatives to generate material that is more *informational* in nature. This signals great possibilities for moving image-makers to find and/or create opportunities for themselves as the need for information presented visually increases (see next section).

5.2.4 Post Literacy

Another facet of the backdrop supporting a new approach to moving image education is the notion that global culture is moving beyond text, and that visual media will increasingly replace information that is now written (Au-Yong-Oliveira & Ferreira, 2014; M. Brown, 2016; Hempel, 2014; Ridley, 2009; Tranter, 2012). The study of Post Literacy does not hold this perceived phenomenon to be an altogether bad thing. According to Ridley (2012), “While the prospect of the end of literacy is disturbing for many, it will not be a decline into some new Dark Age but rather the beginning of an era of advanced human capability and connection. The post-literate world is to be welcomed not feared. Of course, getting there could be a bit disruptive.”

This idea suggests a groundswell of moving image opportunities for Embedded Creatives, as, if the predictions of the Post-Literacy thinkers come to pass, the popularity of video instructional material (for example) could increase exponentially. The through-line of Post-Literacy thought is that image is moving into primacy as the currency of information dissemination. It follows, therefore, that moving image will take on an increased level of prominence.

One has only to look at the raft of instructional videos uploaded by user/makers to YouTube. Could this be the seeds of a new industry where entrepreneurial tutorial sites, such as www.videocopilot.net, sit alongside more formal video instruction components (Brinkman, Buil, Cullen, Gobits, & Van Nes, 2001; Hoffman et al., 2011)?

5.2.5 New Capabilities for a New World

As media and audiences continue to shift, humanity is undergoing a sea change in the ways we look at and engage with content. Traditional models of creation and distribution are disrupted.

User/makers are bringing a cornucopia of both traditional and twenty-first century skills and knowledge to bear on the new media landscape.

Companies hiring new talent today tend to be looking more for capabilities such as initiative, creative problem-solving, collaborative skills, story and design skills, and the ability to learn quickly (Hart Research Associates, 2013). Helen Baxter likens the new creative practitioner to a Renaissance Person:

I gave this speech, ten years ago now, at an education conference. And it was all about renaissance 2.0 and how we needed to train the 'New Leonardos' as I call them, for jobs that haven't been invented yet. And the answer is you can't, but what you can do is to teach them how to learn and how to keep learning. [...] No one comes out fully formed from university anymore; you can't because things are changing so fast. But what you can teach them is the attitude to giving it a go, and the fact that there is this massive amount of education and data. (Baxter, personal communication 5 April, 2016)

Embedded in "giving it a go" is a set of capabilities for how to accomplish what one envisions. These capabilities fall under the awning of Design. Design is the bridge between imagination and manifestation (Ross, 1904) and involves a process of visualisation, analysis, synthesis, experimentation, reflection, and reiteration commonly referred to as Design Thinking (Razzouk & Shute, 2012). According to Labarre (2016), "Design has matured from a largely stylistic endeavor to a field tasked with solving thorny technological and social problems, an evolution that will accelerate as companies enlist designers for increasingly complex opportunities..." Hence, the connection between Design and Technology is becoming increasingly relevant.

The rapidly evolving arena of digital content creation is operating under new paradigms, and the successful fledgling creative practitioner needs to demonstrate a far greater range of capabilities than the twentieth century creative or technician.

5.3 Setting the Stage

5.3.1 Programme Overview

This is a proposal for a new programme, which blends a variety of disciplines that are currently taught in different departments within most tertiary institutions. These disciplines include Film & TV, Art & Design, Business, Communications, and Computing. This programme calls for a

crossover of teaching between these departments with the aim of fostering the moving image storytellers of tomorrow.

In the new landscape, there are many connecting lines between disciplines that tie together previously discrete fields. These connections call for a lateral approach toward integrating the once-separate studies into new synergistic topic areas. Three examples:

- There is a rich history of the blending of Art and Technology, a convergence which has never been more widespread as it is today. There are hundreds of examples of the use of emerging digital platforms as media for creative expression.
- The Business world is increasingly embracing Story as a key tool for communicating with employees as well as with current and prospective clients. The Brand Story is an integral part of today's marketing campaign.
- Design pervades most discipline areas, and is a key capability in web and app development as well as in moviemaking and marketing (skills in which this research suggests tomorrow's creative practitioner would be wise to develop conversance).

The programme, here dubbed the Bachelor of Creative Futures in Hybrid Media (BCFHM), is a scaffolded series of experiential learning workshops in which students solve progressively complex problems in a discipline-integrated structured-play environment. The programme's learning content is grouped into five over-arching Theme Areas: Context, Craft, Content, Connectivity, and Career. They address the different angles of approach to the destination of becoming an integrated moving image practitioner. They can be understood as different sections of a house.

Context

In order to empower tomorrow's student with not only the hard and soft skills but also the inner drive to engage with culture on a meaningful level, it's important to imbue them with some sense of themselves within a broader context. Knowing where we have been as a culture will vitally inform all journeys on the road ahead. "Context" is the Foundation.

Craft

This Theme Area arms the student with a broad palette of creative tools to manifest their creative vision. "Craft" is the Structure.

Content

The budding creative moving image practitioner needs to devote a portion of their study toward understanding and developing conversance with the substance, the material, the message underlying their communication. “Content” is the Furniture, Fixtures and Artwork.

Connectivity

The creative digital economy is enabled by the instant and far-reaching flow of information in any number of directions through a variety of pipes. We are a connected culture. It is often this connectivity that is the impetus for creative innovation. “Connectivity” is the Telephone.

Career

At the end of the day, the graduate will need to go beyond the sheer love of communicating with creative technology, and use their skill sets and capabilities to sustain themselves. But achieving the creativity/career balance utilises a set of muscles that need to be developed. Learning to identify and plug into networks of opportunity is a skill set in and of itself. This Theme Area focuses on connecting to the power grid of the creative cultural economy. “Career” is the Electricity.

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The next two sections contain the Programme Aims and the Graduate Outcomes of the BCFHM. They are based largely on the findings of, and discussions around, the research in the previous chapters. The Programme Aims and Graduate Outcomes are the conceptual starting point for any higher education programme in New Zealand, and are tantamount to the programme's manifesto. Before beginning to lay out the structure and content of the BCFHM, its guiding philosophy needed to be clarified first. These Aims and Outcomes are written in a manner as would be found in the BCFHM Definitive Programme Document.

5.3.2 Programme Aims

Utilising both taught and project components in a collaborative learning environment, the Bachelor of Creative Futures in Hybrid Media aims to foster independent thinking and the creation of innovative approaches to audio-visual storytelling across a variety of static, performative and moving image platforms. The qualification aims to meet the contemporary demands of industries

that require capable, flexible practitioners who can collaborate across a range of disciplines, adapt to a dynamic technological environment, and generate creative solutions to complex problems.

The qualification is designed for learners who are interested in developing capabilities in the technological, business, and creative aspects of the digital creative industries. The BCFHM is designed to provide a body of knowledge and learning experiences that promote a broad technical skill set in addition to specialised knowledge in relation to innovation in the areas of new media, design and business.

This programme combines creative activity in an interdisciplinary context with enabling technologies. It provides a stimulating and supportive environment for collaborative learning, bringing together students from a range of discipline backgrounds and experiences, and providing an understanding of the interdependency of technology and creativity in the current market. The programme of study enhances students' technical and creative ability and prepares them to enter or progress in a professional career in the creative digital content industries or to begin postgraduate study.

The programme is an introduction to a body of knowledge enabling creativity and innovation, introducing concepts of design, story and narrative, technology and professional practice. These core concepts are progressively enhanced in multiple situations and from multiple perspectives.

5.3.3 Graduate Outcomes

The programme will produce graduates who are able to:

- Work professionally across and within specialisations in technology, business and the creative arts;
- Work productively and collaboratively with a diverse range of people, across functional and disciplinary boundaries, within changing creative, technological and business environments;
- Incorporate a working understanding of the skills of storytelling and design across a range of media as a way to engage an audience, communicate complex problems and monetise a project and its associated intellectual property;
- Demonstrate knowledge of current technology, and awareness of the implications and changing contexts of technological advancement for a range of creative entrepreneurial applications;

- Employ innovative thinking in the construction and application of business models to suit a range of entrepreneurially creative endeavours;
- Self-assess and critically reflect on their own work and the work of others in order to provide creative practical results;
- Display inquiring, flexible, creative and critical approaches towards existing and emerging issues and underlying theoretical concepts in the context of creativity and innovation;
- Apply well-developed specialist entrepreneurial skills in their chosen industry;
- Create user-centred solutions using applicable theories, concepts and technologies for a range of audiences;
- Present persuasive arguments, information, and analyses in a variety of media forms for clients and diverse audiences;
- Incorporate new ideas and concepts in analysis and problem solving, showing the capacity to pursue further learning;
- Apply specialist technical knowledge to generate and deliver creative digital content successfully to the benefit of their chosen industry;
- Identify opportunities in the rapidly changing new media environment;
- Employ conventional cinematic storytelling techniques across a range of traditional and emerging media.

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5.3.4 Graduate Capabilities and Output Examples

The graduate should be able to develop and manage a sustainable creative practice that employs multiple streams of activity and income. Capabilities might include:

1. Being a productive member of a creative team within a commercial structure (for short-term income); and/or
2. Starting and running a small business as an independent contractor (for short and medium-term income); and/or
3. Developing a startup (either individually or in teams) based on an original idea, for which they have the capability to generate funding (for medium-long-term prospects); and/or

4. Conduct a creative practice, the output of which is offered through the freemium model. A bulk of the initial work is offered free. Once a fan base is developed, higher quality premium work can be charged for on either a piece-by-piece or a subscription basis.
5. Proactively communicate with corporations and communities, forming bridges between them through creative projects that benefit all concerned. Graduates would formulate, organise, procure funding and publicity for, and produce these projects.

The following examples illustrate what the above general graduate abilities/income stream types might look like:

1. It could include being a member of a film crew or being part of a small ad agency, software or game development team, or content production company. In the Creative Trident (CT), this fits into Creative Jobs in the Creative Industries.
2. It might involve creating static or moving digital assets for an outfit who outsources their work; shooting and editing videos for non-creative industries businesses; or being a hired-gun code writer for a development firm on a deadline.
3. The possibilities here are virtually limitless, but all involve identifying a need in the market and generating fresh IP that is a mashup of two or more technologies.
 - One example is a small light field camera (Archambault, 2015; Nolf, 2012) that clips on to a shirt, blouse or jacket pocket and is constantly capturing the user's life, sending a steady video stream to a cloud-based server, organised by four-hour chapters. When the user was having an experience they want to preserve, they would push a small button on the device, signalling the server to keep that segment aside. The rest would be archived for a set time (say two weeks), then discarded. The user would periodically go through these saved chapters, culling the best moments. This would constitute the video diary of their life. No longer constrained to photos in albums or thousands of digital files to wade through, the user would have a customisable (by virtue of the flexibility afforded by the light field camera) record of their life's peak moments. Naturally, there are issues - such as bandwidth, storage, and privacy - that would need to be resolved. However, this is one of hundreds of ideas

that my students generated in a course I taught related to mashup IP generation.

4. An episodic short drama series in which the free content is in 360° video and the premium content is in interactive VR.
5. A street muralist, a poet, a choreographer, a DJ and a technologist might team up with a director of photography to create live performance events where the street murals contain augmented reality triggers to enable live and virtual performers (poets and dancers) to interact with the audience. Such packages can be monetised for corporate communications or used for community involvement (such as youth education, inner-city clean up drives or campaigns to promote environmental awareness or climate change-related activations), funded by local municipalities, private foundation grants or through corporate sponsorship.

5.3.5 Teaching and Learning Approach

The delivery structure of the BCFHM is not organised in the familiar manner of specialist courses that focus on one set of discipline-based skills. Rather than prioritising the delivery of content, much of the practical learning is focused on arenas of capability; carefully created environments in which students are allowed to explore and interrogate through making and doing. The intention is to provide context-driven opportunities for the student to achieve “flow” (Csikszentmihalyi, 2014). Focusing on the “why” before facilitating the “how” will underpin the learning experience with greater meaning and significance (Wesch, 2009).

As the landscape for making and consuming creative content has evolved, so also must the methods by which the new entrants into the creative digital economy learn their crafts. If they are to survive in the swift current of content and technological evolution, a fresher, more appropriate approach needs to be adopted for learners to both flexibly adapt and to innovate, in order to carve a niche for themselves in this increasingly crowded market. New models for teaching and learning which focus more on the student journey - and less on the imparting of content - need to be employed. The philosophies that come out of the newer educational paradigms focus on developing initiative and self-direction, as well as on creative problem solving.

Interrogation of creative/technical provocations through co-creative group project work, utilising blended learning models inside technology-enabled collaborative learning spaces, are key to providing tomorrow's creative media practitioner with an optimal environment for growth.

Theme Areas (see below) will include instruction and experimentation from across discipline boundaries, focusing instead on project challenges. Students will thus form cerebral links between types of thinking, with the aim of viewing and approaching moving image projects in fresh, innovative ways.

5.3.6 Sample Session

Theory is interlaced with practice in extended integrated sessions built around Topic Areas (rather than shorter classes built around single subjects). One Topic Area might be more Craft-heavy; another might be more Context-heavy, Content-heavy, etc.

Each session within the programme is led by a coordinating lecturer (who specialises in a given topic), and many sessions are periodically joined by other lecturers (who specialise in other topics), as well as by industry professionals who will assist in workshopping the students around a shared challenge.

To illustrate, here is an example of how a Topic Area might be covered. One particularly Craft-heavy Topic Area is Frame Movement; both movement of the camera and movement of compositional elements within a film frame (e.g. shifting actors, blowing leaves, movement of light, etc.). First, the Contextualist will lead an exploration of camera and in-frame movement throughout film history – through viewings and workshopped discussion - examining the semiotic value of said movement within the context of each film. Then, on to the Craft section, where students will workshop creating both camera movement and movement within the frame, facilitated by the Camera lecturer. In this section students learn technique, then, in teams, they plan and shoot scenes that feature Frame Movement. This is followed by review (by screening the playbacks) and reflection of these moves. This is a roundtable critique facilitated by both the Camera lecturer and the Contextualist, where students explore their successes as well as ways in which they need to improve – both technically and creatively.

The students then construct a second scene, again involving Frame Movement, but incorporating revisions based on what they'd just discussed. Finally, the Contextualist returns for a critique of those moves, followed by a second student reflection session. Both the first and second reflection sessions follow the same sequence: after each new Frame Move is screened, the reflections begin with the creating students critiquing their own work, followed by fellow students critiquing one another's work, and finally the facilitators rendering their critique. (This sequencing is intended to

maximise student input into the process by removing the potentially intimidating factor of having to follow the lecturer.)

The above session occurs over the course of a full day. First and second iterations of all the shot footage are posted online (link only) for the students to review at their leisure. Through this integrated session, students are led through cerebral and physical learning of one element of moving image creation. They've seen the big picture (frame movement in film history), have learned a detailed technique, have had hands-on experience, have had instant feedback on their explorations, and have had an opportunity to reiterate through an improved version. The reflective component "seals" the learning by bringing it around full circle, also giving the students the opportunity to learn and practice the art of proactive critiquing – a skill which will prove significant in their collaborations throughout their careers. Availability of their work online allows them to revisit the learning experience when and where they need to.

This project-based programme incorporates an iterative design-thinking approach that involves interrogation, ideation, experimentation, making, reflection, and redesign, delivered in an authentic learning environment. The goal is to provide a dimensional and faceted experience that at once models, and provokes learners to challenge, real-world conventions of moving image practice.

5.3.7 Assessment

This programme has, at its heart, the development of creative practitioners who have an evolving awareness of creative industry trends; of developments in Art, Design, Technologies, and Business; and an awareness of themselves as ongoing learners and as creative practitioners. One method for cultivating this self-awareness is through continuous guided self-reflection. Self-reflection both informs, and is informed by, self-awareness; the two go hand in hand. Each continues to build on the other as the learner acts on their past reflections, then reflects on the outcomes of those actions. These reflections will be engaged in through weekly blogs, which are assessed for depth, rigour and quality of reflection, based on a rubric. Initially, the approach taken is through Assessment as Learning, in which the students undertake methodical review of their learning and making process. As the facilitators comment on their entries, an "e-mentoring" relationship is set up.

The BCFHM will engage in learner-focused assessment methods (Bevitt, 2015), focusing on an Assessment for Learning approach to skills around making, and an Assessment as Learning approach to skills around creative ideation and collaborative capabilities. Assessment of Learning

will occur with content that is quantitatively specific, meaning numbers that need to be remembered (e.g. pixel resolutions; keyboard shortcuts; physical laws, such as Inverse Square, etc.).

5.3.8 Who Is This Finished Person?

Graduates of the Bachelor of Creative Futures in Hybrid Media will fledge into reflective multi-disciplinary creative practitioners. The portfolio careers that they develop could involve combinations of: being a member of a creative team inside a larger company; running a small company of their own in which they provide a service (such as creating short videos); being a cross-media artist with a personal creative practice, the outputs of which are shared with a growing fan base (who will pay for freemium content).

They will be practitioners who have already begun a creative practice, who are familiar with thinking both within and outside the parameters of disciplinarity, and who are well acquainted with blending a variety of methods, platforms, and technologies, finding innovative solutions to creative challenges.

5.4 Design for a New Moving Image Education

This section will explain the five Theme Areas and how they fit into the overall programme. Again, the Theme Areas are:

1. Context
2. Craft
3. Content
4. Connectivity
5. Career

5.4.1 CONTEXT

Mission Statement

In order to contribute valuably to a transforming culture within a dynamic economy, tomorrow's creative moving image entrepreneurs need capability to integrate knowledgably into said culture and economy. This requires a modicum of historical perspective in order to place them within this evolving environment. It is not enough to acquire technical and creative skills; they can only take one so far. The practitioner who speaks the language of the cultural economy, and who is aware of the most current innovations, as being part of a broader historical continuum of evolutionary development will be able to play a more significant role in the culture than a maker whose educational background is limited to their creative technology skills. In order to develop these capabilities, the fledgling practitioner needs to understand the context within which they will be operating. This includes a combination of historical background and critical theory.

Whilst some of the following may be taught on its own, more significant uptake can be achieved by weaving the content into the discipline areas in which hard and soft skills are covered, such as is illustrated in the Sample Session on page 76.

Film History

In my experience teaching Cinematography for ten years, those students who'd engaged with film history tended to create film works which had more narrative facets, more emotional shades of grey, more rich visual imagery, and characters with more dimensionality and texture than the students who did not engage with film history. Hence, it would behove the budding contributor to the creative digital content world to delve into the rich context in which they'll be practicing. Some examples of this are:

- A look at the evolution of cinema
- A consideration of film genres
- An understanding of some of the more significant film movements, such as
 - German Expressionism
 - Soviet Montage
 - The Hollywood Studio System
 - The French New Wave
 - Italian Neo-Realism
 - Film Noir
 - The Musical
 - Low-Budget and Independent Cinema
 - The Western
 - The Gangster Film
 - Anime

History of Art and Technology

In order to place themselves as an artist into the larger creative environment, the student of creative content will need to place themselves within an artistic context, and would thus benefit from some familiarity with those art movements of the past century, particularly those in which technology has played a factor. The intention is to inspire the students, to instill them with confidence to think outside any square of perception as to what art can be, and to illustrate the legacy of linkage between art and technology, enabling them to see themselves as part of an unfolding continuum. Further, it is important to touch on the philosophies behind these movements in order to provide a deeper context to their impact on the art world and on the societies in which they operated. These movements include:

- Futurism
- Dada
- Surrealism
- Constructivism
- Bauhaus
- Conceptual Art

Through an exploration of these and other movements that blended art and technology, students will be exposed (and hopefully inspired) by the contributions of artists such as:

- Marcel Duchamp
- Man Ray
- Len Lye
- Andy Warhol
- Christo
- Claes Oldenburg
- Isamu Noguchi
- Nam June Paik
- The Fluxus Movement
- Chris Burden
- Stelarc

The works of other pioneers of Video Art in the late 20th Century would also be explored; video artists such as:

- Bill Viola
- Marina Abramovic

-
- William Wegman
 - Bruce and Norman Yonemoto
 - Tony Oursler
 - Bruce Nauman
 - David LaChapelle
 - Woody & Steina Vasulka

Mobile Movie art in the early 21st Century would be shared and reflected upon. This includes work from artists such as:

- Anders Weberg
- Marsha Berry
- Benoit Labourdette
- Felipe Cardona
- Patrick Kelly

Finally, the works and thoughts of contemporary renaissance practitioners of technology-based sound and visual art would be studied. I hope that Skype interviews with these luminaries could also be arranged:

- Aaron Koblin (<http://www.aaronkoblin.com/>)
- Chris Milk (<http://milk.co/>) and
- Ken Rinaldo (<http://www.kenrinaldo.com/>)

These are partial lists; there are many more wonderful artists in each category, but these are offered as an example of what the History of Art + Technology component of the proposed curriculum could include.

History of Story

This component would address the history of storytelling, from cave drawings to the present, as well as the functions of stories in society through time. It would cover the basic story types (e.g. Overcoming the Monster, Rags to Riches, Rebirth, Quest, Journey and Return, Tragedy, Comedy, etc.) and storytelling forms (e.g. oral tradition; drama; the novel; cinematic storytelling, etc.). The component would also explore how these traditional forms are present in stories today. The History of Story component has elements that blend with **CRAFT: Writing** and **CONTENT: Storytelling**.

Theories

This element would look at the variety of theories related to popular culture and commerce, and would draw connections to practice by embedding them into the practical hands-on workshops. Some of the theoretical discussion – brought in to the practical work on an as-needed basis – include **film** theories, such as Apparatus, Auteur, Genre, Feminist, Marxist, Queer, etc.; **Game Theory**; theories around **technology**, such as Technological Determinism vs. Social Construction of Technology; **art** theories, such as Mimetic, Expressive, Formalist, Aestheticism, etc.; fundamental theories related of **business and economics**, such as microeconomics, supply and demand, business valuation, etc.; and theories of **computation**, such as automata theory, computability theory and computational complexity theory; theories of **communication**, such as semiotics, connotation, denotation, myth, metaphor, etc.; and **marketing** theories, such as image and brand, CRM, integrated marketing communications, models of buyer behaviour, market segmentation, the commitment-trust theory of relationship marketing, etc.

Emerging Technologies – Theoretical Component - Rationale

Just as it is important for budding New Media creative practitioners to contextualise their practice through the windows of understanding discussed just above, it is equally vital for them to gain a wide view of developing technologies and their impacts on society, on culture, on creative practice, on people's relationships with one another as well as technology's impact on themselves. In order to engage meaningfully as creative technologists with the broader creative community, today's student needs to gain some perspective on where they are in the unfolding historical technological continuum. To my surprise, many students today, particularly the technologically perceptive ones - perhaps due, ironically, to the insular nature of their 'close bond' with their devices - lack a broader view of where we are in Technological history, and, indeed, where we might be headed.

Emerging Technologies – Theoretical Component – Case Study

Here is one example of an attempt I've made to integrate a broader technological perspective into my teaching. I detail this module here as an example of one possible method for enabling students to connect with the big picture issues brought forth by accelerating growth in technology. The Bachelor of Creative Futures in Hybrid Media will adopt a similar strategy for students of emerging moving image technologies.

In my Technologies course for students in their first semester of their first year in the Bachelor of Creative Enterprise at Unitec Institute of Technology, I address the "perspective gap" with a series of provocations that lead on to student research and reportage. The aim of the "Perspective" section of the course is to assist the students to gain a big-picture view of technology in the creative economy, and to enhance their knowledge of the rapidly evolving technological landscape. To achieve this, students, through a series of exercises, are encouraged to interrogate this landscape and attempt to identify: where they fit into it; what they can get out of it; how they can add to it; how technology is changing creative making, distribution and consumption; how it's affecting us as individuals and as a culture; and how to stay ahead of the changes (engage in trend forecasting) so they can become innovators in their craft. Some of the methods the course undertakes to do this is to: develop their capabilities as inquiring practitioners; foster their research skills; nurture their collaborative capacities (including remote collaboration); and increase their abilities and comfort levels to present their research in front of their peers.

At the top of the Moodle page for Perspective is the statement "Perspective is not structured like an old-school classroom, but is organised in a newer way: around your independent learning." At the beginning of the semester, students are grouped into collaborative teams, and they remain in these teams for the duration of the semester. The course is delivered in one of Unitec's new teaching and learning spaces. Rather than rows of desks, the room is fitted with tables around which eight students sit. Each table has a large rolling whiteboard and a large plasma screen to which is attached a connected computer (we call these COW's, Computers on Wheels). Each week, I give a different team a broad topic to research. They present their findings to the class in two weeks' time. These provocations include such topics as: Accelerating Change; Technological Realities: Augmented, Virtual and Beyond; Nanocomputing; Game Studies (including Game Theory, Game Design and Game Mechanics); McLuhan, Toffler and Kurzweil; The Future of Content; and The Future of Work. I will also prime the pump by supplying two or three links to get them started. The student team then independently goes and finds more sources of information, lodging their findings and discussing them on a Discussion Document on Google Drive. (This allows me to check who's contributed what to the effort, by checking the See Revision History on the G-Doc.)

As there are five people to a team, I ask them to divide their research and presentation into the following sub-topics:

1. Intro person: THUMBNAIL & EXAMPLE

- Introduce the topic with a **thumbnail description** of it.
- Breakdown **one aspect** of the topic (e.g. "one really interesting example is how . . .")

2. GLOBAL STATISTICS

- Share some **statistics** related to the topic to illustrate its impact and to set up your conclusion.

3. LOCAL IMPACT

- How does it relate to our **local context**? (discussion of the impact in/on New Zealand).

4. TRENDS

- Discuss **current trends** related to the topic (what types of stories are in the news)
- Project **future trends** (what do past and current trends point to)

5. Summary Person: CONCLUSION & MOOT

- Briefly **summarise** the group's discussion, leading to a **conclusion**.
- State their **moot**: this is where the group asserts a position that is debatable (taking a stance against which someone can argue the opposite position.)

Each group is required to locate their presentation on Google Slides, and all must be logged-in to contribute (again, so I can see, for assessment purposes, who contributed what to the presentation). The concluding element of each team's presentation involves them devising a moot (derived from debating). Once presented, the other teams each discuss the moot for ten minutes, moving their conversation toward a response to the moot. While this is happening, the presenting team walks around and helps keep the team discussions on track, thus acquainting them with the role of facilitator. After the ten-minute discussion, the class comes together as one unit again. One pre-appointed representative from each team offers a distillation of their discussion and presents their response to the moot. This facilitates further full-class discussion of the issues presented in the team conversations. These discussions often get quite heated, as students realise (often to their surprise) that they have an opinion about the issue at hand.

I've found that this system enables learning to take place on a few different levels:

1. The url's for both their discussion document (on Google Docs) and their presentation (on Google Slides) are made available on a shared Google Sheets document for all students to see. This provides a rich learning resource for the entire cohort.
2. Using Google Applications in the course of their work has the secondary learning value of familiarising them with online collaborative platforms.

3. The students are given only an overarching topic to interrogate, but the resources, research and reporting methods; in fact, the content itself is all student-driven. This, combined with their presentation of this information to the class, sets up what is essentially a student-generated lesson. They become the sages on the stage; I, the facilitator, am merely the guide on the side.
4. All students must contribute to not only the building of their presentation, but also to the presentation itself. Each student must add at least one slide, and students must present their findings to the class. The result here is that students who would ordinarily lean back quietly at their desk for the duration of the semester are put in the position of having to stand up and speak before a group of people. This takes many out of their comfort zone (whilst still providing the relative safety of the team standing around them).
5. Students learn to conduct research and engage in collaborative project work in a supportive team, averting the horror some feel at having to generate work on their own. The team draws the individual out of their shell, out of their complacency, out of procrastination, out of the daunting task that many students experience research and reporting to be. They learn to negotiate within a team and they learn esprit de corps.
6. The students are exposed to new concepts and to new technologies. They begin to gain a broader perspective of the expanding world around them and of the future in front of them, a future that they will be creating.

This is all accomplished in their very first semester of tertiary education, and has the added effect of transitioning them (or at least, the school leavers amongst them) from their previous more prescriptive secondary education experience, and begins to set them up as independent learners.

It is the intention of the Bachelor of Creative Futures in Hybrid Media to engage in similarly multi-level learning throughout its **CONTEXT** component.

5.4.2 CRAFT

Mission Statement

Craft is about making. It is hard skills training woven together with creativity nurturing. Facilitators will create learning modules that break down theoretical/practical elements of craft execution (e.g.

perspective drawing; photographic exposure; music editing; etc.) into their component parts (with exposure, for example: iris, shutter speed, ISO). Each component will be workshopped with: 1) Delivered theory; 2) exploratory practice; 3) Review and reflection; and then 4) Reiteration. The intention is for these considerable bodies of knowledge to be modularised in order to enable them to be moved around within the project components.

ART/DESIGN/CREATIVITY

Training & Exploration

Despite recent developments of new tools to express visual stories, the basic elements of moving image storytelling, such as lighting, the use of lenses, the conventions of framing and of moving cameras, are as relevant as ever (Bouhon, 2013). As a screen is still basically "a rectangle, inside which a two-dimensional picture is played according to the perspective rules established in the Renaissance, to which movie and TV images, as drawings, paintings and still photographs also obey" (Jarry, 2010), some schools are still teaching drawing as part of their film programmes. I see this as an important design connection to maintain.

The Design facet of the Art/Design/Creativity component relates to Design as practice. Principles and Elements of Design are imparted and workshopped with hands-on making and demonstrations from industry professionals. Students are trained in the fundamentals of Life Drawing, Graphic Design, and Illustration. A significant emphasis is placed on Story World design (with inspiration taken from Alex McDowell's World Building Media Lab at USC - <http://worldbuilding.usc.edu/>), Rapid Prototyping, Web and app design are covered here as well [blended with the **CRAFT: Digital Development** and the **CONTENT** Topic Areas (see below)], as are other new media creative solutions.

Animation

This section will examine and train for a variety of animation techniques, genres and programme types. This includes 2D techniques, such as hand-drawn cel and computer-generated, and 3D techniques, including stop motion and use of 3D software solutions. This can feed into the Gaming component.

Gaming

This component looks at the visual aspects of gaming, including Story World Design and Game Character design. Stylings within Game Story Worlds and Game Colour Theory are also explored. Practical Game Development is learned in the Digital Development section of Craft.

Art/Technology Innovation Workshop

This component runs through the entire programme. It is the practical component of the Art + Technology historical section. In this component, students are challenged with increasingly complex creative provocations which they endeavour to solve through Design with Technology. This is an ongoing structured play environment. The successive provocations are designed to be relevant to the learning occurring throughout the rest of the programme for each year group.

MOVING IMAGE

This section is at the core of the programme's commitment to impart skills of both conventional filmmaking crafts and more current modes of moving image storytelling. The techniques of narrative filmmaking practice that developed along with the art form in the early twentieth century became standard operating procedure for almost a hundred years. With the advent of digital, some of these practices fell by the wayside, while others have been carried over into digital production. New procedures have also emerged, brought on by newer acquisition technology.

The following are the other vital elements to the Moving Image component of the CRAFT Theme Area:

Writing

Writing exists in a space that spans across the CONTEXT, CRAFT, and the CONTENT sections of the programme. The CRAFT aspect deals with the disciplines and conventions required in different idioms. From short and long form narrative to advertising copy, and copy for the web, this project-based section is where the students generate the material for the rest of the making. It is the writing workshop.

Directing

This component focuses on the maker as a practitioner who integrates many different other segments of the crafts they are learning in the programme. This is where they learn to pull the other elements together to create a coherent piece. Its discrete focus is on developing an understanding of who they are as moving image creators. This includes identifying how they see the world and how they might construct a visual world that reflects that view in a narrative piece. Delving deep into the story at hand is a key capability; no matter what communication tools or strategies they will be employing throughout their practice, the ability to analyse a script, to identify theme(s) and to mine the visual and audial potentials of the story is paramount.

Additionally, the other elements common to most directing programmes will be incorporated, including how to get a performance out of an actor, and how to keep a consistent pace and feel to a work which might be shot in separate pieces. The latter consideration naturally involves knowledge of editing and how they want the particular piece to be cut.

Finally, knowledge acquired elsewhere in the programme (CONTENT: Connectivity) pertaining to the variety of available platforms and their inherent strengths and weaknesses is an important awareness to integrate into the Directing component. For example, the common wisdom in Transmedia production involves the notion of the Story Architect, who is the keeper of the vision across all implementations of the story world. Therefore, in Transmedia implementation, this module would support Director as Story Architect.

Ultimately, this section is built around empowering the aspiring Director with a large basket of storytelling tools that, in today's dynamic creative environment, would likely be used in combinations of tool sets.

I see such incredible interaction between genres. You have all these different genres and I think for some reason our brain desires to put them in boxes but in actuality, they are all just different ways of expression, different forms of expression. So for example, I really love the graphic novel becoming animation, becoming interactive, becoming gaming, becoming documentary, you know, becoming a music video. So we are seeing a lot more crossover. (Bang, personal communication, 19 April, 2016)

Tomorrow's Director needs to become comfortable with the crossover Keiko Bang mentions.

The Production Department

One set of specialisations worthy of carry-over from conventional filmmaking (even if only more in understanding than in practice) involves the roles in a typical film's production office. These include: Line Producer, Unit Production Manager, Location Manager, Production Coordinator, and Production Assistants. While admittedly, in the newer landscape - where entire "productions" may be assembled and run by one to four people - these roles will likely be collapsed into the remit of one crew member, it is worthwhile for students of the Bachelor of Creative Futures in Hybrid Media to go through a few production cycles on shoots structured around a larger, more conventional model. This will give them an understanding of the variety of requirements that each shoot has, and will enable them to wear each different hat with knowledge of which hat it is, and how it fits into the bigger picture.

Creative Producing

The Creative Producer of tomorrow needs to be able to pull together a variety media to create the hybrid best fit to strategically deliver the particular creative content produced. Further, the enterprising Creative Producer will keep a metaphorical "eye in the sky and an ear to the ground" scanning the landscape with an eye for potential opportunities for hybridity and innovation.

We need much more interaction between the different disciplines. I think that we work in silos. I think animators work in a silo; I think documentary makers work in a silo, same with drama. And then the technology people work in a silo, people making mobile phones, people making smart T.V's and I really feel that there's very little discussion between the two and I think that is slowing down the pace on the advancement in this area.

I think that really what needs to happen is that linear producers need to understand the new technology. I was talking to Park Chan-wook, and some of these big Korean directors and saying, why don't you guys work with Samsung to do something interactive. They said to me, first of all, where would we learn to do that? And that was a very good question, where do you learn when you are like 55 and a really famous linear director, to do something interactive. And yet Samsung tells me conversely, we are really tired of these linear directors coming and asking us for ten million dollars for the next film. **However**, if they made something that really showed off the functions of our smart T.V and understood that there was bio recognition, that there is voice recognition, that there's really cool things going on with the smart T.V or with our smart phones, then we would have a blank cheque for them! [...]

And I have been trying to talk them into doing an icebreaker, where you have the linear producers talk about what they are interested in, where Samsung [...] opens up their doors to their future Lab and talks about technology and where it's going and what they really want to see in terms of content. Where they would like the brains behind creativity to go. And then to bring in people who do Transmedia and say, here's the beginnings, here is some pioneering work of the convergence between technology and art. Here's what you could put on a smart T.V etc. And there are a couple of gurus around the world I think who are really ahead of their game, and I think that that's the only way it's going to work. (Bang, personal communication, 19 April, 2016)

In the Creative Producing module, successful industry professionals will lead students in opportunity-seeking workshops, seeking out potential synergies between disparate interests.

Camera

The Camera component is divided into two areas: "Visuals" and "Tools". Whilst these two very quickly converge in content and scope, each addresses a different aspect of the task of acquiring content for a moving image work, be it for a film, an advert, a simple app, or an elaborate VR experience.

"VISUALS" involves all aesthetic considerations of moving image photography, including composition; the geography and use of the frame; the use of light, shadow and colour for conveying emotion; the use of blocking and proxemics to visually depict the drama, etc. It also addresses how to work with a director to bring their vision to the screen or device, including the use of visual references and the importance of establishing a rapport through a set of guided conversations. Throughout the programme, "Visuals" covers the entire visual pipeline, from storyboarding through grading and visual effects – all from the point of view of conveying emotion through visual storytelling. The intention is to develop the informed eye of the maker, to cultivate their aesthetic sensibilities, and to inculcate in them a reflexive connection between visual and story. Pervasive in this module will be the question: how do you combine light, colour, angle, lens choice, and movement to create emotion within the audience? How will combinations of these elements make them feel?

Helen Baxter explains the importance of the emotional residue of an artwork:

That's the thing about media, it's not just what is someone going to take away from them - what have they learned, what have they enjoyed - it's how do you make them feel [...] once they've connected to your content? [...] If you can get them to understand that that is also really

important. Yes, the production has to be good, yes the whole composing, every frame should be a painting, all of that kind of element, it's important, but how do you feel when you've watched it? How do you feel when you've listened to it? And with art, when I am teaching young artists, quite often, people are not just buying a piece of artwork; they are buying the emotion and the story behind the making of it. (Baxter, personal communication, 5 April, 2016)

"TOOLS" is the "how to" component of Camera, and covers the gamut of enabling technologies to accomplish moving image work on almost any scale. From the use of cinema lighting and grip equipment to the variety of camera instruments across the spectrum - from the Lytro's Cinema and Immerge (<https://www.lytro.com/>) through the Arri Alexa series to the Samsung Gear 360 and the iPhone - the Camera component across the programme will deliver graduates who are able to become capable Data Wranglers or 2nd AC's as well as to shoot a small scale film with virtually any device.

Some other areas to address in the Camera "Tools" section include:

- Exposure
 - Photochemical vs. Voltage
- Digital Sensors
- Compression & Codecs
- Prosumer level Grading & Image Editing
- Shooting for VFX
 - Greenscreen
 - MoCap
- Mobile Moviemaking
 - Camera/Photo Apps
- Light Field cinematography
- Photogrammetry
- VR & 360°
- AR
- new functionalities as they surface

Teaching "Film" With Film?

While film as a capture medium is on its way out of the moving image industry (Cox, 2013) - and therefore also on its way out of film schools (Kleijn, 2013) - some feel that many time-tested

filmmaking techniques, as well as aesthetic and philosophical values developed through over 100 years of classic filmmaking, are still pertinent to the teaching of cinematography (Jarry, 2010).

As film is expensive, and cannot be recorded over, there was a more conservative approach to acquisition in the film days than there tends to be now with digital. Many of the new generation of moving image workers are entering the market without the same level of discipline that was required of shooting on film. The following personal story illustrates one aspect of why I feel it's important to involve actual film at some point, for even a short time, into a moving image programme. The aspect this story illustrates is: **being present to the process**.

(A Story)

As a Lecturer in Cinematography during film's final days as the primary capture medium for motion picture narrative, I was witness to rapid changes in both technology and process. Some of these changes were reflected in the approaches to on-set practice engaged in by my students. Having worked for twenty years in camera departments in Los Angeles, I was used to a high level of discipline and professionalism on film sets. Every second counted; there was very little wasted time. Every shot had been planned, down to the smallest detail, and each setup was rehearsed until the director and technical heads were satisfied that crew and actors were ready to go. Film would roll, the shot would be slated, the scene would run, and then 'cut' would be called. There was a common wisdom about not wasting film. The Camera Department was charged with looking after film stock, giving the Production Department daily reports about footage exposed, and footage on hand.

Fast forward to 2005, when I began teaching Camera at Unitec. The school's capture medium of choice at the time was digital videotape (DVCPPro50). Sometimes, the students would roll camera, then the director would begin to give their final notes to the actors. When the actors had finished the scene, the director would give them more notes – while the tape was still rolling – and then they'd 'go again'. I was shocked, and began teaching about the need for disciplined pre-planning and for conservation of the resource. I instituted a shooting ratio and tightened-up what happens on set whilst rolling. The students took to this change with varying degrees of seriousness, and it was clear to me that the alterations they made in their shooting practices were mainly to oblige me; I could tell from watching them (and their rushes) that it was not an internal transformation of attitude. With digital, they could shoot as much as they wanted, they could cut whenever they felt like it; why not just keep rolling, in case a special unplanned moment happens? Whilst there is merit to the spontaneity argument, the downside of unbridled recording is that the assistant editor

then must wade through hours and hours of footage. In a professional context, this can become very expensive.

At one point in my first semester there, I created a module on shooting with film, as I felt the students needed to experience the many differences with that medium, such as loading mags, working with the camera equipment, double-system sound, working with the lab, sitting with the grader, etc.. I expected the film experience to be a minor revelation to them, and was surprised by their transformation in attitude and approach to shooting. Firstly, they took the equipment much more seriously than they did the school's video gear, handling it with much greater care and respect. Secondly, the first time we rolled camera, and the students heard the faint whirr of the film going through the gate, they all picked up their game markedly. It was as if seeing the loop of actual film in the mag, then hearing the mechanically-driven movement of a physical material to which an image was being permanently committed suddenly woke them up. Their crew's set calls became quicker and clearer, their motions more purposeful. After the three-day exercise shooting with film, then waiting for the lab report the next morning for assurance that the negative was not scratched or fogged, then waiting until the following day to view rushes to find out if everything was properly exposed and in focus – after all that nerve-racking process, those students' entire attitude to moving image production was radically and permanently raised. In that week, they became more **present to the process** than they'd ever been, and thus took a giant leap toward becoming motion picture professionals.

Where practicable, a programme teaching moving image in the connected information economy (such as the Bachelor of Creative Futures in Hybrid Media) would be wise to keep alive the torch of knowledge about the traditional film process, and to pass it down to future generations of makers. It will shed a light on the moving image production process, revealing insights otherwise unseen in the creation pipeline.

Sound

This ongoing strand addresses both the practical considerations of attaining a clean production soundtrack and the creative process around sound design. This component will focus on both the practical and the theoretical approaches to sound, delving into areas of thought such as Sonic Literacy (Hocks, 2012). There are synergies here with the Context and the Content components of the programme as well. The two arms of the sound component are Sound Technologies and Soundscape. The former is training for a foundational level of professional-quality sound recording, both field-based and studio-based. The latter will explore emerging forms for both sound acquisition (such as PZM's) and delivery (such as Hypersound), as well as the basics of

Sound Design. Students will be encouraged to think outside the square when designing the sound section of their moving image pieces. This can be best accomplished in the **Moving Image Innovation Workshop**.

How To 'Be' On A Set – Case Study: The Proficiency Drill

Another important element that is appropriate to carry over from the world of film is on-set comportment. This learning will take the shape of an ongoing exercise – held two or three times a term, and scaffolded in complexity as the students' progress through the years - aimed at sharpening their skills in on-set communication and fast movement. This is film crew boot camp. Regardless of whether or not they decide to pursue a career through working on a film crew, this is a vital component of professional practice in any moving image context, as they learn to collaborate in a high-pressure environment.

In order to prepare themselves properly for working on a film set, students need to internalise the richly complex set of attitudes and behaviours that a set requires. But what does this mean? How do you define, how do you quantify professionalism? One quality that distinguishes a professional film set is the quiet hum of the crew getting on with its work, often described as “a well-oiled machine”. This is a challenge to teach. One way to address it is by conducting an exercise – called the “Proficiency Drill”. I developed this exercise within Unitec's Screen Arts Programme.

In the Drill, the crew must rehearse a small scene, block it, set up camera, get focus marks, then shoot *three* setups of the scene (say a master and two over-shoulders), and finally wrap the gear back to cases – **all in 60 minutes**. This is, of course, an unrealistic amount of time, and it always takes a few shoots to get their time down to 60 minutes. It's a recurring technique-and-discipline exercise (akin to a music student playing their scales over and over).

Proficiency Drill takes place over several three-hour sessions. Every session is comprised of two one-our shoots, with a 20-minute debrief after each one.

For Proficiency Drill, the crew roles not only include the standard positions on a film set, but people are also rotated through the crew as Observers. These are five peers who are dedicated, each shoot, to just watching for specific aspects on which to give feedback during these debriefs, in order to support their colleagues in getting better and better. Thus, another layer of learning is the grace in giving and taking constructive feedback well, a vital skill in the motion picture industry. The Observers' areas of focus are: Communication, Teamwork, Time Management, Technical Performance, and a position just called General Observer. Please see Appendix E for the notes given to observers on what to look for.

Working on a film crew involves a unique and sophisticated mixture of skills and understandings. I tell my students that they're not just here to learn how to **do** what they're learning to do in their specialisation; they're also here to learn how to **be**. In one sense, this is the most important competency for them to take away. Specialist skills can be attained systematically. Soft skills must be nurtured and coaxed.

It's very difficult to exercise all the muscles in your body at once, it's a lot easier to exercise one muscle or muscle group at a time. Proficiency Drill exercises a particular muscle group. This is a non-assessed project, so that pressure is off; only the pressure of Moving Quickly remains. This exercise is not about technique (per se) or aesthetics, but simply about how to be proficient as a crew.

This blends with the **CAREER – The Professional Edge** module.

The model for the Proficiency Drill – alternating repetitions of making and feedback (on a highly compressed schedule) – can easily be adapted to many of the workshops discussed in this Thesis.

Post Production

This strand will weave together the creative and the technical, as they're very closely intertwined. This highly blended stream will incorporate creative exercises as part of the teaching of technique. As students become more proficient, they will edit each other's projects, with scaffolded sophistication. A considerable amount of the initial imparting of basic skills will be delivered through online learning solutions (such as Lynda.com and Adobe.tv) which have very in-depth and rigorous lesson content on platforms such as the suite of Adobe Creative Cloud applications, Final Cut Pro, Frame.io, etc. Class time in the computer labs would be spent addressing questions that arise from the online component, and workshopping the project cuts. Topic areas include: different cutting styles; VFX; grading for creative effect and for overall consistency; various workflow pipelines; audio-video compression and codecs; outputting for a variety of media. Students would also join the **Moving Image Innovation Workshop** with outside-the-square ideas for editing and effects. A key focus of this strand is the integral nature of the production pipeline and the importance of planning (and being familiar with) the entire workflow before shooting.

Moving Image Innovation Workshop

Running through entire programme, students are challenged with creative provocations which they solve through a blend of conventional and unprecedented moving image approaches.

DIGITAL DEVELOPMENT

This is the section of the CRAFT Theme Area that imparts and explores the technical details related to digital conversancy. At times taught in discrete sessions, at other times woven into the content of Emerging Technologies Theoretical Perspective (see p. 82), this strand takes the students behind the scenes into the technical workings of digital culture's enabling technologies. Topic modules include:

- What is Digital?: a deconstruction;
- Coding for Creatives – running throughout the programme, students will learn the fundamentals of coding (e.g. logic, structure, syntax, ergonomic code, etc.) and programming environments. The delivery style of this module will be focused less on knowledge transmission and more on structured play using these tools as toys;

I think that every single [young person] should learn how to code and programme, at least the basics. You should know how to make a basic mobile application, you should be able to code or at least read some code on your programmes because as the internet grows and the dark net grows, you need to understand how to protect yourself against, you know both for protection and for creative expression. That is number one. (Bang, personal communication, 19 April 2016)

- Basics of App Design & Development for Creatives – similar to above, this module will focus on the technicalities of app development, through the lens of user-centred design.;
- Connectivity Enablers Explained & Unpacked [CEE-U]: Including how the internet works, WiFi protocols (e.g. 802.11x) explained, inside Bluetooth, various cable connections (e.g. USB, Thunderbolt, HDMI, etc.), and mobile connectivity explained;
- Emerging Audiovisual Tools – Unpacked [EAT-U]: Including AR, 360° video, VR, Light Field photography, Hypersound, etc.;

-
- Web Basics: the difference between the Internet and the Web, how a web page works, basic HTML (blended, at times with the Coding for Creatives module), CSS, Javascript, Wireframing, Rapid Prototyping, Responsive Design, etc.
 - Game Development – Game Mechanics; Game Engines compared, contrasted, and dissected; Middleware; Platform Options. Connects with CONTENT:
 - User Experience Design and User Interface Design are explored here as well – woven, at times, into the modules just above, as well as the CRAFT: Design; the CONTENT; and the CONNECTIVITY Theme Area modules.

5.4.3 CONTENT

Mission Statement

In the CONTENT Theme Area, students focus on the nature and quality of their creative outputs, learning to first ascertain their audience, then determine the best platforms on which to reach them, and finally to design content around those parameters. There is a blend of inquiry and making.

Storytelling

Topics here include:

- Finding the heart of the story
- Story Structures
- Story World ideation and development
 - (blends with Story World Design in CRAFT: Art/Design/Creativity)
- Target (Audience) Practice – wherein students practice different methods of communicating the same story kernel to achieve different outcomes for different audiences;

- Viewer Control and Short Form Work – Exploring newly evolving cinematic rules where the user has much more creative control over the image (e.g.VR, mixed realities, Light Field cinema and other forms to develop). What is the new role of the visual storyteller? Also looked at here is a growing trend toward very short form work. What are the new cinematic languages?

There has to be a different set of visual grammar for virtual reality. Incredibly different grammar. And I feel that way in general, when you look at vine. Vine has already done that. [...] And vine is six seconds. But in giving people six seconds you force people to be incredibly clever, very smart and they have learned to make stories in six seconds and I think that is just amazing. We adjusted, they came up with special effects, and they came up with a different grammar to tell the story in a much shorter period of time. And I love the user generated content on YouTube, I see people coming up with brand new ways of telling stories all the time. So I think that's what I mean is the difference between a linear producer and a non-linear producer and the way they think of things. You have to really tell stories backwards, or in a completely different way." (Bang, personal communication, 19 April, 2016)

- Game Creation – story logic; structures, etc.
- Emotion Pictures – crafting stories with impact that reach people on an emotional level
- Freeform Ideation
- VR Storytelling - A New Look at Visual Narrative

In contrast to story structures bound for conventional cinema, stories for VR require a paradigm shift in approach and methodology (Hartman, 2016). Heretofore, the creator held the story reins, carefully placing the audience in the drama through such tools as camera position, shot size, focus, and blocking; and choreographing the audience's attention with the editorial selection and pacing of these shots. The Virtual Reality context does not afford these conventional tools, and so a new cinematic language must be explored (Fitzsimmons, 2016). The viewer is now at the centre of the scene, with the story world existing all around them. No longer can a director craft a specifically framed view of the action, the viewer can now see all actors head-to-toe. No longer can a scene be punctuated by a variety of shot sizes which conceal and reveal visual elements; other strategies must now be employed to direct attention and emphasise action and/or performance (Sklar, 2016).

At the 2016 Magnify Conference about AR & VR, held in Auckland, expert panels discussed how AR & VR are transforming the cinematic experience. Barry Sandrew, a long time moving image

technologies pioneer, pointed out that in the early days of film, audiences didn't want to be immersed, they just wanted to be told a story. Now, audiences are seeking more of an immersive, involving experience. Perhaps this is due to the onslaught of information users are subjected to daily. Audiences have become overwhelmed and desensitised and therefore need a stronger degree of engagement with story; they need stories which penetrate through the deluge, stories which personally move them. Also, as visual effects have become more and more realistic, the only way to go is deep within. It is no longer enough to watch - as if from the outside. Audiences are now seeking a more personal experience.

Content Development

- Content Delivery Modes & Strategies - Survey of Platforms and their Possibilities; approaches to choices for matching content to platform:

...what is driving change is very much the devices and the platforms that people are now consuming media on. [...] And of course the content has to fit across all these different spaces and places [...] And also the changing shift away from being a passive medium to being an interactive medium. Film now isn't a stand-alone production; there is a Venn diagram where it intersects with gaming. Many concept designers know, and artists who work in the film industry are all looking into associated games. So you have got the interplay with the interactive side of universes that these film makers are making. Then there's the other layer as well, which is the audience feedback, which is now also driving the storytelling. [...] So this also is meaning that the audience is not just engaging but they are also driving the content that is being created and the storytelling that is being produced. So I think the biggest shift is moving away from seeing film making as a single discrete piece that you work on, to this interconnecting – I like the analogy of seeing it as Tetris pieces. Each of them stands alone, but when they interlock together, they make a different picture. (Baxter, personal communication, 5 April, 2016)

- Strategies for Interactive Content
- User-Centred Content
- UX considerations in content creation
- Game Development
 - Survey of Game types and target audiences
 - Game Architecture

- Games as Art

- Information Design
- Experience Design
- Integrating Live and Virtual Performance
- Spatial Content
- Remixing & Repurposing Content – you remixing others' content; others remixing your content

If you are a **filmmaker**, you need to understand how the concept you are making may well be remixed and repurposed into the gaming environment. It may be remixed and repurposed into graphic novels. And as a writer, this is what I'm fascinated with and very much enjoying. For example taking a series of books that I know have been adapted in different ways. And I'll read the book, I'll listen to the audio book, I will find the graphic novel, I'll watch the film, I'll watch the TV series. **Then** analyse the different ways that you repurpose and remix the same story and the same characters into these different, across these multiple channels. (Baxter, personal communication, 5 April, 2016)

- Mashup Workshops – Ongoing exercise throughout the programme, scaffolded in complexity, in which students each choose a platform, application, hardware solution to research, and then, in teams, combine their platforms, applications, hardware solutions with the others on their team to create innovative mashups solutions. They must then pitch their solutions to the larger group, who are posing as VC's. These sessions are essentially downscaled hackathons.
- YouTube Partnerships
- Google Certified
- Virtual Reality Techniques
- Augmented Reality Techniques
- Mixed Reality Studio
- Structuring a Freemium Delivery Model
- Pre-existing Conventions for content creation

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- Theatrical conventions
 - Noh
 - Commedia del'Arte
 - Mask making, etc.
 - Film Conventions
 - Three-act structure
 - Short film structure, etc.
 - TV Conventions
 - Episodic
 - Sitcom, etc.
 - Webisode conventions so far
 - Static Image conventions
 - Graphic Novel Structure
 - New Challenges
 - VR storytelling - a new cinematic language: no shot sizes, no cutting, viewer in the centre of the story, how to guide your audience when they have full choice
 - Cross-platform storytelling
 - Integrating User-Generated Content
 - User Interface as Storytelling Platform

And I think Aaron Koblin, the big guru in this area, he said that the nineteenth century was the century of the novel, the twentieth century is the century of the film, but the twenty first century is the century of the interface. And I think that that's absolutely true and I think that we have to be thinking about boundariless storytelling. I think we have to [...] be thinking about how to tell stories through the interface. (Bang, personal communication 19 April, 2016)

- Commercial Content - Brand

I think brands are very much now calling themselves storytellers and so I think the key is not to view an advertiser as an enemy. [...] Although sales are really, really important I think they are more interested in loyalty. and loyalty only comes when you really love a brand, when you have a passion. [...] I think what you are going to see is a really interesting business model with advertisers working with content makers to do branded content, but not just branded content, branded channels. [...] I think that Red Bull has aligned itself with the concept of excitement and innovation and dynamism and I'm really impressed that they sponsored something in Korea which was a competition between a Hip Hop and an ancient form of, kind of rapping in an area called Ponsori and these youngsters were just going nuts over the Ponsori masters up against the Hip Hop guys and they were each given two minutes each and they were going back and forth, tradition modernity, tradition modernity and at the end the Ponsori master won. And these are young kids voting on their phones and I thought it was fantastic! I think we are going to see many more channels, I think we are going to see advertiser channels where they want to be associated with certain types of programming but it's not about promoting the advertiser, it's about promoting a feeling or an aesthetic. A feeling of prestige or a brand that the advertiser wants to communicate to the consumers. They feel that once they have sold people on the idea of that, then you'll go and buy that product anyway. (Bang, personal communication 19 April, 2016)

- Content Marketing Tools – This module is an inventory of tools to keep connected to potential and existing audiences for paid content. Some of these tools include SEO, Blogging, Web Analytics, eBooks, LinkedIn, Twitter, Facebook, YouTube, Pay Per Click, Online Video, Webinars, Banner Ads, etc.

- IP & Copyright

- Copyright Law - Definitions & Obligations: NZ, US, elsewhere;
- Licencing, Publishing & Performing Rights Organisations: APRA, BMI, ASCAP, SESAC
- Creative Commons
 - Concepts and Licences
 - CC as Growing International Resource

...how important Creative Commons is as part of the tool kit. Because [...] one of their challenges is to get your content in front of as wider audience as possible and get people sharing it. Creative Commons is such a powerful tool for this. [...] over a billion assets created, that are freely accessible and legally available for people to use for their own work. And the more people that use them the more powerful it gets. So I actually think that as a ... foundational technology and a platform

for publishing, [...] encourage people to share your work and remix it and reuse it. And give attribution to you. Because this is how you pop up on people's radar, it's like advertising. (Baxter, personal communication 5 April, 2016)

Content Innovation Workshop

Running through entire programme, students are challenged with creative provocations that they solve through a blend of conventional and unprecedented approaches to content creation.

It's not just about people connecting with content, what do you want them to do afterwards? Which is a big part of what we do. The call to action could be, go to this website, sign up, whatever it is. So it's also thinking about [...] that next step. And thinking about why. What is the purpose? Am I entertaining, am I informing, am I enlightening? And there's also this merger now between [...] information that has been presented in an entertaining and engaging way. Which is the space that we sit in really, this data driven story. (Baxter, personal communication 5 April, 2016)

5.4.4 CONNECTIVITY

Mission Statement

According to Jenkins, Ford & Green (2013), "...the spread of all forms of media relies as much (or more) on their circulation by the audience as it does on their commercial distribution...spreadability is determined by...the active participation of engaged audiences." This component covers approaches to fostering user engagement, focusing on the various methods for makers to connect with users, for users to interact with makers, and for users to interact with one another.

Modules will include such topics as:

- Understanding Audiences, The New Analytics
- Spreadability in the Networked Environment
- Fostering Interactivity
- Remote Collaboration
- Social Media

- Content Communities

Users work in communities; we are drawn to communities of people who have the same passion. I don't know what it might be, maybe you like cooking French food, maybe you like knitting, maybe you like fishing, fly fishing. You might like cricket fighting if you are in China, calligraphy, cars, whatever it is. And you find your community, and you have a passion for it and you will spend money on it. And that is what, to me is great about being a content maker, we can go to all those people and say, hey listen, I know that you have a large French food loving community, so could we do stories about amazing Cordon Bleu chefs or Michelin star chefs, or could we do something on French wine that would be a trans-media project but at the same time could we have a QR code on there and when you click the QR code then Amazon will send you samples of all the wine we have just seen this week, on the website this week? And you could make a business model that include eCommerce events, special videos in addition to what you put on television which could be in addition to what you have online... (Bang, personal communication 19 April, 2016)

The CONNECTIVITY Theme Area blends with all the other four Theme Areas.

"It's thinking very much about where my audience is consuming this, the scenario in which they are going to be enjoying my media. [...] There are three different types that I talk about:

- The quick dip, which is usually on a mobile device. It's short, it's possibly just a taster or a trailer or just a segment, a small part of the piece you are producing. It's usually when people are on the move. It's usually in those in between times like standing in a queue waiting for something, waiting for a bus, waiting for your latte, eating something, and has a 90 second experience of your piece.
- Then you've got your sit and click experience, which is usually consuming media on a desktop or a laptop, maybe at work. So again you have to think about, does my story stand out visually on its own, as well as in audio, because not everyone has the ability to play audio in those scenarios.
- And then you have got your lean back experience, which is the longer content, 20 minutes or more. Where people are settling in to relax and enjoy the experience and that they are assigning a longer portion of their attention to enjoying that content.

And this is the big thing, what they are competing for is attention. [...] There is this concept of the attention economy [...] And we need to think about, where is my audience? That is where your thinking is, who is the person [that is] most likely to be consuming my content? And that is what drives then how you produce it, what format it's in, and

where are they most likely watching. (Baxter, personal communication 5 April, 2016)

- Disconnection Sections – An important, and often overlooked, human activity involves the waking dream. The brain has much to be gained by musing; engaging in free thought during moments uncluttered by content and technology. These sections will be optional opportunities for students to unplug and allow their thoughts to take their own path. This occurs so infrequently in our busy culture, and can actually serve as a cultivation space for new ideas, for processing the barrage of input they're exposed to in this programme, and for allowing connections to be drawn between ideas that might not be apparent when subjected to unceasing input. The operating premise here is that in order to connect, one needs to spend time (however brief) disconnected.

5.4.5 CAREER

Mission Statement

In a way, this is where all roads in the programme lead, as CAREER can be seen as a *creative output* of the BCFHM. The through-line for this Theme Area is to integrate the other four Theme Areas in such a way as to channel the students' creative practice into a creative livelihood. Below are some of the suggested topics:

Entrepreneurial Education

- Business Skills
- Different business structures
- Developing Business Intelligence
- Strategic Thinking
- Developing a Competitive Advantage
- Risk Management

Business laws in your home country – each student conducts independent research and presents data about how the laws in their nation of origin are structured for small and large businesses. They will present this information to the rest of the cohort and compare/contrast them.

- How to run a small business

Accounting, Taxation & Invoicing

- Promotion and CRM
- How to function within a larger business entity
- From a film set to a corporation Establishing your "brand of one"
- Basic Accounting & Finance skills
- Online accounting/invoicing platforms
- Reading Your Market
- ROI
- Staying Agile

You, Entrepreneur

This module will channel the wisdom of current literature related to advancing the business of one's own life. Students will be directed to volumes such as:

The Startup of You (R. Hoffman & Casnocha, 2012), which coaches the reader to develop the mind-set of a startup, using modern entrepreneurial strategies to build networks, foster agile skills, and take intelligent risks in order to grow a career that can flourish in today's dynamic, chaotic environment;

Dance at Work, The Creative Business Toolkit (Baxter, 2014), which provides a step-by-step guide for succeeding (both economically and in personal fulfilment) as an independent contractor

running a portfolio career in the creative industries. This book is an essential survival guide for thriving in the networked creative economy.

Both of these are available as eBooks, and will be required texts of the CAREER Theme Area. Chapters will be workshopped in flipped classes.

Steve Denning, at Cross Media Lab, he said this and I thought it was great, 'there must be a plan but the plan will change'. And that's the thing; strategy and planning are very different. Strategy is about long term vision, that long term direction. Looking ahead to the future and seeing the mountain that you want to climb. But the pathway that you take [to get] there is based on lots of short plans. So I think that's the other challenge, is getting students who really just want to focus on the thing right now, trying to give them that understanding of having to have telescopic vision where every so often you have to pick your head up and just make sure that you are still moving in the right direction to hit the mountain and you haven't veered too far off course. But you are going to veer off the course because of the opportunities that come along on the way that you can't predict. I think it's the idea of being proactive and having that long-term strategy and vision, but also being reactive to opportunities that come along the way. And not sticking so firmly to the plan. (Baxter, personal communication 5 April, 2016)

The Future of Work

Students will research, present on and discuss the variety of jobs that are just coming on line, or are about to. Through related research in the Emerging Technologies theoretical component in the CONTEXT Theme Area, students will also have the opportunity to forecast the establishment of jobs that don't yet exist by identifying trends based on newly minted job descriptions, and creating trajectories that point to how new roles might evolve. This speculative, horizon-expanding exercise, engaged in once a semester, will also be informed by the plentiful literature available on the future of work.

Marketing Yourself

Combining targeted online resources and facilitated workshops by industry professionals, this is a series of sessions on topics including:

- Pitching
 - Art of Presentation
 - Project Pitch
 - 10-minute, 5-minute and 2-minute versions

- Elevator Pitch
- Your Brand of One
 - Face-to-face Brand
 - Online Brand
- Network Building
- Finding & Developing Opportunities
- Staying Connected to Your Clients and Prospects

...just getting comfortable with the pitching process; pitching your ideas, your treatments and getting feedback on them, because that's a great experience in a lot of ways. So the idea that you have a concept for a story, you write your treatment, you pitch it to the client, you get feedback from them. Some of it may be negative, you have to develop quite a robust skin but that is just great training for when you finally publish your content and people on social media start popping up and give you feedback on it. (Baxter, personal communication 5 April, 2016)

The Business of Art / The Art of Business

This module brings together the two worlds of Art and Business (blending with the CRAFT Theme Area) to explore methods of managing the often delicate balance between creative risk-taking and the need to market one's self. The students explore ways to address the inevitable inner struggle between the creative's need to think freely and take creative risks in order to produce work that is meaningful and innovative with the need for a sense of certainty that said ground breaking work will supply sufficient income. Guest lectures by industry professionals and gamified exercises that test and strengthen their courage to integrate their creativity and innovative ideas into creative entrepreneurship (Bujor & Avasilcai, 2016; Okpara, 2007).

The Professional Edge

The aim of this module is to create a set of experiences in which the student opts to respond "professionally" to given provocations. Professionalism, here, refers to a mindset that manifests in behaviour, largely in the realms of communication and work ethic.

This module blends, in part, with the **CRAFT: How to 'Be' On a Set / Proficiency Drill** module, and is designed to extract from within the student their "inner-professional". From my experience teaching Professional Practice modules, it is clear to me, as a result of trial and error, that nurturing

students' soft skills is most effectively done by 1) creating situations in which they identify what they know inside themselves to be the right way to handle a given situation; then 2) to reinforce the behaviour that is based on that inner knowledge through a series of **gamified exercises**. Facilitating them to pull it out of themselves is more effective than attempting to push it into them. It's like the sculptor knowing that their sculpture already exists within the stone, and seeing their task as just to chip away all the stone that is not that sculpture. Some of the soft skill areas that can be workshopped in this way are:

- Communication
- Collaboration
- Self-Critique
- Peer Feedback
- Leadership
- Flexibility
- Work Ethic
- 360° attention
- Lateral Thinking
- Big Picture Thinking
- Understanding of, and working with, Group Dynamics
- Conflict Resolution
- Time Management
- Self-Starting Skills

Career Pathway Workshop

This learning module aims to empower the student to strategically chart a course toward the emerging "future jobs" [in the realm of those predicted in <http://bit.ly/FutureJobs-1>, <http://bit.ly/FutureJobs-2> and, most impressively, <http://bit.ly/FutureJobs-3>]. This will be accomplished through a series of workshops in which the student identifies their personal creative passions and proclivities and maps out possible scenarios for developing them within the context of an evolving career landscape. The ability to forecast trends and place themselves ahead of the curve (whilst doing what they love) will be one of the core competencies the student will take away from this course.

Success in a Shifting Landscape

This is a module that addresses ways to become and remain proactive and creative entrepreneurs in a climate of uncertainty. The focus here is on trend forecasting and on flexibility amongst the vagaries of ever-changeable careers. Students are taken on journeys through hypothetical careers that they build over the course of two or three weeks. When external influences conspire to alter the market for those careers, they must think on their feet and repurpose themselves. The amount of time they have to reimagine and repurpose gets ever shorter with each iteration (Menger, 1999).

The Portfolio Career

A foundational concept of the BCFHM is that its graduates will be pursuing Portfolio Careers in the Creative Industries. The job market has changed in the past decade, but many students entering tertiary from secondary school still have their eyes on the old model of single-specialisation careers (R. Hoffman & Casnocha, 2012). A prominent through-line of this programme – throughout all five Theme Areas - will be to reinforce acceptance of and support planning for a Portfolio Career. This sub-theme will pervade all areas of the learning.

A module on Portfolio Careers will occur once in each of the three years of the students' progress through the programme. The students will review excerpts from available literature around Portfolio Careers (e.g. Hopson & Ledger, 2010) and will share their estimations of what the components of their ideal portfolio of creative engagements might be. As they gather knowledge and wisdom through the course of the programme, their idea of what that portfolio might look like will invariably evolve as they progress through.

I think the most important thing is, just think laterally and see that your skills can be transferrable. And just get involved as much as you can as early as possible. Because it's also about building a reputation and a brand, and also not being afraid to see yourself as a brand. And owning that early on. We're seeing this a lot at the moment, the work we are now getting is because we have this very strong brand. And I'm now getting approaches from people extremely well known in the media here who need us to help them get work in the space because we have got the perception of [us] being this big organisation. And we are, there are about fourteen of us now. We all work from home, we are a group of individuals who realise that by coming together and collaborating, we can collectively take on big jobs. So that's the other thing, is realising that the people who are in their class are going to be their team, and buddying up and connecting and realising that these are lifelong relationships they are establishing and these can be your

teams. [...] And seeing it more as a whanau company....I think that's the future. (Baxter, personal communication 5 April, 2016)

5.5 Remaining Issues

This research explores the philosophical backbone to a programme in moving image education for the continually evolving new media landscape. The challenge is steep for any industry professional (such as the author) to cover within a Master's Thesis the full scope of international change and the broad range of evolving skills and capabilities required in the ever-transforming moving image landscape. This work, then, is intended as a sketch for a subsequent more detailed articulation. Hence, there are a number of operational and systemic questions deliberately left unanswered at this stage. Implementing a programme of this nature will need to fit in snugly with the particular environment of any given institution adopting these principles. Consequently, this research has refrained from being too operationally prescriptive, as that would limit the possibilities for flexible adoption. Rather, this is an introduction to a way of thinking about how an institution might deliver moving image instruction that is more relevant and adaptable to the changing realities of creative content and enabling technologies. What follows are some of the issues that remain to be addressed by each institution.

Delivery

- Scaffolded progression through the years
 - How are the Theme Areas and the modules within them scaled across the years?
 - What is the principal focus of each year?
 - Which modules would be best allocated to which year groups?
 - How will the instruction modules within the suggested Theme Areas build upon one another?
 - Will students remain segregated in year group streams or do they ever work together on projects? [If yes to the latter question, this is a good method for employing the Tuakana-Teina model.]
- Programme Structure
 - Which modules are compulsory and which are electives?
 - Which are the modules that need to be compulsory?
 - How does the electives pathway work?
 - Are there Majors and Minors, or will it the BCFHM be a non-endorsed degree?
- Timetable

- How will the delivery work as regards the students' daily schedule and the flow of cohorts through the programme?
- Assessment
 - How will assessment be embedded into the learning?

Inter-Departmental Content Integration

It is recognised that this issue is problematic within the current structure of most institutions of higher learning. The central issue stems from the fact that programme budgets are tied to enrolment numbers within each programme. In New Zealand, the student currency is Equivalent Fulltime Students (or EFTS). As long as EFTS are siloed within the department, cross-disciplinary teaching in a manner that reflects the market's need for hybrid skills will not be achieved. So this is an issue which would need to be addressed on an institutional level before such a programme could be implemented. A related issue is that of the remuneration and timetabling of academic staff. There would need to be adjustments to payroll and timetabling systems to enable this cross-disciplinary approach.

These considerations are outside the purview of this research, but will need to be addressed. Perhaps a clue to the funding issue lies in the integration of industry stakeholders into the programme. In that the programme is designed to incorporate the active input of the external community, it is envisaged that sponsorship support can be incorporated into this input. This, then, raises the question of academic integrity and the separation between academia and commerce (as discussed above). That concern would need to be addressed on the programme level on an institution-by-institution basis.

Scale and Resourcing

Another issue is that of the scale of the educational offer. If the intention is to teach a broad range of capabilities, decisions will need to be arrived at regarding the breadth of the offer. How extensive should the scope of the programme be? This is tied to the commitment of resources, balanced with projected enrolment fees and numbers. Should a single department bear the financial responsibility for resourcing this programme, or should the load be spread across the appropriate departments? If the latter, how would this work?

Qualification Structure

The structure of this programme does not adhere to conventional programme structures that organise learning in ways that satisfy the requirements of the New Zealand Qualifications Authority. For example, rather than being organised into courses based on specialisation content, this programme is based on interwoven learning modules inside the six Theme Areas (Context, Craft, Content, Connectivity and Career). This, as discussed above, is intended to create multi-layered learning experiences, based on capability arenas, in which students integrate skills and capabilities in ways more appropriate to the nature of the content. But NZQA is used to learning being segmented into courses. So some translation will need to occur between systems in order for the delivery to be carried out as proposed, but framed within the definitive programme document such that NZQA will understand how course aims will be met and course learning outcomes will be assessed.

The suggestion here is to name the Theme Areas “courses” (in the programme approval documentation), each numbered for the corresponding semester. So, for a six-semester (three year) degree, “Context” would become “Context 1” for Semester 1, “Context 2” for Semester 2, etc. Thus, students would be seen to take six courses per semester, each with its own Course Aims and Learning Outcomes. Even though these “courses” are not delivered in the familiar linear pattern, each of the six Theme Areas could then be assessed on its own. A similar assessment method is employed within Unitec’s Bachelor of Creative Enterprise. First year students all travel together through four core courses, and then, in student teams of around five people, all engage in a semester-long project. The project is not a course, per se, the students engage in the project independently during timetabled periods in their makerspaces. But their engagement with the project is assessed through the four core courses, each with its own assessment criteria which assess the students’ performance against each course’s learning outcomes.

Potential Resistance to Change

Another issue concerns the fact that this cross-disciplinary approach, combined with the content and pedagogical strategies outlined here, will require academic staff to embrace change in ways that may prove difficult for some. Indeed, many teachers who have invested huge parts of their lives, as well as much energy and passion, into specialised “legacy skills”, will need to adapt to newer methods and approaches to applying and teaching those skills. Some of the specific techniques they’ve taught for years are now outdated. The challenge here is for these educators to identify the core learning contained within the legacy process and to transfer that core learning to newer applications. The broader question here concerns how to ensure that the processes of adaptation, change and review within a learning institution are at least equal to the speed of those

in industry. This can likely be addressed with a professional development/academic support component that brings those teachers into the world of newer pedagogies and transferrable skills (McCrickerd, 2012). Many teachers are candidates for a journey that is in many ways parallel to that on which the students of this programme will be venturing.

Market Research would need to be done in the locality of the intended offer. The short and long-term viability of the programme would need to be ascertained in each institution's catchment community by means of stand market validation techniques, and a scoping would need to occur to identify any existing offerings in the local landscape that could compete for the same students. The programme would need to begin as a scaled-down version for the initial cohort, and have an expansion plan ready to phase in as the programme grows.

With these concerns in mind, I maintain that this model or a variation thereof, holds great potential for preparing aspiring filmmakers to become multiple-talented visual storytellers for a dynamic, rapidly changing creative and economic environment.

Chapter Six

DISCUSSIONS

The moving image industry today is in a period of rapid transformation of both its technology and its mission. Beginning with the breakup of the studio system, and gathering momentum with the advent of the digital revolution, the snowball of change has been gaining speed, affecting the tools, methods, and approaches to moving image acquisition, manipulation, delivery and user patterns.

Film financing has ventured into new territories as well. As the tools for creation and distribution of moving image content have become more accessible, so also has access to funding for projects, from theatrical features to app-based episodic mini-stories. Many capital-raising schemes today more closely resemble funding models for startup tech firms than they do the more familiar film financing structures of yesterday. Moreover, equity funding has leaped through the fourth wall to include the audience as investors, as found in crowdfunded projects.

There are now more ways than ever before to deliver moving image content. As recently as sixty years ago, the only moving image option for many communities was the local movie theatre. Today, penetration of mobile devices pervades most every corner of the western world, and content flows fluidly both down and upstream. Streaming video services, such as Netflix, have now crossed over into the content creation business and users can access programme material anywhere, at any time. Video sharing platforms now offer options for users to host subscription-based channels, providing a direct link between the creative content maker and a global audience. Social media and hosted websites afford quick platforms for moving image content to be shared with a fan base, and provide an opportunity for users to interact directly with creators.

Audiences are no longer the passive receivers of entertainment they once were. With peer-to-peer interactive capabilities baked into many moving image creation solutions, user-makers can now communicate and share content with other user-makers. Received content is freely re-mixed, mashed up, repurposed and spread around.

This is the culture in which Generations Y and Z (and beyond) have grown up, the culture they accept to be the way things are; this is the culture of tomorrow's moving image makers. Whether working as solo practitioners or collaboratively in teams, as contractors or employees, tomorrow's moving image graduates will be entering the evolving landscape of the Creative Industries.

Three main job divisions in the Creative Economy have been identified: Specialist Creatives (those who have creative occupations *within* the core creative industries); Support Workers (those who

hold non-creative jobs within the creative industries); and Embedded Creatives (those who hold creative occupations *outside* of the creative industries). Research points to continued growth in opportunities for Embedded Creatives, signalling new pathways opening within which creative moving image practitioners will be able to apply their crafts. These opportunities correspond with new markets (e.g. in business and education) and new audiences for creative moving image work in our increasingly post-literate culture.

Along with traditional entertainment content, new content pathways are developing. Business models are evolving to fit evolving communication and content paradigms, giving rise to new types of creative practitioners. The last decade has seen the rise of independent agent artists who can sustain themselves by providing freemium content or by providing content to their fan bases through artist-subscription models. These makers have learned to become economically self-sustaining by building an online brand, creating, and nurturing a following around their work. With the increasing market fragmentation created by the deluge of available creative content, artists are challenged to carve a distinctive niche for themselves in the Long Tail. To date, few, if any, academic institutions impart skills for this. Educational environments need to be created where these capabilities are fostered.

Moving image is one of many sectors undergoing fundamental changes. Higher Education is also experiencing deep and rapid transformation internationally. The ubiquity of information available online, serious economic challenges, competition from a variety of new education models (including corporate and private training establishments), and increasing pressure on Higher Education to emphasise skills training, are among the forces at work which call on legacy educational institutions to relook at their missions and their delivery philosophies.

Understanding about the nature of teaching and learning has been shifting as well, bringing new approaches to pedagogy. These include greater student involvement in the learning process, leading to socially constructed learning experiences; new designs for learning environments that foster creative collaboration through physical and technological connectedness; blended delivery models that utilise learning technologies in a mix of independent (often meaning online) and face-to-face learning experience; and self-reflective (meta-cognitive) assessment. While these inroads in learning philosophy have begun to take hold in Higher Education, there is still a long road ahead for the majority of institutions to adopt these more progressive approaches to learning.

Much of moving image education still has one foot in the past. Many institutions are still primarily teaching conventional approaches to film production. Some are bringing in new technologies and laying them on top of methods that are more traditional. Some offer a variety of courses in other

related subject areas but have not yet blended them into a cohesive integrated programme. While the feature film market is still doing healthy business, the broader moving image environment is transforming rapidly. In this researcher's estimation, moving image education, as a whole, is not keeping up with these changes. Many film school students will graduate into an environment that is very different from the one for which they trained. What is needed is an integrated, future-focused moving image programme that is structured in a new way and is aimed at fostering independence and lateral thinking, creative proactivity in the arena of opportunity creation, innovative approaches to content creation and delivery, and, in the best of all worlds, creative cultural leadership.

This new proposed programme offers a variety of learning, structured by broader topic area (not just by skills-based divisions); a significant ongoing reflective component; a modern approach to teaching and learning; and an integration of academic departments across faculties to address the holistic learning needs of tomorrow's creative digital content creator. Graduates need to be conversant in many contemporary tools and capabilities purposed for today's (and tomorrow's) networked culture.

Contemporary moving image education is but one field where fundamental transformation is needed. To survive as a global institution, Higher Education needs to self-reflect and to enact wide scale reform to meet the changing needs of learners. Are we ready? Are individual institutions, and the instructional designers and lecturers within them, ready to take on the realities of the changing environment around us, and then to re-design the context of learning?

There will need to be continued, rigorous discussion around the role of education today. Where do institutions see themselves on the continuum between philosophical enquiry and job skills training? What should be our relationship to our students? Do we still need teachers, in the traditional sense of the word, or should we reframe our roles as learning facilitators? To what extent should we still divide learning into courses based on subjects versus re-designing our content and delivery around integrated learning experiences?

Real life is not divided into subjects. Each experience invokes within us a series of interwoven bodies of knowledge. In most of our interactions, we draw on several facets of our knowing. Creative practitioners are world citizens who occupy a special place in society, allowing cultures to self-reflect through a myriad of perceptual windows. Is it enough to just teach them hard skills for employment? Or is something deeper required? As change accelerates, how do we best train future creative practitioners to access the cornucopia of capabilities that they'll spend a lifetime mastering and reshaping to meet morphing demands? How do we support them to set themselves

up as lifetime learners who have the awesome responsibility of facilitating culture's ability to make sense of our ever-changing world?

It is hoped that the programme outlined in this Thesis might support moving image education to edge one small step closer to a new way of framing learning for tomorrow's creative practitioner.

References

- Akram A. El-Tannir. (2002). The corporate university model for continuous learning, training and development. *Education + Training*, 44(2), 76–81.
<https://doi.org/10.1108/00400910210419973>
- Akyol, Z., & Garrison, D. R. (2011). Assessing metacognition in an online community of inquiry. *The Internet and Higher Education*, 14(3), 183–190.
<https://doi.org/10.1016/j.iheduc.2011.01.005>
- Anderson, C. (2008). *The long tail : why the future of business is selling less of more*. New York : Hyperion, [2008].
- Archambault, M. (2015, June 22). The Science Behind Lytro's Light Field Technology and Megaray Sensors [Tech News]. Retrieved September 30, 2016, from <http://petapixel.com/2015/06/22/the-science-behind-lytros-light-field-technology-and-megaray-sensors/>
- Armarego, J. (2009). Displacing the Sage on the Stage: Student Control of Learning. In *2009 22nd Conference on Software Engineering Education and Training* (pp. 198–201).
<https://doi.org/10.1109/CSEET.2009.43>
- Askanius, T. (2012). *Radical Online Video: YouTube, video activism and social movement media practices* (Doctoral). Lund University, Lund, Sweden. Retrieved from [http://portal.research.lu.se/portal/en/publications/radical-online-video-youtube-video-activism-and-social-movement-media-practices\(5840060f-a134-4f91-be58-a0342b98ea09\).html](http://portal.research.lu.se/portal/en/publications/radical-online-video-youtube-video-activism-and-social-movement-media-practices(5840060f-a134-4f91-be58-a0342b98ea09).html)
- Au-Yong-Oliveira, M., & Ferreira, J. J. P. (2014). What If Colorful Images Become More Important than Words? Visual Representations as the Basic Building Blocks of Human Communication and Dynamic Storytelling. *World Future Review*, 6(1), 48–54.
<https://doi.org/10.1177/1946756714528880>
- Bakhshi, H., Hargreaves, I., & Mateos-Garcia, J. (2013). *A Manifesto for the creative economy*. UK: National Endowment for Science, Technology and the Arts (NESTA). Retrieved from <http://www.nesta.org.uk/publications/manifesto-creative-economy>

- Bakker, G. (2010). The Economic History of the International Film Industry [Economic History Association communication site]. Retrieved September 24, 2016, from <http://eh.net/encyclopedia/the-economic-history-of-the-international-film-industry/>
- Barber, M., Donnelly, K., & Rizvi, S. (2013). *An Avalanche is Coming* (p. 71). London: Institute for Public Policy Research. Retrieved from http://www.ippr.org/assets/media/images/media/files/publication/2013/04/avalanche-is-coming_Mar2013_10432.pdf
- Barber, T. (2012, October). Lunch with the FT: Norman Davies. *Financial Times*. Retrieved from <http://www.ft.com/cms/s/2/12a5994a-17aa-11e2-9530-00144feabdc0.html?siteedition=intl#axzz2D4BfKYuw>
- Baxter, H. (2014). *Dance at Work: the creative business toolkit* (1 edition). [Kindle Mac version] Mohawk Media. Retrieved from <http://www.amazon.com/Dance-Work-creative-business-toolkit-ebook/dp/B00NQSUPRQ>
- Beaulieu, T., Sarker, S., & Sarker, S. (2015). A Conceptual Framework for Understanding Crowdfunding. *Communications of the Association for Information Systems*, 37(1). Retrieved from <http://aisel.aisnet.org/cais/vol37/iss1/1>
- Benkler, Y. (2006). *Wealth Of Networks: How social production transforms markets and freedom*. Yale University Press. Retrieved from http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf
- Berners-Lee, T. (2010). Long Live the Web. *Scientific American*, 303(6), 80–85.
- Bevitt, S. (2015). Assessment innovation and student experience: a new assessment challenge and call for a multi-perspective approach to assessment research. *Assessment & Evaluation in Higher Education*, 40(1), 103–119. <https://doi.org/10.1080/02602938.2014.890170>
- Boud, D., & Falchikov, N. (Eds.). (2007). *Rethinking Assessment in Higher Education - Learning for the Long Term*. London & New York: Routledge. Retrieved from <https://books.google.co.nz/books?hl=en&lr=&id=GJt9AgAAQBAJ&oi=fnd&pg=PP1&dq=assessment+for+the+longer+term&ots=GowS73mkvR&sig=JB2uiaspiMroEq1w9YVRFaCgO6E#v=onepage&q=assessment%20for%20the%20longer%20term&f=false>

-
- Boyle, D. (1992). From Portapak to Camcorder: A Brief History of Guerilla Television. *Journal of Film and Video*, 44(1/2), 67–79.
- Braet, O., Spek, S., & Pauwels, C. (2013). Crowdfunding the Movies: A Business Analysis of Crowdfinanced Moviemaking in Small Geographical Markets. *Journal of Media Business Studies (Journal of Media Business Studies)*, 10(1), 1–23.
- Bridgstock, R., Goldsmith, B., Rodgers, J., & Hearn, G. (2015). Creative graduate pathways within and beyond the creative industries. Retrieved from <http://www.tandfonline.com/doi/pdf/10.1080/13639080.2014.997682>
- Brinkman, W. P., Buil, V. P., Cullen, R., Gobits, R., & Van Nes, F. L. (2001). Design and evaluation of online multimedia maintenance manuals. *Behaviour & Information Technology*, 20(1), 47–52. <https://doi.org/10.1080/01449290010020639>
- Brown, C. (2015a, May). Key Considerations in Film Finance [Online Film Financing Platform]. Retrieved September 24, 2016, from <http://info.slated.com/filmonomics/key-considerations-in-film-finance/>
- Brown, C. (2015b, May). The Future of Film Funds [Online Film Financing Platform]. Retrieved September 24, 2016, from <http://info.slated.com/filmonomics/future-of-film-funds/>
- Brown, M. (2016, April 14). Film director Peter Greenaway calls for “image-based cinema.” Retrieved May 27, 2016, from <http://www.theguardian.com/film/2016/apr/14/film-director-calls-for-image-based-cinema>
- Bujor, A., & Avasilcai, S. (2016). The Creative Entrepreneur: A Framework of Analysis. *Procedia - Social and Behavioral Sciences*, 221, 21–28. <https://doi.org/10.1016/j.sbspro.2016.05.086>
- Burgess, J., & Green, J. (2009). *YouTube - Online Video and Participatory Culture*. Cambridge, UK: Polity Press. Retrieved from <http://ebookcentral.proquest.com.libproxy.unitec.ac.nz/lib/unitec/reader.action?docID=4029558&ppg=18>
- Cammaerts, B. (2008). Critiques on the Participatory Potentials of Web 2.0. *Communication, Culture & Critique*, 1(4), 358–377. <https://doi.org/10.1111/j.1753-9137.2008.00028.x>

-
- Carey, M. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Cazden, C. B. (1994). What is Sharing Time For? In *The Need for Story: Cultural Diversity in Classroom and Community*. Urbana, Illinois, USA: National Council of Teachers of English. Retrieved from <http://files.eric.ed.gov/fulltext/ED365991.pdf>
- Chao, Y., Fernandez, J., & Nahata, B. (2015). Pay-what-you-want pricing: Can it be profitable? *Journal of Behavioral and Experimental Economics*, 57, 176–185. <https://doi.org/10.1016/j.socec.2014.09.004>
- Christopherson, S. (2013). Hollywood in decline? US film and television producers beyond the era of fiscal crisis. *Cambridge Journal of Regions, Economy and Society*, 6, 141–157. <https://doi.org/10.1093/cjres/rss024>
- Csikszentmihalyi, M. (2014). *Flow and the Foundations of Positive Psychology - The Collected Works of Mihaly Csikszentmihalyi*. Springer Netherlands.
- Collins, J., Radner, H., & Collins, A. (Eds.). (1993). The New Hollywood. In *Film Theory Goes to the Movies* (pp. 8–36). New York: Routledge.
- Collins, K. (2015, April). This is what the future holds as Moore's Law turns 50 (Wired UK). *Wired UK*. Retrieved from <http://www.wired.co.uk/news/archive/2015-04/19/moores-law-50th-anniversary-future-disruption>
- Coughlan, S. (2016, January). Time spent online “overtakes TV” among youngsters. Retrieved August 6, 2016, from <http://www.bbc.com/news/education-35399658>
- Coulanges, R. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Dawtre, A. (2009). Films Get Fit to Survive. *Variety*, 416(4), A1.

-
- Dede, C. (2014). *The Role of Digital Technologies in Deeper Learning / Students at the Center* (Students at the Center). Boston: Jobs for the Future. Retrieved from <http://www.studentsatthecenter.org/topics/role-digital-technologies-deeper-learning>
- Delwiche, A. A., & Henderson, J. J. (2013). *The Participatory Cultures Handbook*. New York: Routledge.
- Dyson, F. (2009). *Sounding New Media - Immersion and Embodiment in the Arts and Culture*. University of California Press.
- Eaton, D. (2015, October). The Tech Education Challenge in New Zealand. Hewlett-Packard Enterprise. Retrieved from http://www.nztech.org.nz/wp-content/uploads/2015/10/16338-HPE-Education-Point-of-View-Documents-Oct-2015_4.pdf
- Eisenstein, C. (2011). *Sacred Economics*. Berkeley, CA, USA: North Atlantic Books. Retrieved from <https://www.northatlanticbooks.com/shop/sacred-economics/>
- explains. (2016, January 11). Why VR “Storytelling” does not currently work. And can it ever work? Retrieved April 12, 2016, from <https://medium.com/mobile-lifestyle/why-vr-storytelling-does-not-currently-work-and-can-it-ever-work-728ff15efb1c#.mao58f3yv>
- Fitzsimmons, M. (2016, May). How do you tell a story in VR? Nomads shows the way [News Magazine]. Retrieved May 30, 2016, from <http://www.techradar.com/news/wearables/how-do-you-tell-a-story-in-vr-nomads-shows-the-way-1322073>
- Fletcher, A., & Shaw, G. (2012). How does student-directed assessment affect learning? Using assessment as a learning process. *International Journal of Multiple Research Approaches*, 6(3), 245–263. <https://doi.org/10.5172/mra.2012.6.3.245>
- Franklin, M., Searle, N., Stoyanova, D., & Townley, B. (2013). Innovation in the Application of Digital Tools for Managing Uncertainty: The Case of UK Independent Film. *CREATIVITY AND INNOVATION MANAGEMENT*, 22(3), 320–333.
- Frosio, G. (2015). Users’ Patronage: The Return of the Gift in the “Crowd Society.” *Michigan State Law Review*, 2015(5). Retrieved from <http://cyberlaw.stanford.edu/publications/users-patronage-return-gift-crowd-society>

-
- Ganz, A., & Khatib, L. (2006). Digital cinema: The transformation of film practice and aesthetics. *New Cinemas: Journal of Contemporary Film*, 4(1), 21–36.
https://doi.org/10.1386/ncin.4.1.21_1
- Gauntlett, D. (2015). The internet is ancient, small steps are important, and four other theses about making things in a digital world. In *Creativity in the Digital Age* (pp. 17–33). London: Springer. Retrieved from <http://davidgauntlett.com/wp-content/uploads/2013/05/Gauntlett-2014-The-internet-is-ancient.pdf>
- Gibbs, J. C., & Taylor, J. D. (2016). Comparing student self-assessment to individualized instructor feedback. *Active Learning in Higher Education*, 17(2), 111–123.
<https://doi.org/10.1177/1469787416637466>
- Gildersleeve, R. E., Kuntz, A. M., Pasque, P. A., & Carducci, R. (2010). The Role of Critical Inquiry in (Re)constructing the Public Agenda for Higher Education: Confronting the Conservative Modernization of the Academy. *The Review of Higher Education*, 34(1), 85–121.
- Glenn, D. (2013, May). How Much Money Do YouTube Stars Make? [Infographic]. Retrieved August 27, 2016, from <http://www.adweek.com/socialtimes/money-youtube-partners-2013-infographic/129426>
- Hamilton, I. (2016, April 19). Why Peter Jackson Thinks Mixed Reality Is More Exciting Than VR (Plus New Magic Leap Video) [Tech News]. Retrieved April 19, 2016, from <http://uploadvr.com/watch-magic-leaps-latest-video-read-peter-jackson-said-startup/>
- Hansen, M. T. (2010, January 21). IDEO CEO Tim Brown: T-Shaped Stars: The Backbone of IDEO's Collaborative Culture ChiefExecutive.net I. Retrieved from <http://chiefexecutive.net/ideo-ceo-tim-brown-t-shaped-stars-the-backbone-of-ideoae%e2%84%a2s-collaborative-culture/>
- Hardy, R. (2013). Emmanuel Lubezki, DP of “Gravity”, Expounds on Cinematography in the Virtual Age. Retrieved October 28, 2016, from <http://nofilmschool.com/2013/10/emmanuel-lubezki-dp-gravity-on-cinematography-in-the-virtual-age>

-
- Hart Research Associates. (2013). *IT TAKES MORE THAN A MAJOR: Employer Priorities for College Learning and Student Success*. Washington, D.C.: The Association Of American Colleges And Universities.
- Hartman, J. (2016, May 4). Why You Should Start Building Story Worlds NOW. Retrieved May 6, 2016, from <https://www.linkedin.com/pulse/why-you-should-start-building-story-worlds-now-john-hartman>
- Hempel, J. (2014, June 4). The Future of the Image: A series exploring the new visual literacy - Fortune [Magazine]. Retrieved June 15, 2015, from <http://fortune.com/2014/06/04/future-of-the-image/>
- Herrington, A., & Herrington, J. (2006). *Authentic learning environments in higher education*. Hershey, PA : Information Science Pub., [2006].
- Higgs, P., & Cunningham, S. (2008). Creative Industries Mapping: Where have we come from and where are we going? *Creative Industries Journal*, 1(1), 7–30.
<https://doi.org/10.1386/cij.1.1.7/1>
- History Of Virtual Reality. (2015, December 25). Retrieved September 2, 2016, from <http://www.vrs.org.uk/virtual-reality/history.html>
- Hocks, M. (2012). Sonic Literacy: Resonance and Reflection. Retrieved August 6, 2016, from <http://www2.bgsu.edu/departments/english/cconline/hacking/#hocks>
- Hoffman, J., Salzman, C., Garbaccio, C., Burns, S. P., Crane, D., & Bombardier, C. (2011). Use of on-demand video to provide patient education on spinal cord injury. *The Journal of Spinal Cord Medicine*, 34(4), 404–409.
<https://doi.org/10.1179/2045772311Y.0000000015>
- Hoffman, R., & Casnocha, B. (2012). *The Startup of You*. London: Random House Business Books.
- Hopson, B., & Ledger, K. (2010). *And What Do You Do?: 10 Steps to Creating a Portfolio Career*. London: A&C Black.
- Isaacson, W. (2015). *The Innovators: How a Group of Hackers, Geniuses and Geeks Created the Digital Revolution*. Clitheroe, UK: Joosr Ltd. Retrieved from

<http://ebookcentral.proquest.com.libproxy.unitec.ac.nz/lib/unitec/detail.action?docID=2055934>

Ivey, B., & Tepper, S. J. (2006). Cultural Renaissance or Cultural Divide? *Chronicle of Higher Education*, 52(37), 83–89.

Jagernauth, K. (2013, March 14). Christopher Doyle Calls “Life Of Pi” A “Fucking Insult To Cinematography,” Hates On “Lincoln” & More. Retrieved from <http://www.indiewire.com/2013/03/christopher-doyle-calls-life-of-pi-a-fucking-insult-to-cinematography-hates-on-lincoln-more-100756/>

Jarry, J.-P. (2010). Teaching Cinematography. Presented at the National Institute of Industrial Property, Paris, France. Retrieved from http://www.imago.org/images/pdfs/teaching_cinematography_by_Jean-Paul_Jarry.pdf

Jenkins, H. (2006a). *Convergence culture: where old and new media collide*. New York: New York University Press.

Jenkins, H. (2006b, October). Confronting the Challenges of Participatory Culture: Media Education for the 21st Century (Part One) [Blog]. Retrieved from http://henryjenkins.org/2006/10/confronting_the_challenges_of.html

Jenkins, H. (2007, March). Transmedia Storytelling 101 [Blog]. Retrieved August 29, 2016, from http://henryjenkins.org/2007/03/transmedia_storytelling_101.html

Jenkins, H. (2009). *Confronting the Challenges of Participatory Culture - Media Education for the 21st Century*. Cambridge, MA, USA: Massachusetts Institute of Technology.

Jenkins, H., Ford, S., & Green, J. (2013). *Spreadable Media : Creating Value and Meaning in a Networked Culture*. New York: NYU Press.

King, B. (2010). The New Zealand Film Commission as a Government-Sponsored Film Producer. *Journal of Arts Management, Law & Society*, 40(2), 157–163. <https://doi.org/10.1080/10632921.2010.484626>

Kleijn, K. (2013). *Teaching Cinematography: From Film to Digital : Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femiss.pdf

-
- Knowles, C. (2016, February). Auckland a key location for NZ's burgeoning tech sector [News Magazine]. Retrieved August 31, 2016, from <https://itbrief.co.nz/story/auckland-key-location-nz-burgeoning-tech-sector/>
- Koo, R. (2012, September). Monetization Arrives at Vimeo: "Tip Jar" Available Today, Direct-to-Audience Sales Coming in 2013. Retrieved August 27, 2016, from <http://nofilmschool.com/2012/09/sell-videos-on-vimeo-tip-jar>
- Kotliar, S. (2011). *Freemium as a Business Model for Mobile Video*. Royal Institute of Technology School of Computer Science and Communication, Stockholm, Sweden. Retrieved from https://www.nada.kth.se/utbildning/grukth/exjobb/rapportlistor/2011/rapporter11/kotliar_sergej_11026.pdf
- Kurzweil, R. (2001). The Law of Accelerating Returns I KurzweilAI [Kurzweil Accelerating Intelligence]. Retrieved May 6, 2016, from <http://www.kurzweilai.net/the-law-of-accelerating-returns>
- Labarre, S. (2016, January 4). The Most Important Design Jobs Of The Future [Technologies Magazine]. Retrieved October 30, 2016, from <https://www.fastcodesign.com/3054433/design-moves/the-most-important-design-jobs-of-the-future>
- Lang, B. (2016, March 9). Studios, Exhibitors Consider Revolutionary Plan for Day-and-Date Movies at Home (EXCLUSIVE). Retrieved from <http://variety.com/2016/film/news/studios-exhibitors-consider-revolutionary-plan-for-day-and-date-movies-at-home-exclusive-1201725168/>
- Logan, M. (2016, April). VR Is Going to Change Narrative Forever. Retrieved August 30, 2016, from <https://www.inverse.com/article/14971-how-virtual-reality-could-change-storytelling>
- Malita, L., & Martin, C. (2010). Digital Storytelling as web passport to success in the 21st Century. In *EDUCATIONAL SCIENCES. WORLD CONFERENCE. 2ND 2010. (WCES-2010)(7 VOLS)* (Vol. 2, pp. 3060–3064). Istanbul, Turkey: Elsevier Procedia. Retrieved from <http://ictandenglish.webs.com/documents/Digital%20storytelling.pdf>
- Maltz, J., & Barney, D. (2012). *Freemium Software: A Guide for Startups*. Institutional Venture Partners.

- Marine, J. (2015, July). That's It for Tip Jar as Vimeo Pulls the Plug on Video Donations. Retrieved August 27, 2016, from <http://nofilmschool.com/2015/07/vimeo-shutting-down-video-donations-tip-jar>
- MBIE. (2015). Information and Communications Technology report I Ministry of Business, Innovation and Employment. Retrieved August 31, 2016, from <http://www.mbie.govt.nz/info-services/business/business-growth-agenda/sectors-reports-series/information-and-communications-technology-report>
- McClean, S. T. (2007). *Digital Storytelling: The Narrative Power of Visual Effects in Film*. Cambridge, MA, USA: Massachusetts Institute of Technology.
- McCrickerd, J. (2012). Understanding and Reducing Faculty Reluctance to Improve Teaching. *College Teaching*, 60(2), 56. <https://doi.org/10.1080/87567555.2011.633287>
- McLuhan, M. (1994). *Understanding Media - The Extensions of Man*. Cambridge, MA, USA: MIT Press.
- McNary, D. (2016, March 16). James Cameron, Jon Landau Slam Screening Room Home Video Proposal. Retrieved from <http://variety.com/2016/film/news/james-cameron-jon-landau-screening-room-sean-parker-1201731696/>
- Meitzner, D., & Kamprath, M. (2013). A Competence Portfolio for Professionals in the Creative Industries. *Creativity and Innovation Management*, 22(3), 280–294. <https://doi.org/10.1111/caim.12026>
- Menger, P.-M. (1999). Artistic Labor Markets and Careers. *Annual Review of Sociology*, 25, 541–574.
- Mennell, P. (2013). *Teaching Cinematography: From Film to Digital : Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Merisotis, J. (2016, May). Credentials Reform: How Technology and the Changing Needs of the Workforce Will Create the Higher Education System of the Future. Retrieved September 4, 2016, from <http://er.educause.edu/articles/2016/5/credentials-reform-how-technology-and-the-changing-needs-of-the-workforce-will-create-the-higher-ed>

- Meyer, E. T. (2015). The expert and the machine Competition or convergence? *Convergence: The International Journal of Research into New Media Technologies*, 21(3), 306–313. <https://doi.org/10.1177/1354856515579840>
- Moorhead, P. (2016, June). Microsoft Raises The “Mixed Reality” Bar Yet Again With New Holographic Platform. *Forbes*. Retrieved from <http://www.forbes.com/sites/patrickmoorhead/2016/06/07/microsoft-raises-the-mixed-reality-bar-yet-again-with-new-holographic-platform/>
- Napoli, P. M. (2008, July). Toward a Model of Audience Evolution: New Technologies and the Transformation of Media Audiences. Retrieved from http://www.academia.edu/238555/Toward_a_Model_of_Audience_Evolution_New_Technologies_and_the_Transformation_of_Media_Audiences
- Napoli, P. M. (2011). *Audience Evolution: New Technologies and the Transformation of Media Audiences*. Columbia University Press.
- Nelson, R., & Dawson, P. (2014). A contribution to the history of assessment: how a conversation simulator redeems Socratic method. *Assessment & Evaluation in Higher Education*, 39(2), 195–204. <https://doi.org/10.1080/02602938.2013.798394>
- Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199–218. <https://doi.org/10.1080/03075070600572090>
- Nicolas, M. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Nolf, M. (2012, February 20). What is the Light Field? Retrieved from <http://lightfield-forum.com/what-is-the-lightfield/>
- Norman, D. A. (2010). The Transmedia Design Challenge: Technology That Is Pleasurable and Satisfying. *Interactions*, 17(1), 12. <https://doi.org/10.1145/1649475.1649478>
- NZ Ministry of Education. (2009). Curriculum Guidelines for Teaching and Learning Te Reo Māori. Learning Media Limited.

- Okk, A. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Okpara, F. O. (2007). The Value of Creativity and Innovation in Entrepreneurship. *Journal of Asia Entrepreneurship and Sustainability*, 3(2). Retrieved from <http://www.asiaentrepreneurshipjournal.com/AJESIII2Okpara.pdf>
- Paul, R. W. (2012). *Critical Thinking: What Every Person Needs To Survive in a Rapidly Changing World. I Critical Thinking*. Foundation for Critical Thinking. Retrieved from <http://www.criticalthinking.org/store/products/critical-thinking-how-to-prepare-students-for-a-rapidly-changing-world/142>
- PBS. (2016, May 13). Do-It-Yourself Digital Distribution Platforms. Retrieved August 6, 2016, from <http://www.pbs.org/pov/filmmakers/resources/diy-digital-distribution-platforms.php>
- Perez, S. (2016, May). Amazon takes on YouTube with launch of Amazon Video Direct. Retrieved from <http://social.techcrunch.com/2016/05/10/amazon-takes-on-youtube-with-launch-of-amazon-video-direct/>
- Pinkerton, N. (2015, August). The great levelling: “expanded cinema” and the humbling of the movies. *Sight and Sound*. Retrieved from <http://www.bfi.org.uk/news-opinion/sight-sound-magazine/features/great-levelling-expanded-cinema-humbling-movies>
- Poirot-Delpech, M. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- Pollock, T. (2016, July 25). New Zealand’s tech scene is hotter than yours. Retrieved August 31, 2016, from <https://www.linkedin.com/pulse/new-zealands-tech-scene-hotter-than-yours-tristan-pollock>
- Razzouk, R., & Shute, V. (2012). What Is Design Thinking and Why Is It Important? *Review of Educational Research*, 82(3), 330–348. <https://doi.org/10.3102/0034654312457429>

- Reisinger, D. (2016, March 10). Napster Co-Founder Wants You to Pay \$50 to Watch a Movie. Retrieved August 6, 2016, from <http://fortune.com/2016/03/10/napster-sean-parker-movie/>
- Ridley, M. (2009). Beyond Literacy: Are Reading and Writing Doomed? In *Pushing the Edge: Explore, Engage, Extend*. (pp. 210–213). Seattle, Washington, USA: Association of College and Research Libraries, American Library Association,. Retrieved from <http://www.uoguelph.ca/~mridley/documents/PostLiteracyPaperACRL.pdf>
- Ridley, M. (2012, October). Beyond Literacy. Retrieved June 13, 2015, from <http://www.beyondliteracy.com/>
- Robey, T. (2016, April 4). End of cinema era on cards? *Times LIVE*. Retrieved from <http://www.timeslive.co.za/thetimes/2016/04/04/End-of-cinema-era-on-cards>
- Robison, R. A. (2012). Moore's Law: Predictor and Driver of the Silicon Era. *World Neurosurgery*, 78(5), 399–403. <https://doi.org/10.1016/j.wneu.2012.08.019>
- Ross, D. W. (1904). Design: Its Importance in Life. *Brush and Pencil*, 13(4), 261–269. <https://doi.org/10.2307/25503685>
- Rubin, M. (2000). *Nonlinear - A Field Guide to Digital Video and Film Editing*. Santa Cruz, Calif.; Gainesville, Fla.: Triad Publishing Company.
- Ryan, M. D., & Hearn, G. (2010). Next generation “filmmaking”: new markets, new methods and new business models - c33169.pdf. *Media International Australia*, (136). Retrieved from <http://eprints.qut.edu.au/33169/1/c33169.pdf>
- Ryan, P. (1988). A Genealogy of Video. *Leonardo*, 21(1), 39–44. <https://doi.org/10.2307/1578414>
- Saraç, S., & Karakelle, S. (2012). On-line and Off-line Assessment of Metacognition. *International Electronic Journal of Elementary Education*, 4(2), 301–315.
- Schraw, G., & Dennison, R. S. (1994). Assessing Metacognitive Awareness. *Contemporary Educational Psychology*, 19(4), 460–475. <https://doi.org/10.1006/ceps.1994.1033>
- Schwartz, A. A. (2015). The Nonfinancial Returns of Crowdfunding. *Review of Banking & Financial Law*, 34(2), 565.

-
- Shah, A. (2016, September). Intel may make chips specially for mixed reality headsets [Tech News]. Retrieved September 8, 2016, from <http://www.pcworld.com/article/3118145/virtual-reality/intel-may-make-chips-specially-for-mixed-reality-headsets.html>
- Shamberg, M. (1971). *Guerrilla Television* (1st ed., Vol. 1). Holt, Reinhart and Winston.
- Shepard, L. A. (2000). The Role of Assessment in a Learning Culture. *Educational Researcher*, 29(7), 4. <https://doi.org/10.2307/1176145>
- Short, E. C. (2002). Knowledge and the educative functions of a university: designing the curriculum of higher education. *Journal of Curriculum Studies*, 34(2), 139–148. <https://doi.org/10.1080/00220270110069181>
- Siemens, G. (2005). Connectivism: A Learning Theory for the Digital Age. Retrieved from <http://er.dut.ac.za/handle/123456789/69>
- Smart, J. (2012). Ten Areas of Technological Change. Retrieved May 6, 2016, from <http://www.accelerationwatch.com/>
- Smith, N. M. (2016, April 8). Will Sean Parker’s Screening Room hurt or help the film industry? *The Guardian*. Retrieved from <https://www.theguardian.com/film/2016/apr/08/sean-parker-screening-room-new-movie-releases-home-viewing-film-industry>
- Srivastava, R., Narayanan, M., Singh, J., Gendy, M., & Yoganya, A. (2012). *University of the future - A thousand year old industry on the cusp of profound change* (p. 31). Australia. Retrieved from [http://www.ey.com/Publication/vwLUAssets/University_of_the_future/\\$FILE/University_of_the_future_2012.pdf](http://www.ey.com/Publication/vwLUAssets/University_of_the_future/$FILE/University_of_the_future_2012.pdf)
- Svinicki, M. D. (1999). New Directions in Learning and Motivation. *New Directions for Teaching & Learning*, 1999(80), 5.
- Thomson, K., & Falchikov, N. (1998). “Full on Until the Sun Comes Out”: the Effects of Assessment on Student Approaches to Studying. *Assessment & Evaluation in Higher Education*, 23(4), 379.
- Tranter, K. (2012). “Come a Day there Won’t be Room for Naughty Men Like Us to Slip About at All’: the multi-media outlaws of Serenity and the possibilities of post- literate justice.

- Retrieved June 13, 2015, from
<http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1297&context=ltc>
- Trastulli, D. (2013). *Teaching Cinematography: From Film to Digital: Conference Report*. Paris, France: European Filmschool Network. Retrieved from
http://www.imago.org/images/pdfs/EDUCATION/CONCLUSION_conference_Geect_Femis.pdf
- U.S. Dept. of Education. (2016). *National Education Technology Plan 2016*. Washington, D.C.: Office of Educational Technology, US Dept. of Education. Retrieved from
<http://tech.ed.gov/netp/>
- Verdugo, D. (2010, July 13). Recycle, Remix and Re-use with Creative Commons. Retrieved from <https://vimeo.com/blog/post/recycle-remix-and-re-use-with-creative-commons>
- Volante, L. (2010). Assessment of, for, and as Learning within Schools: Implications for Transforming Classroom Practice. *Action in Teacher Education*, 31(4), 66–75.
<https://doi.org/10.1080/01626620.2010.10463536>
- Weisstein, F. L., Kukar-Kinney, M., & Monroe, K. B. (2016). Determinants of consumers' response to pay-what-you-want pricing strategy on the Internet. *Journal of Business Research*, 69(10), 4313–4320. <https://doi.org/10.1016/j.jbusres.2016.04.005>
- Wesch, M. (2009, January). From Knowledgable to Knowledge-able: Learning in New Media Environments. Retrieved from <http://www.academiccommons.org/2014/09/09/from-knowledgable-to-knowledge-able-learning-in-new-media-environments/>
- Wilson, J. (2016, April). Culture Jamming as Critical Pedagogy: A Case Study in Remix Media Studies. Retrieved from <http://www.teachingmedia.org/culture-jamming-as-critical-pedagogy-a-case-study-in-remix-media-studies/>
- Winitana, M. (2012). Remembering the Deeds of Māui: What Messages are in the Tuakana-Teina Pedagogy for Tertiary Educators? *Mai Journal*, 1(1). Retrieved from
<http://www.journal.mai.ac.nz/tags/tuakana%E2%80%93teina-model>
- Youngblood, G. (1970). *Expanded Cinema*. New York: P. Dutton & Co., Inc. Retrieved from
http://www.vasulka.org/Kitchen/PDF_ExpandedCinema/ExpandedCinema.html

Youngblood, G. (2012, November). *Secession from The Broadcast: The Internet and the Crisis of Social Control*. Presented at the Moving Image Bienal (BIM) of the Universidad Nacional de Tres de Febrero (UNTREF), in Buenos Aires, Argentina., Buenos Aires, Argentina. Retrieved from <http://www.secessionfromthebroadcast.org/2013/10/29/secession-broadcast-internet-crisis-social-control/>

YouTube. (2016). Creative Commons - YouTube Help. Retrieved September 10, 2016, from <https://support.google.com/youtube/answer/2797468?hl=en>

Zünd, F., Ryffel, M., Magnenat, S., Marra, A., Nitti, M., Kapadia, M., ... Sumner, R. W. (2015). Augmented Creativity: Bridging the Real and Virtual Worlds to Enhance Creative Play. In *SIGGRAPH Asia 2015 Mobile Graphics and Interactive Applications* (p. 21:1–21:7). New York, NY, USA: ACM. <https://doi.org/10.1145/2818427.2818460>

APPENDIX A**Data from Survey of International Film Schools (Moving Image Education Survey)**

Please see spreadsheet on following pages. If you would like to print it, please do so in colour, in landscape mode, on A3 sized paper.

Amt of Schools	Amt of Spec. Quals	School	Where	Programme	Qualification	Film Teaching Types	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX	game/interactive media	Digital Art	art/design/ creativity / performance	new media story challenges	trans/cross/multi-media	Programming/Coding	UX	Grading / Post-Correction	"Professional Practice"	conventional business	new business models	new career concepts
1	1	AFTBS	Sydney, AUS	Award Courses	Diploma (w specialisation)	CONVENTIONAL +		Diploma In Social-Video		Advanced Diploma in Visual Effects								Diploma in Grading		Diploma in Screen Business	Running Your Own Creative Business	
	1			Bachelor of Screen Production	BA Screen Production	CONVENTIONAL MOVIEMAKING APPROACH															new business models	
	9			Master of Arts Screen	MA Screen Production (with specialisations)	CONVENTIONAL +				Animation and Visual Effects	Interactive Media									conventional business	new business models	
2	6	American Film Institute Conservatory	Los Angeles, CA	Fellowship programme	MFA in Cinematography MFA in Directing MFA in Editing MFA in Producing MFA in Production Design MFA in Screenwriting	CONVENTIONAL MOVIEMAKING APPROACH																
3	3	American University - School of Communication	Washington, DC, USA	Film and Media Arts	BA, MA Film and Media Arts, MFA Film and Electronic Media	CONVENTIONAL + some digital/"electronic" media		web and mobile development			Game Design								Production Practicum			
4	12	Amsterdam University of the Arts	Amsterdam, Netherlands	Film and Television	MA (3), BA (9)	CONVENTIONAL + Interactive Media				Interactive Media/ IMVFX	Digital Media											
5	1	Arizona State University - Herberger Institute for Design and the Arts	Tempe, AZ USA	School of Film, Dance and Theatre - Film Programme	BA Digital Culture (Film)	INTER-DEPARTMENTAL OPTIONS	Digital Culture	Programming for Social & Interactive Media		Digital Modeling, 3D Tools, Animating Virtual Worlds	Games, Tech & Society		Creativity and Innovation in Design			Programming for the Media Arts	Prototyping Dreams		Collaborative Projects and Research/My Life Venture		Legal Issues for Technologists	
	3				3x BA's in Film	CONVENTIONAL MOVIEMAKING APPROACH																
6	14	Art Institute of Broadcast	Louvain-la-Neuve, Belgium	Directing; Theatre; Image; Sound; Transmedia; Animation, Special Effects and the Web; Mounting & Script	6x Bachelors 8x Masters	CONVENTIONAL + Animation, The Web, Multimedia		web +		animation			art/design/ creativity / performance		multi-media	Programming/Coding				conventional business		
7	1	Auckland University of Technology (AUT)	Auckland, NZ	Colab	Bachelor of Creative Technologies	CROSS DISCIPLINARY APPROACH	Creative Technologies Studio				Programming for Creativity / Interactive Tech		Physical Computing / Mediated Performance	New Media Applications	Transmedia Narratives				Integrative Practice/ Creative Practice			
	1			Communication Studies	Digital Media Major - Bachelor of Communication Studies	CONVENTIONAL +	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX							UX		"Professional Practice"	conventional business		new career concepts
	1			Communication Studies / Business	Bachelor of Business and Bachelor of Communication Studies Conjoint Degree	INTER-DEPARTMENTAL OPTIONS	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX	game/interactive media						UX		"Professional Practice"	conventional business		new career concepts
8	10	Beijing Film Academy	Beijing, China	Dept. of Film and TV Technology		CONVENTIONAL +	New Media Research/Digital Film Tech															
9	1	Bezalel Academy of Arts and Design	Jerusalem	Screen-Based Arts	BFA Screen Based Arts	CROSS DISCIPLINARY APPROACH	Video & New Media					Digital Art		new media story challenges								
10		Brooklyn College - Graduate School of Cinema	Brooklyn, NY			CONVENTIONAL MOVIEMAKING APPROACH																
	1			Digital Animation & VFX	MFA in Digital Animation & VFX	CONVENTIONAL +				animation and/or VFX												
	1			Cinema Studies	MA in Cinema Studies	CONVENTIONAL +	new media techs	web / mobile / social media														
11	1	CalArts - MFA	Pasadena, CA	Center for Integrated Media	Integrated Media Supplemental conteneration for MFA	CONVENTIONAL + SOME CROSS DISCIPLINARY COLLABORATIONS																
	2			School of Film/Video	BFA, MFA	CONVENTIONAL + SOME CROSS DISCIPLINARY COLLABORATIONS	new media techs			Experimental Animation		Digital Art	Dance/Music/Theatre									
12	8	Carnegie-Mellon University - Integrative Design, Arts & Technology Network (IDeAtE)	Pittsburgh, PA	UG: Game Design / Animation & SPFX / Innovation & Entrepreneurship / Learning Media / Media Design / Sound Design / Intelligent Environments / Physical Computing	8x BFA's	INTER-DEPARTMENTAL OPTIONS																
	1			Integrative Design, Arts & Technology Network (IDeAtE): Emerging Media	MA Emerging Media - 3 endorsements MS Emerging Media - 5 endorsements	INTER-DEPARTMENTAL OPTIONS			Mobile Moviemaking	animation and/or VFX	game/interactive media	Digital Art	art/design/ creativity / performance	new media story challenges	trans/cross/multi-media		UX					
	1			IDeAtE: Integrative Media Program	no qual yet - in development	INTER-DEPARTMENTAL OPTIONS	new media techs	web / mobile / social media								Programming/Coding			"Professional Practice"	conventional business	new business models	new career concepts
	1			IDeAtE	Master of Entertainment Technology	INTER-DEPARTMENTAL OPTIONS																
	1			IDeAtE	Master of Integrated Innovation for Products & Services	INTER-DEPARTMENTAL OPTIONS																
13	17	Chapman University	Orange, CA	Dodge College	9 Undergrad & 8 Postgrad	CONVENTIONAL +	new media techs			VFX		Digital Art	art/design/ creativity / performance							conventional business		
14	2	City College of New York	New York, NY	Media & Communication Arts	BFA: Film & Video Production, MFA Program in Film	CONVENTIONAL MOVIEMAKING APPROACH																
	1		New York, NY	Media & Communication Arts	MPS in Branding + Integrated Communications	CROSS DISCIPLINARY APPROACH (not tech driven)																
15	3	Columbia University	New York, NY	School of the Arts Film Program	MFA Creative Producing MFA Screenwriting/ Directing MA Film Studies	CONVENTIONAL MOVIEMAKING APPROACH														conventional business		
16		Digital Film Academy	New York, NY	Digital Filmmaking Conservatory	no qual	CONVENTIONAL MOVIEMAKING APPROACH																

Amnt of Schools	Amnt of Spec. Quals	School	Where	Programme	Qualification	Film Teaching Types	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX	game/interactive media	Digital Art	art/design/ creativity / performance	new media story challenges	trans/cross/multi-media	Programming/Coding	UX	Grading / Post-Correction	"Professional Practice"	conventional business	new business models	new career concepts
				Code Immersives	no formal qual	CONVENTIONAL MOVIEMAKING APPROACH - Tech Driven										Programming/Coding						
17	1	Dong-Ah Institute of Media and Arts	Anseong, Korea	Division of Broadcast and Art Convergence, Division of Media Contents, Division of Arts (Film Arts)	2 year professional qual, not an academic qual	CROSS DISCIPLINARY APPROACH	New Media Contents	Web/Web Design					Performing Arts			Programming skills						
18	1	École Nationale Supérieure Des Métiers de L'image et du Son ["La Femis"]	Paris	French State Film School	professional qual, not an academic qual	CONVENTIONAL MOVIEMAKING APPROACH																
19	1	École Supérieure des Arts	Marrakech	Cinema and Audiovisual Department	BA	CONVENTIONAL MOVIEMAKING APPROACH							art history, images and representations in Sem.1									
	1			Graphic Design & Media Design		CROSS DISCIPLINARY Design Studies							art/design/creativity		trans/cross/multi-media							
20	1	Edith Cowan University	Perth	Western Australia Screen Academy		CONVENTIONAL MOVIEMAKING APPROACH																
	1			Communications and Digital Technology [one course in the BMC]	Bachelor of Media & Communications	CONVENTIONAL +	new media techs	web / mobile / social media					Design									
21	1	Escola Superior de Cinema i Audiovisuals de Catalunya (ESCAC)	Barcelona, Spain	Film & Audio visual Media	Degree in Film & Audiovisual Media	CONVENTIONAL +				animation			art/design/ creativity / performance							Film Business		
22	2	ESEC: École Supérieure D'Études Cinématographiques	Paris	2 year degree prerequisite	Cycle 1 (Bachelor Y3) Cycle 2 (PG Dip / Master)	CONVENTIONAL +	Multimedia/Digital Culture															new career concepts
23	12	Filmakademie Wien	Vienna	Book & Dramaturgy; Imaging & Camera; Production; Directing; Editing; Digital Art; Compositing	Bachelor and Masters	CONVENTIONAL +				animation and/or VFX		Digital Art										
24	2	Florida State University	Tallahassee, Florida	College of Motion Picture Arts	BFA: Motion Picture Arts: Production / Animation & Digital Arts	CONVENTIONAL +				Animation and Digital Arts												
	1			MFA: Production		CONVENTIONAL +	new media techs															
25	1	Goldsmiths University	London		MA in Filmmaking	CONVENTIONAL +	new media techs	web / mobile / social media			game/interactive media		art gallery installations	new media story challenges						Producing		
	1			BA Media & Communications		CROSS DISCIPLINARY APPROACH					interactive media		Illustration / Photography									
	1			BSc Creative Computing		CROSS DISCIPLINARY APPROACH		web / mobile / social media			game/interactive media	Digital Art				Programming/Coding	UX					
	1			MA Digital Culture		CROSS DISCIPLINARY APPROACH					game/interactive media	Digital Art				Programming/Coding	UX		Project Management			
	1			MA Artists' Film		CROSS DISCIPLINARY APPROACH						Digital Art	Illustration / Photography	new media story challenges								
	1			Institute for Creative and Cultural Entrepreneurship	MA Creative & Cultural Entrepreneurship: Media & Communications Pathway	INTER-DEPARTMENTAL OPTIONS				animation	game/interactive media		Design / Theatre & Performance			Computing		Leadership	Entrepreneurial Modelling	new business models		
26	4	Graduate School of Film and New Media, Tokyo University of the Arts	Tokyo, Japan	Film Production/New Media/Animation	MA Film Production, MA New Media, MA Animation, Doctorate Film and New Media Studies	CROSS DISCIPLINARY APPROACH	New Media			Animation												
27	3	Griffith University	Brisbane, AUS	Visual and Creative Arts	Bachelor of Creative and Interactive Media; Bachelor of Digital Media; Bachelor of Film and Screen Media Production	CONVENTIONAL + Tech Driven	Film and Screen Media			Animation	Games Design											
28	1	Hamburg Media School	Hamburg, Germany	Digital Media	Bachelor of Arts in Digital Media	CONVENTIONAL + Tech Driven	Media Theory	Net Criticism & Technological Basics			Digital Media											
29	1	Hunter College	New York, NY	Integrated Media Arts	MFA in Integrated Media Arts	CROSS DISCIPLINARY APPROACH	Emerging Media	Web Documentary		Animation	Advanced Interactive Expression				Hypertexts & Cross Media Narrative						Cultural Activism	
30	1	Japan Institute of the Moving Image	Tokyo, Japan	Cinema Studies	2 year professional qual, not an academic qual	CONVENTIONAL MOVIEMAKING APPROACH													professional practice			
31	2	Lasalle College of the Arts	Singapore	Film	BA (Hons) Film, BA (Hons) Animation Art	CROSS DISCIPLINARY APPROACH				2D/3D Animation production			Design/Performing Arts									
32	6	Lodz Film School	Lodz, Poland	Dedicated film school	BA, MA, PhD	CONVENTIONAL +				animation and/or VFX												
33	2	Los Angeles Film School	Los Angeles, CA	(see comments)	BA, AA	CONVENTIONAL +				animation and/or VFX			Graphic Design							conventional business		
34	1	Massey Univerisity - College of Creative Arts	Wellington, NZ	Creative Media Production	Bachelor of Creative Media Production	CROSS DISCIPLINARY APPROACH	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX	game design	Digital Art			trans/cross-media							
35	1	Mumbai Digital Films Academy	Mumbai, India	1 year full time programme	professional qual, not an academic qual	CONVENTIONAL +							web and graphic design									
36	1	Mumbai Film Academy	Mumbai, India	Professional Diploma programme	professional qual, not an academic qual	CONVENTIONAL MOVIEMAKING APPROACH																
37	1	National Film & Television Institute of Ghana	Accra, Ghana	(see comments)	professional qual, not an academic qual	CONVENTIONAL +	new media techs	web / mobile / social media		animation and/or VFX			art/design/ creativity / performance		trans/cross/multi-media						new business models	
38	34	National Film & Television School	Beaconsfield, Buckinghamshire		18 Masters, 12 Diplomas, 4 Certificates, many Short Courses						games design & development									conventional business		

Amt of Schools	Amt of Spec. Quals	School	Where	Programme	Qualification	Film Teaching Types	new media techs	web / mobile / social media	Mobile Moviemaking	animation and/or VFX	game/interactive media	Digital Art	art/design/ creativity / performance	new media story challenges	trans/cross/multi-media	Programming/Coding	UX	Grading / Post-Correction	"Professional Practice"	conventional business	new business models	new career concepts
	5		Edinburgh, Scotland	Media Practice - through University of Edinburgh	BA Film, BA Photography, Bdes Graphic Design, BA Animation, BA Film & TV	CONVENTIONAL +				Animation		Graphic Art							Practice Based Courses			
50	1	South African School of Business Innovation and Technology (AFDA)	Johannesburg, CapeTown, Durban, Botswana	School of Business Innovation and Technology	BCom in Business Innovation	CROSS DISCIPLINARY APPROACH													"Professional Practice"		new business models	new career concepts
	1			School of Business Innovation and Technology	BSc - Computer Technology	CROSS DISCIPLINARY APPROACH					Gaming					Programming/Coding	UX					
	3	South African School of Motion Picture Medium and Live Performance (AFDA)	Johannesburg, CapeTown, Durban, Botswana	Film, Television, Performance	<ul style="list-style-type: none">• BA (+BAHons) Motion Picture Medium• BA (+BAHons) Live Performance• Higher Cert. Film, TV & Entertainment Production	Outcomes-Based Multi-Disciplinary		web / mobile / social media		animation and/or VFX		Digital Art	art/design/ creativity / performance									
51	2	Sydney Film School	Sydney, AUS	2 year programme	Diploma of Screen & Media, Advanced Diploma of Screen & Media	CONVENTIONAL MOVIEMAKING APPROACH																
52	1	The Film School	Wellington, NZ		L5 Cert	CONVENTIONAL MOVIEMAKING APPROACH																
53	2	The London Film School	London, England	Graduate Programme	MA Screenwriting, MA Filmmaking	CONVENTIONAL MOVIEMAKING APPROACH																
	1			Graduate Programme	MA International Film Business	CONVENTIONAL + some cross-disciplinary collaborations														Film Business, Financing, Sales, Distribution, Exhibition Strategies	Digital Strategies	
54	2	The New School of Media Studies	New York, NY	School of Media Studies	BA/BS Media Studies	CROSS DISCIPLINARY APPROACH		web / mobile / social media	Mobile Moviemaking		Interactive Design				Mashup Culture		Programming/Coding			conventional business		
	1			School of Media Studies	MA Media Studies	CROSS DISCIPLINARY APPROACH	Adapting to New Tech		Mobile Moviemaking		Interactive Design				Mashup Culture		Programming/Coding		Entrepreneurship in Media	Managing Creativity in Media Arts	Programmatic Media & Marketing /Big Data	
55	2	UCLA - Theatre, Film & Television	Los Angeles, CA	film courses	BA Film, TV & Digital Media, MA in various specialisations	CONVENTIONAL + some cross-disciplinary collaborations					game design				trans/cross/multi-media					conventional business		
56	1	Unitec Institute of Technology	Auckland, NZ	Bachelor of Creative Enterprise - Interdisciplinary New Media/Art/Tech/ Prof Practice	BCE	CROSS DISCIPLINARY APPROACH	Creative Technologies						art/design/ creativity / performance						"Professional Practice"			new career concepts
	1			Performing & Screen Arts	BPSA - Screen	CONVENTIONAL MOVIEMAKING APPROACH			Mobile Moviemaking				Tied to Dance and Acting programmes						Professional Development			
57	2	Univeristy of Waikato	Hamilton, NZ		Bachelor/Master of Media and Creative Technologies	CONVENTIONAL + some cross-disciplinary collaborations	Creative Technologies	Computing Media		animation and/or VFX	Interactive Design	Visual Design										
58	1	University of Campinas	Sao Paulo, Brazil	Communication (Media) Studies	4 year degree	CONVENTIONAL + New tech courses	Education and Technology	convergent Networks/ Multimedia/ Internet etc				Hypermedia										
59	1	USC Film School - 7 integrated programs	Los Angeles, CA	Interactive Media & Games		CONVENTIONAL + New tech courses	new media techs			animation and/or VFX	game design											
	1			2 Media Arts + Practice		CONVENTIONAL + New tech courses	new media techs						art/design/ creativity / performance									new career concepts
	1			3 Animation & Digital Arts		CONVENTIONAL + New tech courses				animation and/or VFX		Digital Art										
	1			4 Cinema & Media Studies		CROSS DISCIPLINARY APPROACH Broad-Based & Future-Focussed																
	1			5 Film & TV Production		CONVENTIONAL MOVIEMAKING APPROACH																
	1			6 Producing Program		CONVENTIONAL MOVIEMAKING APPROACH														conventional business		
	1			7 Writing for Screen & Television		CONVENTIONAL MOVIEMAKING APPROACH																
60	1	Vancouver Film School	Vancouver, Canada	Film Production		CONVENTIONAL +																
	1			Foundation Visual Art & Design		Discrete Programmes in Digital Arts						Digital Art	art/design/ creativity / performance									
	1			Digital Design		Discrete Programmes in Digital Arts		web / mobile / social media				Digital Art	art/design/ creativity / performance									
	1			Game Design		Discrete Programmes in Digital Arts					game design											
	1			Programming for Games, Web & Mobile		Discrete Programmes in Digital Arts		web / mobile / social media			game design					Programming/Coding						
	1			Sound Design for Visual Media		Discrete Programmes in Digital Arts	new media techs															
61	1	Vancouver Institute of Media Arts	Vancouver, Canada	Broadcasting for Web, Radio & TV	1 year degree	CONVENTIONAL - Tech-driven		Social Media					Radio and TV Hosting									
	1			Web Development & Interactive Design	1 year degree	CONVENTIONAL - Tech-driven		Web/Web Design								Programming/Coding	UX					

APPENDIX B

Interview Questions Guide

The following is the guide to the questions posed in the semi-structured interviews. The main Research Question of the Thesis [also supplied on the Participant Information Sheet] is:

- **In what ways might modern film education re-focus its content to address a rapidly changing world?**

The following questions support the main research question with added detail:

- In what types of new capabilities will tomorrow's media industry practitioners need to become adept?
- What legacy skills can we bring forward from the past into the future and what must be left behind?
- What pedagogical shifts need to occur in order to prepare students...
 - to stay current with a constantly changing toolset;
 - to remain flexibly adept in a constantly evolving market; and
 - to make proactive contributions to a world in transformation?

As an addendum to the Participant Information Sheets, the following was sent to the interviewees to help them prepare for the interviews by providing an indication of the area of investigation.

The Research Questions above will form the foundation of our discussion. As can happen with semi-structured interviews, though, the conversation might take a tangent or two (depending on your time availability). Some other paths of inquiry could possibly venture into these more specific areas:

- Given that much of your work exists in **the nexus between art and technology**, could you **locate yourself in this space**, and describe how you navigate that intersection?
 - Do you feel that there are **educational gaps** in this nexus (between art and technology)? If so: Could you identify those gaps and suggest possible directions in which education might steer in order to bridge them?
- In what **directions** do you see the **creative digital economy** currently heading?
- To which **sources** do you look **to** help you **forecast industry trends** (in creative digital content, in design, in information in ideas)?

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- What other personal tools or techniques do you employ to forecast industry trends?
 - What **cultural/market demands** might be **on the horizon** right now?
 - (e.g. – more immersive experiences; more interactive entertainment in public spaces,...)
 - What do you see as **the future of content**?
 - How might the nature of the content itself evolve?
 - How might the modes of packaging and delivering content be transformed?
 - Will “content” look the same in the future?
 - With technologies and techniques for audial/visual storytelling evolving as rapidly as they are, the nature of what once was ‘filmmaking’ is also shifting dramatically. In addition to learning some of the new hardware and methods for acquisition, manipulation and delivery, what do you see as the **important skills and capabilities for film students** to be expanding into?
 - What new things do they need to begin learning?
 - What skills from traditional filmmaking still apply in the new landscape and should still be taught as part of the new training paradigm?
 - What traditional filmmaking skills do we not need anymore and thus can be let go of?
 - Of what emerging and current **new business models** do students in creative digital content need to be aware?
 - What are your thoughts about the shifting sands of the creative digital content industry and **how students** (of film, communications, multimedia, design and other creative industries) **should begin targeting** their research, their **search for skills & knowledge** and their **career focus**? What do they need to know?
 - Where does **social responsibility** fit into the picture of career pathways in the creative digital content economy?
 - Might new career pathways open up in the larger (for-profit) creative digital economy that take social justice into account?
 - What might they be?

APPENDIX C

Helen Baxter Bio and Transcription of Interview

Helen Baxter [<https://www.linkedin.com/in/helenbaxter>] runs independent animation and infographics firm Mohawk Media, in Wellington, New Zealand. Her company, comprised of collaborators who all work from their homes in locations around the world, has produced work for corporate, government and community clients. Helen has been a mentor, a lecturer, a columnist and a keynote speaker on digital media strategy, tools and platforms for creative entrepreneurs. Her 2014 book, Dance at Work: The Creative Business Toolkit, is a cornucopia of (mostly online, mostly free) resources for thriving as an independent-agent artist in the creative digital economy. She was a Technology Commentator on Radio New Zealand for three years, and a judge for the Yahoo Digital Strategy Awards for four years. She has served on the Advisory Boards of Digital New Zealand and Creative Commons Aotearoa.

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The following is a transcription of the semi-structured interview conducted by Daniel Wagner for this research with Helen Baxter on 5 April, 2016. Wagner was in Auckland, New Zealand and Baxter was in Wellington, New Zealand. Google Hangouts was the VOIP platform used for this interview.

As is the nature of most consumer-grade VOIP conversations, there were occasional glitches in the signal. These are signified as such in the transcription.

DW So thanks again for participating in my Thesis enquiry. It's about career pathways in the creative digital economy. Film is changing dramatically, some people don't even call it film anymore, it could be moving image. And higher education is changing hugely, and they are both going through cataclysmic, fundamental paradigm shifts, both in how they define themselves and in how they function. So I'm wondering what film education is anymore? Each foot is in separately shifting sands. And yet there's an imperative to educate the moving image makers of tomorrow, who will be working in a very different media landscape than we have now. They need to become self-directed, independent practitioners. So I thought of you and what you do and what your message is, what you promote in your lectures and in your book. The ethos that you promote and the tools you use to promote it. So this conversation is about: how can that happen? How do we educate the moving image

makers of tomorrow? How do you create a curriculum that would help nurture independent creative entrepreneurs in a dynamic environment? So I just thought I would open up with that question. Any thoughts you might have on that?

HB It's an interesting space, I mean because what is driving change is very much the devices and the platforms that people are now consuming media on. And a case in point, we've just got ourselves one of these babies. The Oculus. The VR to go with the Samsung S7 and that in itself is an intersection between two devices to create a whole new experience of consuming media. And of course the content has to fit across all these different spaces and places, which is why obviously, that the idea of Transmedia that Jeff Gomez is pushing really interests me. And also the changing shift away from being a passive medium to being an interactive medium. Film now isn't a stand-alone production; there is a Venn diagram where it intersects with gaming. Many concept designers know, and artists who work in the film industry are all looking into associated games. So you have got the interplay with the interactive side of universes that these film makers are making. And then there's the other layer as well, which is the audience feedback, which is now also driving the storytelling.

The Marvel universe is a very good example of this, where they are spinning off series such as Agent Carter, and the fans really love the new character. He's come into one of their pieces of work and is proving to be so popular, showing such an appetite for more stories based on and around that character, often based on an actor that people particularly love, like Hayley Atwell and they are then actually creating a spin-off series. So this also is meaning that the audience is not just engaging but they are also driving the content that is being created and the storytelling that is being produced. So I think the biggest shift is moving away from seeing film making as a single discreet piece that you work on, to this interconnecting – I like the analogy of seeing it as Tetris pieces. Each of them stand alone, but when they interlock together they make a different picture.

DW Yeah nice, I like that. And appropriate, Tetris.

HB And I think the other thing is, thinking in terms of, and I talk about this. I was on the road last week with the Science Media Centre teaching scientists to produce video, to communicate the work that they do. And I talked about, (glitch) how is my audience going to be consuming the content I am creating. And how, from which device.

DW I'm sorry could you just back up a couple of sentences? I just heard this kind of glitch.

HB Yes, the other thing that I have been talking about, the workshops I have been running weekly with scientists. Teaching them to produce their own video content. It's thinking very

much about where my audience is consuming this, the scenario in which they are going to be enjoying my media. And it's very much; there are three different types that I talk about. The quick dip, which is usually on a mobile device. It's short, it's possibly just a taster or a trailer or just a segment, a small part of the piece you are producing. It's usually when people are on the move. It's usually in those in between times like standing in a queue waiting for something, waiting for a bus, waiting for your latte, eating something, and has a 90 second experience of your piece. Then you've got your sit and click experience, which is usually consuming media on a desktop or a laptop, maybe at work. So again you have to think about, does my story stand out visually on its own, as well as in audio, because not everyone has the ability to play audio in those scenarios. And then you have got your lean back experience, which is the longer content, 20 minutes or more. Where people are settling in to relax and enjoy the experience and that they are assigning a longer portion of their attention to enjoying that content. And this is the big thing, what they are competing for is attention. That's what everyone is trying to, and in a very simple way, you could even say that a lot of Google's newest developments like the self-driving cars, are really to take people's attention from having to drive, to create more time so they can be consuming the media that Google is producing! You can only increase more time that people can be viewing, you can't really be consuming more people (well Tinder might be trying to!) Or you can be trying to get into other markets, which they obviously do. So yeah, there is this concept of the attention economy, and also intersecting very much with the film world. And we need to think about, where is my audience (one) that is where your thinking is, who is the person most likely to be consuming my content. And that is what drives then how you produce it, what format it's in, and where are they most likely watching.

DW And so how do we steer students to understand this and live in this world? Particularly I am interested in the initial step, which would be to take students who think they want to be film makers in conventional cinema or T.V or webisodes or whatever they envisage it, and to help them realise that there is a new set of skills and a new awareness that they need to have?

HB Well I mean, I say that the foundation, there is foundational elements that won't change. The ability to sell a great story, the fact that most people tend to take in information most effectively with a linear timeline, though you can get clever with that, but you have to really know how to produce content. Know the rules before you can break them, as you know. But I see these extra opportunities as layers that sit on top of the main piece. In the same way that publishing a piece of content is, that's not the final step. You now have to promote the content and also communicate with your audience because if you don't, their attention will go elsewhere. People enjoy submerging themselves into these worlds and really

connecting on a deep level. So what I see is elements and layers that are connected to the medium that they are making. Even if you are a film maker, you need to understand how the concept you are making may well be remixed and repurposed into the gaming environment. It may be remixed and repurposed into graphic novels. And as a writer, this is what I'm fascinated with and very much enjoying. For example, taking a series of books that I know have been adapted in different ways. And I'll read the book, I'll listen to the audio book, I will find the graphic novel, I'll watch the film, I'll watch the TV series. And then analyse the different ways that you repurpose and remix the same story and the same characters into these different, across these multiple channels. Game of thrones is a good example. The books are much more epic and sprawling than the T.V adaptation. It used to be that if you made a film of a book it would be mostly exactly as the book, the story would be exactly the same; the characters would be the same. Now I think people have a lot more confidence in taking artistic license and realising that actually they can change the characters' situations and dynamics, and sometimes I find that the TV adaptation is more enjoyable than the original source material. So I think that's the other thing, it's encouraging this playful exploration and realising that the story that you are telling can kind of in a way become free range and take on a life of its own. And those changes may well be audience driven.

DW So there is a freeing up that needs to take place amongst students. But how can this actually be embedded into a curriculum? So I imagine there is a freeing up for students that needs to take place, as well as a spreading out into different markets, into different audiences, into different purposings of a story.

HB Yeah. That's right. That whole remix, republishing, repurposing. Also realising that some of the work that you are doing, for example storyboarding your film. Those storyboard sketches can then be taken to an illustrator to potentially make a graphic novel version of it. So it's also seeing that there are parts of the traditional process that are the foundation of some of these new ways of telling these stories. I mean, you look at some of the animatic that WETA produce. They would almost be good enough to go out as animations in their own right. The quality, the artwork is so fantastic. I mean, in a lot of ways, that's why Lord of the Rings happened, because of all of this upfront work that they did, when they had to go around Hollywood at the last minute and get funding to make the movies. Because they had those graphics, because they had those animatics, they had those characters sketched out and developed, it helped them convince the studio to take a punt on what at that time was an unknown studio in the middle of nowhere at the bottom of the world.

DW Amazing. Great selling job as well. And selling is another capability that students need to be imbued with isn't it?

HB Yeah absolutely. And I think that's a very good point, just getting comfortable with the pitching process. Pitching your ideas, your treatments and getting feedback on them, because that's a great experience in a lot of ways. So the idea that you have a concept for a story, you write your treatment, you pitch it to the client, you get feedback from them. Some of it may be negative, you have to develop quite a robust skin but that is just great training for when you finally publish your content and people on social media start popping up and give you feedback on it. So in a lot of it, it's kind of, I think you are right that selling is something, and it's not a bad word either you know, selling is telling in a way that creates desire for the person you want to draw. So it's not standing up and giving every single detail, it's enough information and the hooks of interest that make people want to know more.

DW We're talking right now about narrative construction spreading out into different iterations. But also the student, as a graduate will need to spread themselves out into a variety of careers. And so one thing I would be interested in talking about or thinking about is how to incorporate in a course, which extends their minds from being filmmakers to creators in a multiplicity of media. They also need to have a multiplicity of income streams, or at least a few. What do you see as the bridge there; and also just talk a bit about changing career pathways, graduate pathways in creative industries?

HB Yeah I mean that's a key thing. I talk about this concept of T shaped skills early on. So you need to have that broad top of the T to understand all of the different roles in your industry. It's really important to understand what people do and how it all fits together. And it's also important to have one stroke which is your area of core competency, and one thing that you are best at. And then over time you get to my age and it becomes a cone, it's no longer a T because you have got all of these, you have had time to go deeper into these different areas. I think it's the idea that, I mean Chelfyn (Helen's partner in Mohawk Media) has a great phrase, "specialism is for insects". What we look for when we have a new crew coming in, is what we call *specialist generalists*. People who very much have one thing, so a skill that they are coming to us with, so as an illustrator primarily or an animator. However, it's really useful to have illustrators who have got print experience but also understand about storyboarding because the two halves of the data driven storytelling, the static info graphics and also the linear animation, the linear storytelling. What we look for, is people who actually have multiple interests, so a case in point would be, a young guy who has just joined the crew recently. And he had a brilliant approach. He had illustrated his C.V. So

immediately my attention was hooked, I liked the way he presented himself, it was in a creative, playful way that also showed his graphic design skills and his comic book layout skills. So it was an immersive approach. But what really appealed, and this kind of goes opposite, the non-traditional career advices, what I really liked were his wide range of interests. He works in the props house, he acts and performs, he draws, he makes his own content, and he works with kids teaching animation. And he's perfect for us because the skills that he was bringing in perfectly matched the need that we have now. Look, we don't know what we are going to need down the line, because we are already starting to work on our own content, and start to create our own stories. And we don't really know what the format is going to take, but I know that he has not only the broad range of interests and the broad skill set, but he's got the attitude of, hey I'll give that a go! I may not know much about it but I know how to learn. And this is the thing about this lifelong learning approach, which Chelfyn and I, that just in time knowledge. Being comfortable with saying, hey that's interesting! I don't know much about that right now but I know how to find out more.

DW Do you have any thoughts on how to bring that out from students? Students have varying degrees of that stuff.

HB I mean you can set challenges basically. For example I do think a good challenge is taking a story, and even if they're not actually producing the full piece, at least getting them to sketch out, lay out that story in a few different formats. So if they say, hey I don't know how to draw a graphic novel, well here is how you use Google to go and find out! So in the workshops we were doing last week with the scientists, a lot of it is saying hey, like creative commons, all of these fantastic movie sources out there for you, but also showing how we learn. So Chelfyn for example will say, you have a job for your clients and you have to work out the most efficient way to create this content. So the first thing he will do is he will go to YouTube. And he will have a search around and see if there is someone who has already done what we are about to try and do and see if they have already made a tutorial. So I think that's it. I think the challenge is usually the don't ask a question unless you already know the answer. But it's like a treasure hunt. You see to the requirement, you know that the treasure is out there and you just give them a few pathways to find it. And if you, a requirement, because if you have done it once, you know how to do it again. So I think that's a lot of it. I gave this speech, ten years ago now at an education conference. And it was all about renaissance 2.0 and how we needed to train the 'new Leonardo's' as I call them, for jobs that haven't been invented yet. And the answer is you can't, but what you can do is to teach them how to learn and how to keep learning. And the confidence in saying, it's ok if you don't know but here is how you can go and find out. And that's how we

all operate. No one comes out fully formed from university anymore; you can't because things are changing so fast. But what you can teach them is the attitude to giving it a go, and the fact that there is this massive amount of education and data. Like video co-piloting is a perfect example and I sometimes smile when I hear some old school film people talking disparagingly about the video co-pilot generation, and you're like, yeah that's just because they are eating your lunch. That is the reality. These kids are coming through. That's Andrew (Caniff?), he was a special effects producer, who every time he had a job come in, he learned a new technique, he would do a tutorial about how he had done it, which then segwayed onto a really great training platform. He now sells plugins for after effects, we often go there to find stuff and he's now getting gigs like getting the opening sequence for Star trek. He's now getting the big film jobs, using after effects. A few years ago people would have looked down on him in film but now it's perfectly acceptable because really it doesn't matter what tool you use if you get the result that is required, at the quality, (and this is the kicker) and at the budget that are now available. Because I heard a story again the other day, I was working with Damian Christie last week, he works for TVNZ and he does science communications, he was saying about how he had an opportunity, or someone was telling him about a science project where they wanted to go out and film a documentary in a ship. They wanted to take 50 people! That's five zero people on the ship with them! And the captain said, you are going to have to cut the crew down because we won't have any space for the crew with that many people. And there were two people, and they managed to get it down to 30, and two people were there purely to hold things!

DW That's old school isn't it!

HB It's just glorious when you hear these old world stories and it's like; well that's why we are going to eat their lunch! You know what; I'll hold my own stuff! And another thing, the reality that is driving a lot of this is that we just don't have the budgets anymore so we have to get clever and again, it doesn't really matter what the tools are you use. We made a T.V show in 2008 with a mobile phone camera and a piece of animation software for mobile phones!

DW I remember!

HB So it's that. If you can install that, give it a go, the challenge of giving it a go and not obsessing too much about the tools and the process and focusing more on the output. It doesn't really matter how you get there as long as you get there, and you publish and you get it in front of an audience and you engage with that audience and you start to create a body of work. So I think that is the key thing, it's how we go about working the problems that come in, the challenges that come in. If you just show the process a couple of times, people go yeah I could do that. It's that learning as you go, making it up as you go along.

DW There is also the need to look ahead, to bring into the present, strategy and forecasting trends. So can you talk a little bit about that? How could you teach students to become trend forecasters?

HB Go onto YouTube, watch channels of people who talk about this stuff. Look for hangouts that people are running in a community and talk about it. I mean, that's the other thing, there are so many communities of interest and purpose online that you can join and hear this open debate. Reading news, like subscribing to maybe the newsfeed. I use Feedly as a tool for that, I have various film feeds. But also going slightly outside field of the film world and reading around new media publications, reading Wired magazine. And kind of, and group discussions as well, maybe bringing an (Oculus) into the classroom with one of the phones, getting them playing with it, getting a briefing and then just imagination blue sky thinking here, when everyone has got one of these, what can you make with it? And this is what we are doing right now, because when we have got the gear VR it's just an entry level in. We are now looking at whether to get the (Oculus) or the HTC and I think we are going to go with the HTC because they connect it into (inaudible, 26:54) there is more aiming content, although I don't trust Facebook. I don't like the level of tentacles it puts into your system in order to serve more efforts, which is fundamentally what they want. But it's just getting that free styling, just imagining what people might do with it and then working. Because that's what strategy is, just looking at a point in the future and then taking snapshots of it and then working backwards to find steps that you could be taking to move in that direction. Even if it's not a linear direction, because these things never are. But that helps you make the right decision today about what you are learning, what you are making, what you are writing, what you are reading. So yeah, I think it's just that concept of just not being afraid to say I don't know but I know how to find out. And the confidence to know that when you hit that point in the future, when something new gets thrown at you, a challenge, that you have the process of picking the challenge apart and working out how to approach it successfully. So it's the higher attitude training for skills approach.

DW Right interesting. That's great. The future of content? And I'm not necessarily looking at what future content is, but with rapidly changing and ever so more quickly accelerating change, changing modes of acquisition, manipulation, delivery and consumption of user experience, how might this effect the way content is created, the directions content might go in. Beyond narrative, might we go beyond story? What are your thoughts on that?

HB That's good to know, because I mean storytelling is what makes us human. It's how we make sense of the world. If you think about it, history is really a set of narratives that have been recorded over time so to me, what creates culture is stories and sharing. So I think

there is also these, there are some tried and tested ways of intersecting with information. Because you are thinking, what is the purpose? When I am taking a new brief and I am looking at a new project I think about, what is the audience, what is the purpose? What are the outcomes you want to achieve? What is the call to action? That is the other thing. It's not just about people connecting with content, what do you want them to do afterwards? Which is a big part of what we do. The call to action could be, go to this website, sign up, whatever it is. So it's also thinking about that, that next step. And thinking about why. What is the purpose? Am I entertaining, am I informing, am I enlightening? And there's also this merger now between infotainment. Information that has been presented in an entertaining and engaging way. Which is the space that we sit in really, this data driven story. We make fun entertaining content, for example the videos that we made for drug and alcohol awareness. You know, they are fun, they are funny, they're silly but they are packed full of information. They do have a higher purpose. And I think it's taking a step back and thinking what am I making here? Is it something that is purely entertainment? It's basically giving people some time off from the day to day world so they can go into a universe and they can just have some fun and enjoy switching off, or are you making content because you want people to switch on and connect? So the health and the social content that we make, it's about getting information across in an entertaining, engaging way, which increases attention and retention. Because the other point is education. But also, more and more of the health and the social content that we are making, the higher purpose is to get people feeling comfortable and confident enough to then have open conversations about the content we have made. Weight management, drugs and alcohol awareness, mental health issues. It's the idea that you use these videos so that rather than you sitting down, so for example youth workers in South Auckland who are dealing with kids to do with drugs and alcohol. They and their friends may be using and abusing, or not! Sometimes it's the friend who doesn't drink and doesn't do drugs but their friends are, and they want to know how to help them. But the purpose is she might not feel comfortable talking to the youth workers about her personal experience without feeling like they are being lectured, without feeling like they are being judged. Which is why the tone and back content was very much, if you are going to do it, this is what you need to know.

DW So how do you teach students to do that? How can that be embedded into a curriculum? Because the world is changing so quickly. Not only technologically but there is a lot of social deterioration going on. And is it not the responsibility of the educator to kind of plug the student into the world and maybe encourage them to apply their skills for social change? How do you see that connection?

HB Absolutely. I mean, that is the other thing when you are talking about benefits. That this is the exciting thing, where content can have a purpose, not just to sell cinema tickets and get people into entertainment and get people to buy games. But it can also to switch people on to being more socially aware, being more socially engaged.

DW And how do you do that?

HB I think a great example of this is Bernie Sanders. Some of the video content and social media content, but his team, who are predominantly young people who are really passionate about the messages that he is pushing because out of all of the voices out there, all of the politicians, he does seem to be the one who is aware of the challenges that they are facing. To be fair to the guy, he has been saying the same stuff since the 70's, so he is authentic and that's really resonating with them. And I'm really enjoying the video content and the social media content that is coming out of his team, and I think that's an extremely good example of how you can engage with younger people. So if I was going to be, for example if I was in a curriculum I think this looking at the difference between, say classic republican video television, as opposed to the sanders campaign which is purely using online and social media. It's just a wonderful contrast. And yeah it's fascinating just to see how very very different this is, and the fact that it's being driven by young people. Younger people who are producing for a very, very different channel. And this is the other thing, content that is made for film, where you are expecting people to be in a theatre audience or in a home theatre environment, and television and online, are so different. And you can't just take one and plug it into the other. And this is the fun thing as well, with our space. You see people go, oh well we made a T.V commercial and Marilyn want's to just stick it on the web, but it just doesn't work. So I was at DIY T.V cross media lab a few years ago, with (Robert Tursec) and some of the guys. He launched MTV Asia. And some of the other mentors. I didn't realise they were behind me at the time, listening in on the session I was having. And one of the teams had made this beautifully produced show for the web. The lighting! It looked like something from HBO. It looked like Ugly Betty or one of those really big shows. Gorgeous, the way they had produced it! And Robert turned around from behind me and leaned over and went, yeah I love it but it's not authentic. It's too well produced. I want to see the YouTube videos of these characters. I want to see their raw reports from behind the scenes. You've lost something by overproducing. Which goes right back to the thinking about, where are people most likely to be consuming this piece that I'm making? And not being afraid to actually make that extra layer around it, of the behind the scenes. The characters doing their selfies in the morning looking like crap. You don't have to change the main piece but these extra layers actually add authenticity. And each one of them is a window you can connect to your world to. And I think this is the thing as well. These worlds

that you can tell multiple stories in. I mean, the great Sci Fi authors are great at this, I'm getting back into reading Ben Bova at the moment, he's one of the greats. And I adore how he writes, he's not so great at writing Sci Fi but he writes humans so well; the power craze and the religious and the scientist. And showing all their quirks and their foibles. What I love is that even though all of his books stand alone, they all interconnect into a greater universe. And that's very exciting for a filmmaker, the idea that, if you put this much effort and time into creating a world, it's an exciting opportunity to be able to continue to tell stories within it, from different perspectives and different characters. And different timelines as well, and this is the stuff we are playing around with as well, myself and Chelfyn. We both have had these Sci fi stories for years and then we realised that actually we could connect them into the same universe, except for the fact that the stories that I want to tell are in the near future and the stories that he wants to tell are in the far future. But we can see some of the ideas that he has got in my stories as hooks. So and I think going back to Marvel, (glitch) they use the word strategy, I believe they have a content strategy that goes right the way to 2026. But that's still being re-acted.

DW Can you just back up a little bit, it went quiet for a second. You said Marvel and something about their strategy. What was it?

HB I was reading the other day that they have a content strategy that goes right the way to 2026 but they are still being re-acted based on what the audience is saying. And it's another thing, it's like Steve Denning at Cross Media Lab, he said this and I thought it was great, there must be a plan but the plan will change. And that's the thing; strategy and planning are very different. Strategy is about long term vision, that long term direction. Looking ahead to the future and seeing the mountain that you want to climb. But the pathway that you take there is based on lots of short plans. So I think that's the other challenge, is getting students who really just want to focus on the thing right now, trying to give them that understanding of having to have telescopic vision where every so often you have to pick your head up and just make sure that you are still moving in the right direction to hit the mountain and you haven't veered too far off course. But you are going to veer off the course because of the opportunities that come along on the way that you can't predict. I think it's the idea of being proactive and having that long-term strategy and vision, but also being reactive to opportunities that come along the way. And not sticking so firmly to the plan.

DW It's a whole new type of person. It's really a molting of an older filmmaker model. It's a new person that they need to become, or at least bring out that person within them, isn't it. Now I just want to talk a little bit about new business models, alternative business models, different structures that students might look at in terms of this portfolio career. So they

might have a creative practice in which they are building a fan base and then selling a model, they might shoot something for people on a contract basis and they might be on a crew. But what types of business structures can they create for themselves?

HB Well one thing that I'm quite interested in, have you come across a site called Patreon? It's excellent. So I was showing this to the scientists the other day. So Patreon is a way for people to be modern patrons of the arts. And what it allows you to do, so this works well for people who are making regular content. And this is one of the things to install in them, to create a body of work, to create that wanting audience you really need to be publishing on a semi regular basis. But let's say for argument, you were talking about someone, like I am supporting a young filmmaker in Canada. She makes a couple of videos a month. And she does games reviews and political reviews, and she's funny. She's also a belly dancer. She's just an interesting girl. And I really like her voice. So through Patreon I donate two dollars for every video she makes, and I cap that up to ten dollars a month. And she makes a couple a month, so it's the price of a coffee. But Patreon, it's actually a very good site to show, it's P A T R E O N. The wonderful thing is its only people who are making regular content that people are enjoying. So you need to seed your content to the point where you have actually got, you can prove you are going to make regular content, and you are putting it out on a weekly or maybe a fortnightly or a monthly basis. And it's got to be good quality and interesting. Some of these Patreon people, like there's a science guy, he makes fantastic content and for every video he makes, he gets about two thousand dollars from his patrons. And he knows that that's regular income, as long as he's publishing on a regular basis, that is how much he's making! The average is maybe, three hundred dollars a month but that goes a long way when you are starting out. So you have got subscription models like that, people are obviously crowd funding. The ability that if you have an idea, you can go to a site such as Pledge me, or you can go to Indigo go or some of the ones overseas. And again, if it's interesting enough and you work your crowd and your social network, you can quite often raise enough money. And a brilliant case in point, it's one of the most awesomely cheesy, ridiculous films I have seen in my life. Kung Fury. It was I believe Sweden it was kick-started. They made enough money to make half an hour of this. It's absolutely bonkers; it's the most crazy kung fu martial arts film. The special effects in it are incredible, they are better than a lot of the big budget stuff. And I don't know if you've seen it but it's absolutely hilarious. It's got time travel and its total 80's retro and it's just glorious. It homages every 80's, 90's cheesy Kung Fu Sci Fi movie. So all the way through you're spotting the references. So this guy, who I believe worked in film or TV production, had this idea, no way would he have got it funded through traditional studio models. So he kick started it, made enough money to make half an hour and it's brilliant! And I found it through Netflix, and on Netflix it's a five-star rating! It's one of the highest rated films on

Netflix. And this is the other thing that I think has shifted with the advent of online media consumption like Netflix, is that people now binge watch. They back process their watching. It used to be that you had to wait for a certain time and be in a certain place but now that is completely changed to people wanting to watch two or three, and this is how I do it, I'll watch two or three episodes one night and then I might be busy for two or three nights or just reading. So again, you have now got like Netflix, who are underwriting new content. Vimeo. Vimeo have on the pro accounts, so the plus account is \$59 a year but the pro account is more like \$200 but with that you have the ability to have different types of pay to view model. So I mean, this is also, these are channels that could be co-shared by a whole class. So we are thinking of potentially signing up for it, because the width of the integrations that we get. But Vimeo are also funding creations of new series. And with Netflix, which I particularly like, is when they have made a series, is to put the whole series out in one go so people can binge watch. They can spend an entire weekend watching House of Cards or, what am I watching... Flying Superhero Guard just started watching it. But also this can benefit the filmmakers because, who would have thought that Netflix would actually be funding new content? So they are seeing, like The Mortal Cup, which is a young adult's series, that's one of the newer ones. There was a movie that they put out (I don't know how well it did) but then they are funding the series of it because they have seen that there is interest in this universe in the cinema, so they are now adapting it to a T.V series. And I actually think the T.V adaptation is better.

DW So there are new funding models, new business models for distribution for example, such as Netflix. And there are also newer working models such as the subscription model and the crowd funding model. Is there anything else for graduates?

HB There is also Pay view, so that's what Vimeo also allow. So for example, tutorial content and this is what I am exploring at the moment, is whether or not I want to start making more how to guides and instead of sticking them on YouTube,

DW Sorry, say it again because it glitched.

HB More how-to guides, tutorials. So rather than sticking them on YouTube where they will stick some cheesy ads over the top which I have no control over and I am going to end up with maybe a few bucks a month, because we have actually had cheques from YouTube, our cumulative on the Geek show have been pretty good. But I would rather have it in (glitch) funding, in a professional context where I can switch on a dollar download or a dollar review or something. And the thing is, it's not an either or scenario, it's an and. So there was, (Steve Bayliss) the marketing manager of Air New Zealand a few years ago, he said

at the time that their marketing strategy was like lots of small fires, and pour petrol on the ones that sparked.

DW That's a great way to think about it. One of the dramatic changes in education is that information is available everywhere now. We are no longer (not that we ever were) the fonts of information. But what we do now is hook students up with resources. I'd like your opinion about the role of the educator today. If much of the world's information is available online, what is our role? What should it be? Who should we be to the budding practitioner?

HB I see it more now as being a tour guide and a facilitator. And I really like the flip (glitch) you learn by watching videos and reading but the time in the classroom is spent having robust debates and guiding their thinking patterns and approaching and picking apart the challenges and the problems. And showing the thinking process for coming up with solutions. This is what I've found my students resonate really well with, is finding real life case studies and experiences. So this job came in, we had this challenge, here is the research we did, here's the solution we came up with and here are the mistakes we made along the way. Because it's not really about the success stories, sometimes it's about failure. And I think that's it, helping guide their thinking approach and problem (glitch), being that tour guide, showing them how to get to the information that they need to meet the challenge that they are facing. Si I think it's about coming up with juice challenges, not even knowing what the answer is but helping to guide them and support them individually and collectively in coming up with those solutions. And also realising that sometimes there isn't one. You just got to choose one, try it and then realise that there's that analysis process. We used to call them wash-ups, in the big agency. After delivery learning, the debrief. It was really important, ok, what have we learned from this? What have you picked up from going through this process that you are going to take away today? And I think that's why we are there, we are tour guides and we are facilitators now, to help support their self-directed learning almost. And once they (Glitch) set them free, they have got that for life.

DW That's right, setting them free. Interesting. Thank you, that is really nicely put. Just a bit about user experience, and this is kind of going back a few steps. What are your thoughts about producing for different user experiences, what might that process look like?

HB Yeah, it's going back again to imagining your audience of one and the contexts they are going to be enjoying your content in. And, not being too overblown with production values as well. We know sound is essential. We know that. People watch (glitch) grainy file content but if they can't hear what's going on they will just switch off. And Peter in the Science Media Centre gave a great example of this. This guy is making brilliant content but people can't get past the fact that they can't hear him properly. So kind of, so I talk about

the radio with pictures approach. You must make sure that that layer is really good quality. But then on top of that, it's about where are people, what channel will they be using, what sort of device, where are they going to be, what mood are they going to be? That's the thing about media, it's not just what is someone going to take away from them, what have they learned, what have they enjoyed, it's how do you make them feel? And that's the intangible element which drives all art, music, visual arts. You must be aesthetically pleasing and yes you might have good effects but how do you want people to feel once they've connected to your content? And that is an interesting question to pose. (glitch) relate that back to (glitch) of content ever, a piece of music or a book, a film, an animation. Why do you love it so much and what emotions does it provoke and how does it make you feel? And that's the seminal part of this whole creative process, isn't it. But really, what people come away with at the end of the day is a sense, a feeling. Whether you are uplifted, and that's the arcane part of the art. If you can get them to understand that that is also really important. Yes the production has to be good, yes the whole composing, every frame should be a painting, all of that kind of element. It's important, but how do you feel when you've watched it? How do you feel when you've listened to it? And with art, when I am teaching young artists, quite often, people are not just buying a piece of artwork; they are buying the emotion and the story behind the making of it. So that's the other thing, it's getting them used to documenting the process. People are really interested in the making of. When DVD's started to come out, often people were more into the behind the scenes making of, than they were in the actual piece. It's quite fascinating comparing. I remember watching the behind the scenes of The Hobbit and everyone there is just so happy and excited, The Lord of the Rings DVD. And you could tell it was a labour of love, every single person on that film or series of films loved what they were doing, knew how lucky they were to be working on it. And you could just feel it shining out of them. Glitch. And then watched (glitch, name inaudible) and there were a load of people talking about 'the product'. And then I watched the behind the scenes making of one of the Terminator films. And everyone was flat, and they talked about 'the product' and that was such a contrast to me. That was a window into the different cultures. Glitch. This whole lifelong view, it's about making, creating a lifestyle you don't want to retire from. It's not about career; it's about a life that you enjoy. Enjoying the journey and not focussing too much on the destination point, because that destination is going to change as you grow. And you may realise that the strategy that you put in place at one stage needs to change, because actually you get there and you realise, I don't want this anymore! I've done that. I've got to a point where I've ticked off everything that was on my bucket list, and then I'm like, actually this isn't what I really want so I'm going to come up with a new strategy. Build a life that you don't want to

retire from and enjoy the journey so much that you don't need to go on holidays to escape from it.

DW Yeah, fantastic. Thank you Helen. What have we not discussed about the new information economy?

HB Creative Commons. How important Creative Commons is as part of the tool kit. Because if one of their challenges is to get your content in front of as wider audience as possible and get people sharing it, Creative Commons is such a powerful tool for this. And we just had this experience today. Someone on Twitter picked up on the weight management animation that we made last year, which we put out on YouTube under a Creative Commons licence. And then I was able to thank him through Twitter and say, hey you can also watch these as part of a learning module that we made. And that's just gone all around the world, and I've had people from New York, I've been having pings come in while we've been talking, from about ten different countries saying, I love your work! But they wouldn't have known about it if we hadn't published into Creative Commons. And then on the flip side, it's amazing, over a billion assets created, that are freely accessible and legally available for people to use for their own work. And the more people that use them the more powerful it gets. So I actually think that as a foundation (glitch) of importance.

DW As a foundation, say it again?

HB A foundational technology and a platform for publishing. To encourage people to share your work and remix it and reuse it. And give attribution to you. Because this is how you pop up on people's radar, it's like advertising. First time you see the advert you think, that's interesting. It might take five more times before we might actually go and do something about it. If people keep seeing your name popping up in Creative Commons and they are like, hey I really like what this person is doing, and then they might subscribe to your page and your feed, (glitch) crowd funding campaign, and you are popping up on the Hollywood radar. Look what happened to Andrew Kramar. This is how (glitch) turned him from just another after effect producer, to doing the intro sequence to Star Trek.

DW Interesting. That's great. That is a nice sparkle of hope in the vertical part of the long tail. Thank you Helen. Is there anything that you can think of that you want to mention that I haven't covered in terms of creative pathways, career pathways for creative digital economy?

HB I think the most important thing is, just think laterally and see that your skills can be transferrable. And just get involved as much as you can as early as possible. Because it's

also about building a reputation and a brand, and also not being afraid to see yourself as a brand. And owning that early on. We're seeing this a lot at the moment, the work we are now getting is because we have this very strong brand. And I'm now getting approaches from people extremely well known in the media here who need us to help them get work in the space because we have got the perception of being this big organisation. And we are, there are about fourteen of us now. We all work from home, we are a group of individuals who realise that by coming together and collaborating, we can collectively take on big jobs. So that's the other thing, is realising that the people who are in their class are going to be their team, and buddying up and connecting and realising that these are lifelong relationships they are establishing and these can be your teams. Look at Tim Burton, he uses the same actors, he uses the same team. Every film he does is pretty much it. And seeing it more as a whanau company.

DW That's nice, a whanau company.

HB I think that's the future.

DW Awesome Helen, thank you so much. Again, very rich with stuff, and I look forward to poring over it and incorporating it.

HB Thank you.

DW My pleasure. If you would like, I am happy to send you a copy of my Thesis when it's done.

HB Yeah I would like to read it that would be great.

DW Thanks so much, I really appreciate your time and your good thinking. As always, great to talk to you. Bye.

APPENDIX D

Keiko Bang Bio and Transcription of Interview

Keiko Bang [<https://www.linkedin.com/in/keiko-bang-573a5b1>] has been a multi-award-winning documentary film producer for twenty years, and has a media consultancy that has worked with clients such as UNESCO and Japan's Ministry of Communications and Internal Affairs. Bang officially consulted one of Korea's largest private media companies, "assisting in the formation of joint ventures and strategies for programming, content development, technology exports and expansion into Southeast Asia" (Keiko Bang, 2016). Keiko has been a keynote speaker and has participated on juries and panels for a number of international conferences, addressing the subject of Asian media, financing, industry development and factual production. In 2011, she was inducted into the International Academy of Television Arts and Sciences (The International Emmys). She describes herself as believing "that the media paradigm shift requires an intersection between technology and art, including the world of factual storytelling found on mobile phone applications and in serious games." (Keiko Bang, 2016).

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The following is a transcription of the semi-structured interview conducted by Daniel Wagner for this research with Keiko Bang on 19 April, 2016. Wagner was in Auckland, New Zealand and Bang was in Hong Kong. Skype was the VOIP platform used for this interview.

As is the nature of most consumer-grade VOIP conversations, there were occasional glitches in the signal. These are signified as such in the transcription.

DW Do you feel that there are educational gaps in the nexus between art and technology? If so, could you identify those gaps and suggest possible directions in which education might steer in order to bridge them?

KB There's a grammar in expressing storytelling and often that can find parallels in the arts and in technology. I think that people often make the mistake in believing that art is connected to the actual medium. Like, television is television; I was just in a meeting at MIP (an annual content market), speaking with public broadcasters, who really have an issue. And the big issue is Netflix. And obviously Netflix is a metaphor for all the larger online video platforms. And I raised this factor and said, what is it that you are so afraid of? And they said, we believe we are going to compromise our integrity. And I said, being online doesn't compromise your integrity it gives you more viewers. I said, how you create your programme

doesn't change just because it's online. But you can see, there is this tremendous fear. I remember at the end of a meeting saying, well what if I started a portal called integrity.com. Would you then put your documentaries online? And there was this complete silence as they all sat there and thought about it. And I could see that they seemed to see these incredible boundaries, but it's a boundary less world and that's the beauty of it. And I think it's very, very hard for people who have been doing this a very long time. They are afraid of all the coding and the programming technology, a lot of people say they are too old for this. But you are never too old for this, I mean, my father is 78 and he is learning Facebook, he's having to learn a lot of things. He embraces it. And it's me, I feel like I'm too old for Snapchat but I send a Snapchat every day to my daughter. And it's usually something really meaningless, but I'm trying to understand what is the benefit and what is the value that I get out of that. So I have a lot to say about art and technology. I'm a big fan of Marshall McLuhan, *The Medium is the Message*, I'm sure you are familiar with him. And I was really taken in by what he said, that how you see the device by which you are, the system by which you are looking at something effects so much what you are looking at as a story. And I think Aaron Koblin, the big guru in this area, he said that the nineteenth century was the century of the novel, the twentieth century is the century of the film, but the twenty first century is the century of the interface. And I think that that's absolutely true and I think that we have to be thinking about boundariless storytelling. I think we have to, not all the time and not for all of us, but I think that we have to be thinking about how to tell stories through the interface. I feel that, in looking, I've just come back from Europe and I have gone to Holland, where I really think that they do the best. I would have to say that the French and the Dutch really, really kill it. The French have a billion dollars out of C and C (inaudible 2 words) and they have some phenomenal interface companies, but I think the Dutch really kill it. They have a long, long history that precedes the intersection of art and technology that dates back centuries. And I find that they are doing extraordinary experimental things that combine gaming with interactivity with storytelling with factual animation. The list goes on and on. It's really brilliant, the things that they come up with, and I always leave very, very inspired. But I really think it's a big challenge, I have yet to actually see that one interactive storytelling thing that makes you want to go back time and time again, and I think that's what they're struggling with, finding interactive story. And once you go through it you put it down and you don't go back to it. And so I think they struggle with the stickiness of an interactive documentary. We are still on the way; I don't think we have actually achieved that yet.

DW So that interactive documentary for example, is that one way that the creative industry, creative digital economy might be changing? What other ways do you see it heading?

KB Oh I see such incredible interaction between genres. You have all these different genres and I think for some reason our brain desires to put them in boxes but in actuality they are all just different ways of expression, different forms of expression. So for example, I really love the graphic novel becoming animation, becoming interactive, becoming gaming, becoming documentary, you know, becoming a music video. So we are seeing a lot more crossover. We have to remember that what really funds breakthroughs in technology in the most part (in my personal opinion) is advertising, because the advertisers have to outdo each other all the time and they have the money to do so, and music videos. So I look a lot at what they have done. So if have a look at What Chris Milk did with Radiohead. He had an open source coding, sort of a music video where people went and took that open source coding and were making other things with his music video. And another one was Arcade Fire, and I think you can find this on TED if you look up Aaron Koblin and data visualisation. And what you'll find is there was a GPS, a music video that was connected to GPS and Google Earth. And so you would type in your address and they would have some unifying aspects, but it would pull down images of Google earth of your neighbourhood. So that if they had a guy running in the music video, it would look like he was running in your neighbourhood. Google Earth would provide the street and the aerals of where you live. And you would get like a personalised music video.

DW It's brilliant.

KB It is brilliant, you really must see this. It's Aaron Koblin. And that single video, he's the one who talks about interface being the 21st century and the medium s the message. But he just blows my mind, he's brilliant. He used to be head of Visual Art at Google and he's started his own company with Chris Milk, who's one of the leading, I would say cutting edge technology people in music video. They are just incredible people. (Glitch) So what I was trying to say was, for this to work we need a couple of things. We need much more Interaction between the different disciplines. I think that we work in silos. I think animators work in a silo; I think documentary makers work in a silo, same with drama. And then the technology people work in a silo, people making mobile phones, people making smart TV's and I really feel that there's very little discussion between the two and I think that is slowing down the pace on the advancement in this area. I think that really what needs to happen is that linear producers need to understand the new technology. I was talking to Park Chan-wook, and some of these big Korean directors and saying, why don't you guys work with Samsung to do something interactive. And they said to me, first of all, where would we learn to do that? And that was a very good question, where do you learn when you are like 55 and a really famous linear director, to do something interactive. And yet Samsung tells me conversely, we are really tired of these linear directors coming and asking us for ten

million dollars for the next film. However if they made something that really showed off the functions of our smart T.V and understood that there was bio recognition, that there is voice recognition, that there's really cool things going on with the smart T.V or with our smart phones, then we would have a blank cheque for them! You know, we are a 300 billion dollar company. And I have been trying to talk them into doing an icebreaker, where you have the linear producers talk about what they are interested in, where Samsung, it opens up their doors to their future Lab and talks about technology and where it's going and what they really want to see in terms of content. Where they would like the brains behind creativity to go. And then to bring in people who do Trans media and say, here's the beginnings, here is some pioneering work of the convergence between technology and art. Here's what you could put on a smart T.V etc. And there are a couple of gurus around the world I think who are really ahead of their game, and I think that that's the only way it's going to work, not just career but anywhere.

DW Could you just unpack for me a bit what you mean when you say linear directors?

KB Oh I meant the directors that are doing drama, movies, musicians in all areas, animators. When I say they are linear I say that because there is a different visual grammar when you work with technology. That really hit home most to me when I was in Holland and I was at the world's first virtual reality theatre

DW Could you back up? You just froze for a second. You, you said virtual reality theatre was a great idea?

KB So the first virtual reality theatre. And what was really cool about it was it was really to exhibit virtual reality. I don't think they were interested so much in having you watch Star Wars in virtual reality, it was really about the fact that we talk about VR a lot but most of us have never seen it. I mean let's be honest. How many of us have really gone out, got the gear, downloaded software, put it all together. It's a lot of work, to actually try this stuff out. And so this friend of mine had a lot of space downstairs, he owns a Michelin starred restaurant, and so they just put a load of swivelling business chairs into an empty gallery space and made sure they all had Samsung gear and a Smartphone attached with headphones. And then you got a cup of coffee and you could watch thirty minutes of various types of medium, all presented as virtual reality. For about thirty minutes and they were charging like fifteen Euros. And it was full from morning till night. And I would have to say that 99% of those people are people who have never bought anything to do with virtual reality but they wonder what it is all about. Everybody keeps talking about it.

So actually we are very interested in doing that same thing in China, especially in China because you know, it's going to be a long time before people are going to be able to afford to buy VR glasses. And in watching that and really feeling that I was getting a really good look at all types of virtual reality, I realised that really when it came to film, and there was like a small short film in this assembly of clips, that there has to be a different set of visual grammar for virtual reality. Incredibly different grammar. And I feel that way in general, when you look at vine. Vine has already done that. I was told that a goldfish has an eight second time span, attention span. And vine is six seconds. But in giving people six seconds you force people to be incredibly clever, very smart and they have learned to make stories in six seconds and I think that is just amazing. We adjusted, they came up with special effects, and they came up with a different grammar to tell the story in a much shorter period of time. And I love the user generated content on YouTube, I see people coming up with brand new ways of telling stories all the time. So I think that's what I mean is the difference between a linear producer and a non linear producer and the way they think of things. You have to really tell stories backwards, or in a completely different way.

DW What do you see is the future of content? Clearly, ever evolving ways to acquire and to manipulate and to deliver, and in fact to use, to consume new content. Do you see any shifting in terms of what the content is, as a result of these changing models?

KB Well there's the infrastructure answer and then there's the really creative answer I suppose you could say. Like the future of content, and then there's the question of who's perspective is it? Is it the user's perspective? And then you get into the millennial discussion. I can imagine five hands on top of that.

DW What do you mean the millennial discussion?

KB The millennial perspective. It's very interesting because you see a lot of discussion about women. Women affecting television. Television is completely changing; there are two things really in my opinion that are driving the force of content. One is the fact that women are the largest social media users in every single category and every single demographic where they have access to internet (glitch) has its effect in my opinion, particularly in places like the Us, which has an influence on the rest of the world. And what I mean by that, is I saw a very interesting statistic and that was that the number one watched programme in the United States on Television is (wait for it) NCSI, Navel CSI. 22 Million views a week. All ex Military guys, or Military guys, do they blog about it? No. Do we hear about it? No. Does anybody know what NCSI is? No. But they have more people watching that show than anyone else watching any show on television in the United States. On the other hand you have the programme Girls, which is on HBO. It only gets about six hundred thousand views,

(and my numbers might be slightly off because this may be a two year old article) but there are six hundred thousand essays on Girls. So guess which one the advertisers are really going after? So number one, they are really starting to realise that women are driving social media because we blog, we're uber organised to want to communicate, we are very good at liaising with each other, and one really good example of that is the fandom of course of K Pop which is probably the world's best example of this phenomenon that can be created by women on social media.

But going back to how it effects the television industry, we are seeing three seasons of pilots come out where women are the main characters in television shows. We have women presidents, we have vice presidents, we have CIA, you have Special Agents, they are running hospitals, law firms, and we would never see such strong characters or a drama series where the main character is a woman ever in the history of television. So that's one really interesting impact. The second is that the demographics generally skew to either luxury, which is men 25-55, which is like the discovery channel bracket or it skews to millennials, the Coca Cola, Nike rebook. So that's much younger. Millennials have a very different view on life in general; I mean it's a generational change like any other in history. And the way they have used media, what they are looking for, I think they grew up at a time, they have never owned a fax machine, and they grew up with all this access to data. And I think this has two effects. I think number one is that it is overwhelming, so there is this sense to hide with your friends, they are kind of looking for their own little cave or a little cubby hole where they can meet with their friends and they don't necessarily have to go beyond those boundaries. And on the other hand, the way they date, the way they socialise, the kinds of things that they are interested in when they have so much data at their fingertips is very complex and it has changed their social behaviour, particularly in the area of dating. And it's often said that Millennials aren't even dating. They meet up on Tinder and they just hook up. I saw an article and it's like it's just not romantic at all anymore, you know? The way that my generation would consider it to be. But I see, so there is a very very different way of communicating, the way that they want to tell stories, the kind of memories they want to have, but I also think there is a delay or a lack of a very important skill and that is curation. And curation is important because I think we are not teaching kids what to believe, what not to believe. When we were growing up we looked at newspapers, there were certain newspapers that were invaluable. The New York Times, the Guardian, whatever it was in your country. You would believe, you know, they would win Pulitzer prizes, that they were really fact checking. And you would believe what they had to say, and heaven forbid they would make a mistake they really paid for it! You know, Time magazine, Newsweek. And suddenly now, 70% of young people are getting their news off Facebook, and I am absolutely guilty myself of reposting things.

We are in a time where we don't know where to go for authenticity and credibility and the right news. And you find that even the big guys that have always been there for us as a sort of pillar of integrity, are no longer as trustworthy as well! You know, AP has been caught out, and then you have got Snopes, they found out that Snopes is really run by a couple in California. And they tend to be right more than not, but you know, there is just so much data. It's a huge crisis we are having in terms of integrity. So these kids just don't know how to curate what and how to be discerning. So that also effects content. How I think that they tend to feel, the way our generation puts it is entitled but I think that they are not entitled, I think that they grew up in a world where the world was their oyster, it was no big deal to be able to talk to somebody in Bangladesh, to be able to do business here, there and everywhere. And they take a lot of things for granted and that comes up as entitlement. This shows up in a lot of the younger shows that you are looking at, a lot of web therapy with Lisa Kudro, a lot of the content that is being made is really not self reflective, it's really more self indulgent.

DW So that leads to, well the main core of what my enquiry is which is educating students for the future. Educating the media makers for the future. There are lots of questions that come off of that, particularly: what do they need to know? What kind of skills do we need to develop in them to deal with a changing future, to deal with changing tools, with changing economic models, changing creative models? Skills for tomorrow.

KB I am a big, big fan of coding and programming. I think that every single child should learn how to code and programme, at least the basics. You should know how to make a basic mobile application, you should be able to code or at least read some code on your programmes because as the internet grows and the dark net grows, you need to understand how to protect yourself against, you know both for protection and for creative expression. That is number one. Number two is to understand what big data is all about. Understanding global economic affairs. I'm probably quoting something I've read as well, somebody else's what do young people need to know but I firmly believe this as well. You need to know what's going on, globally and economic affairs. I think that we need to understand business models, even as children we need to understand business models. And they can do that in classes, you know monopoly was my first game that taught me anything about business or money or saving and whatnot. I also am a big, big fan of Gamification and I don't mean the kind of Gamification where you are like shooting numbers one and two and that equals three. I'm talking about extremely sophisticated Gamification that is, like corporations use to teach compliance and things like that. And particularly Gamification of games related to emotional EQ. To issues and challenges that kids face that often get sidelined.

Let me give you an example. There is a game that just came out for kids with ADD, ADHD and it really allows them to try to experiment and work around solutions when they are struggling with a lack of focus. My own daughter has ADHD and I did not know this until she was a senior in high school because she was kind of over performing, but the gaming environment actually makes things more, it helps kids to absorb more and I think it's going to become a very big part of education in general. I was looking at two schools, one in New York and one in Los Angeles; I think it's called Playmaker. They are experimenting with teaching really young kids quantum mechanics, there is no real desk, they are building things all the time, they have access to extremely high end infrastructure and gaming tools and what they found was, in the same way I suppose that Montessori found a long time ago is that kids are able to learn incredibly high minded concepts if they are given the right kind of tools and interfaces to learn on. The other great thing about Gamification is if you used a game to explain to kids what to do about bullying. Bullying is a really big problem globally for example, and a lot of parents will say turn the other cheek or just fight back no matter what etc. But actually to be honest, there are different types of bullies and different types of behaviour associated with each bully. Some bullies are actually really violent and you are better to just run, some really are insecure and are just really looking for a friend and because they are insecure maybe you can talk them down, some maybe you need to fight them and some may have different reactions. In a Gamified version of a bully game, you could actually use dramatic simulation and let kids in a safe environment actually see what would happen if they chose a certain behaviour. And these are all actors of course, so you could show them a fictional bully, you could give them a decision tree and say well why don't you fight him or why don't you try to talk him down. And then you could have the actors go through that and simulate, again safely. Take risks in a safe environment. And so if you fail, there is no cost to that. And I think that's what we need to do in this world, I think the only way to be innovative is to fail and yet the cost of failure is usually quite high. And a lot of kids really lose confidence and esteem from failing and being punished for failing and that's why games are so wonderful. There is a restart button.

DW So this might be one possible career pathway for an aspiring filmmaker. My premise is that people come into a learning institution intending to become filmmakers and they might come out as different types of content generators. So talking about the future of content, this type of a game, a role playing interactive game, is one example of next gen content.

KB Absolutely

DW And also looking at post literacy. There is a big body of research suggesting that we might just be moving into a post textual environment. Where do you sit with this?

KB I actually think that kids are reading, that young people do like libraries. My daughter is 26 but in college she was in the library until 2am, she enjoyed that environment. I think I'm not such a pessimist, I think we are still animals. We still enjoy that tactile feeling of turning a page. I read kindle all the time, on my iPhone or my iPad. It's not the same. I honestly miss books and I love being able to turn a page and I think that's biological and there is this aspect of the eye to brain, it's this movement, it's the entire all-encompassing thing. But going back to one of my favourites Marshall McLuhan, he goes back and he talks about those first books that came out after the Gutenberg press, he talked about that that was the first time in history that we actually, that was the birth of individualism. Because until then you always had to be in a group to hear a story or listen to a story, you had to be in a church, the only books were made by the monks, etc, etc. So for the first time in history you could have a novel or you could have a book, put it in your pocket and go and read it by yourself and that was absolutely revolutionary. And the fact that it was on square pages that we chose fonts, that there were all these kind of ways that completely changed the way that we think about things. So I do think that we are rethinking that but at the same time that words will always mean a lot to us because we want to communicate. So I don't know that everything is visual, nuance is very difficult to express and there are very few extraordinarily brilliant directors who are able to do that but sometimes you just have to attempt to do that with your writing. But what I do think is, for our next generation content, you need to without a doubt create entrepreneurs.

I see so many animations, graphic artists, people who are incredibly talented. They don't have a business measure, they don't have their own business, and they don't have a business model. Everybody starts off with passion, particularly in my field of documentary at the beginning, you don't get into documentary to make money, and you do it because you have a passion. For me it was about engendering tolerance. I grew up as a mixed child with a Japanese father and an American mother, which was very rare in the day and it was like the Pacific war every day. They never understood each other culturally and they have since divorced and I think my father is a lot happier now; he is remarried to a Japanese woman. The point being that it really made me understand how much miscommunication goes on culturally speaking. And so I feel like what is really really important is we graduate in the education sector, people who not only have the technical skills which you need. Big data is an important tool for analytics to know who you are producing something for, not just about oh I need to express myself, and it doesn't stop there. It's like, who are you expressing yourself for, who wants to see your project, who wants to share your project and who wants to be a part of your project. That's demographics and you can't understand that unless you look at the analytics of what you are doing. You need to code and programme, you need to understand accounting, business models for entrepreneurship and I feel like a

lot of film schools and places like that lead people to funds, or NGO's and philanthropy and I just think that it's wrong. I think that those are very very important sources of revenue but I call that art. And I think that when you are really trying to get an industry booming and you are graduating people who have spent that much money and invested that much money on education, they need to graduate knowing exactly how they are going to make money when they get out of college. And that when they want to do their epic art then that's when you go to a foundation to get money because it's probably something that the general populous or advertisers are not going to be interested in. So going back to what you are saying about visual, I am extremely excited about the emergence of data visualisation and info graphics. I started out with info graphics, being very excited even about the emergence of typographical videos, you know like entire words to songs, just through typography. They were making videos just through typography, it was very interesting. But I'm very, very keen on data visualisation, just being able to hook up with a Telecom company and see how many SMS's are going from what GPS location, and you can see that also on Aaron Koblin's thing. I had a concept, I was asked by the (inaudible) style company in, six company to do a documentary on Psy and I said, that's not interesting but what is interesting, what if we told the story of big data using Psy and the gross to one billion hits on YouTube and Google was going to fund it, MIT media Lab was willing to help me with the analytics and all the mathematical part and the data visualisation part and Nova wanted it as a programme, it's a fantastic way to teach about science, to use a music video, that made a global historical record. Unfortunately the Korean music company didn't get the intellectual value to that at all. And so we didn't do it. But if I had had my druthers (inaudible) we would have had, created a three panel project where at the top you would have had real images of what Psy was doing, he was meeting Ellen DeGeneres, Britney Spears, Madonna, everybody. And everywhere he went he would spike in certain types of social media. So I thought at the bottom of the screen you could have the things that people did post on Instagram or Facebook or wherever it was, the actual artwork and then in the middle you could visualise that, you could hook up together with Telecom companies or in this case with Twitter, and see the growth and how it's spread. I think the concept of going viral is absolutely fascinating. So I think people are interested in data visualisation, they love seeing the lights go off around the world, everyone loves that picture of North Korea with no lights and South Korea being really lit up, they love all this visualisation of data and it's so much easier to understand how busy American airports are when you visualise the airplanes coming in and out over a 24 hour period, and so forth.

DW What do users want? And where do you see user demand going?

KB I think that users want ultimately convenience, right? I want what I want, now, anywhere, on any device, now. I think that it's harder and harder to grab their attention. I think we are distracted, we are multitasking so therefore things start getting simpler, more simplified more simplified. I saw a calendar up the other day and literally it was like, April 4th, blank page. I feel like we are going backwards in time, I feel like I could have made that app! On the other hand, what we are seeing, I think for users, things are getting simpler. I think for businesses, that's a very interesting area, we are seeing B to B growing extremely sophisticated. We are seeing as services start to use new technology, we are seeing things that are really blowing our minds. The smart grids for example, you have meters in your smart meters in your house that say ok if you use that much energy you are actually draining on your city by so much percent or here tonight, why don't you turn on your solar panels and let that power up your village grid, you know, we are seeing some incredible stuff happen with technology. So I think it's the businesses that we are going to see really change dramatically, particularly banking. I think digital banking is really going to be dramatic in how we pay for things, you know at the end of the day it might even be our eyes, our irises. We just go to a machine and boom, its fifty dollars. That really scares me because I don't want somebody to gouge my eyeball out to steal my money, but I definitely think we are headed that way.

DW So just speaking of newer business models, you were also talking about entrepreneurship, what about individual entrepreneurship? The independent agent artist as Helen Baxter calls them. Independent contractors who have a creative practice and in the gift economy they, the freemium model basically. What other business models do you know about or that interest you on that end? In the long tail?

KB I think that advertisers and users are actually coming close together. I see that the middle man and particularly the madman agency type of middleman advertising agency model is dying by the wayside pretty fast. I think that particularly in the West, I wouldn't say so much of Asian advertisers but in the west. We are seeing that advertisers have become far more reflective and almost a higher EQ about how they present themselves and how they sell their products. You have to be extremely sophisticated now in selling your products. Gone are the days where you can do a hard sell. I mean, yes we are still going hey go and buy a Big Mac but at the same time people are, the Millennials are and people in general are really sick of any, they really will not tolerate any sense of trying to sneak an advertising message in. Perfectly fine with a pure ad. Perfectly fine with saying, hi buy Coca Cola, we really hope you will enjoy, have a good time with your friends. They do not want it snuck in, they do not want it subtle, subconscious, and all these crazy tricks they used to do in the seventies and eighties. They don't want any of that. I think what you are going to see is a

really interesting business model with advertisers working with content makers to do branded content, but not just branded content, branded channels. I've been watching Red Bull's channel, which I think is an incredible success; I don't think you need to put a can of Red Bull there every hour. I think that Red Bull has aligned itself with the concept of excitement and innovation and dynamism and I'm really impressed that they sponsored something in Korea which was a competition between a Hip Hop and an ancient form of, kind of rapping in an area called Ponsori and these youngsters were just going nuts over the Ponsori masters up against the Hip Hop guys and they were each given two minutes each and they were going back and forth, tradition modernity, tradition modernity and at the end the Ponsori master won. And these are young kids voting on their phones and I thought it was fantastic! I think we are going to see many more channels, I think we are going to see advertiser channels where they want to be associated with certain types of programming but it's not about promoting the advertiser, it's about promoting a feeling or an aesthetic. A feeling of prestige or a brand that the advertiser wants to communicate to the consumers. They feel that once they have sold people on the idea of that, then you'll go and buy that product anyway. If you feel like the brand is who you are, if you like Harley Davidson motorcycles (glitch) want to buy a Harley Davidson motorcycle.

DW Could you just back up? There was just a huge Skype glitch.

KB I'm sorry. So I said there are entire ways of selling brands like Harley Davidson or Maybelline, where honestly you don't even know the product but you know what the demographic is. And you can do Sons of Anarchy, you can do so much programming around it without even saying Harley Davidson and I swear you get people who look at it and think, I've got to go out and buy myself a Harley. So I think that's what's going to happen, I think brands are very much now calling themselves storytellers and so I think the key is not to view an advertiser as an enemy. I think especially with the western brands, it becomes so sophisticated, so discerning and although sales are really, really important I think they are more interested in loyalty and loyalty only comes when you really love a brand, when you have a passion. This really brings me to another really important point I would like to say about viewers and users. I prefer the word user because it covers so many areas. I think that users work in communities, we are drawn to communities of people who have the same passion. I don't know what it might be, maybe you like cooking French food, maybe you like knitting, maybe you like fishing, fly fishing. You might like cricket fighting if you are in China, calligraphy, cars, whatever it is. And you find your community, and you have a passion for it and you will spend money on it. And that is what, to me is great about being a content maker, we can go to all those people and say, hey listen, I know that you have a large French food loving community, so could we do stories about amazing

Cordon Bleu chefs or Michelin star chefs, or could we do something on French wine that would be a trans-media project but at the same time could we have a cure code on there and when you click the cure code then Amazon will send you samples of all the wine we have just seen this week, on the website this week? And you could make a business model that include Ecommerce events, special videos in addition to what you put on television which could be in addition to what you have online (glitch)

DW It's glitching badly right now.

KB So people are passionate about communities, their community. I call them communities or tribes, when they are younger I call them tribes. It's not just K-Pop or music fandom, we are talking about people who are foodies, love to travel, people who love to travel to sacred spaces, to world heritage sites, scuba divers, cricket fighters! I'm talking about the insect the cricket. In China it's a big deal, cricket fighting. They buy (inaudible) palaces(?) for each cricket. I remember trying to explain this to the Chinese founder of my company. And he loved Go, you know the game of Go? Are you familiar with Go?

DW Well I know of its existence, I don't know the game itself.

KB Oh well you know these black and white stones on a board. Let me try calling you back and see if it's cleared.

(I called her back.)

DW So you mentioned tribes, and I guess that's a nice segue into social responsibility. I'm wondering what your thoughts are on using the types of media and types of content that you are talking about for social change, to connect young makers, the makers of the future with their sense of social responsibility?

KB I actually think there's no problem with that at all, particularly in emerging countries. I actually think it's an area that is really flourishing. (Glitch) I mean I have seen that from everywhere, whether it's Gaza or Japan, everywhere. I think it's probably the most socially conscious generation since America during the Vietnam War. I really feel that, it's really the first time in my life when I have heard young people say they do not want to bring children into the world. I think they are very terrified and I think it's that we have more information at our fingertips. I don't know if it's necessarily a more drastic time than say the last industrial revolution, I mean that was a very very drastic time too. If you imagine the pollution and remember the pollution back in the last industrial revolution and what was going on then, it was very drastic but we didn't have the information. It would take us six

months to get the newspaper from London if we were living on the other side of the world. I think that we are inundated every single day, its earthquakes and floods and Ebola and Zika. There is so much going on but I think that despite that they remain optimistic because kids by nature are adaptable and flexible. But I think it does concern them deeply, I think politics disturb them. I saw a report by Credit Swiss, if you are interested in this by the way. They did a report on young people in four countries, which is a really good read.

DW Yes I'm very interested.

KB It's Credit Swiss and I think it was about two or three years ago, but they studied I think Singapore, Switzerland, I want to say Australia and Japan or America and Japan. I know Japan possibly was in it. But it was interesting, they were saying that the kids generally were optimistic and the head of MTV world, I was talking to recently said the same. They did a private study recently and they found that young people are actually more optimistic that we think.

DW My students are quite concerned, I have to say. And what I am interested in is exploring just briefly empowering students to feel that they can use their media skills to change the world, to make a better world. How do you see the connection between and using media skills for world change and using media skills to make a living. How might they find a market tapping into some of the new media streams we have been talking about?

KB Yeah, I think that there will be more media platforms that set up to do that. I think that when you look at Curiosity Stream, I think that when you look at Viceland even. I think that Viceland is interesting because they were overly dark on some of their topics, you can't even play that in a lot of countries. Have you been looking at Viceland at all?

DW No I haven't

KB Ok Viceland was launched to be a more serious current affairs investigative channel for millennials. But they have titles like Gaycation and Weediquette, and it's about people who use weed for medical purposes and it's very serious reporting. Gaycation was very serious. This is not a lifestyle channel. They go to Bolivia, there are two gay folk and they go to Bolivia and they are introduced to a policeman who says he will kill anyone that is gay who is around him. I didn't see the whole programme but I downloaded it. He says to the translator, can I tell him I'm gay? Is he going to kill me? I mean, this is really serious stuff. But I think that they are, I think that they will find that media companies are, and that is the great thing about analytics is that they are looking what young people are about. My daughter wanted to work, she graduated in biology and she wanted to work with medicines

so she got her registered nurse thing and she went to Oregon for a bit to work with addiction and homeless. I do see far more social awareness and a lot of empathy and that goes hand and hand with that whole entitlement characteristic!

DW How do we combat that in a film school context? How do we enliven students to use their skills to connect with the world?

KB I think that we need to work, that it boils down ultimately, all roads lead to advertisers. Unless you have a government like France that spends a billion dollars a year on the creative, you are not going to get that naturally. You are always going to have a strong group of people who care deeply and who will apply themselves to new media projects, with global warning and whatnot. I am very interested in crowd sourced solutions for things. I was very impressed by a guy who won the Japan prize, a top prize given by the prince of Japan for educational purposes. And there was a game where the guy, he did his PhD Thesis, his roommate was a biology major and they were trying to solve an AIDS vaccine problem and it had to do with shapes. And his gaming roommate said, well that's like Tetris, I think I could do a game. And believe it or not, they were able to solve thirteen years of research in three weeks of gaming. So I think there are so many different ways that people can get involved but I think ultimately I think all roads lead back to advertising and that means advertisers and channels, and hence channels and media channels are more responsible for their CSR (Corporate Social Responsibility) and being more in tune with what their concerns are. And I do think you should really look at Viceland because I think that's what they are doing. It has a quite serious undertone to it. This is not like, Oh yes let's do it a programme on grass. It's not that at all. In fact the first episodes is about a group of children and their parents who are all taking marijuana because they have cancer, so they all have medical marijuana. So when your kid is high and you are high then you don't want your kid to be playing with other kids, and other kids don't want to be playing with your kids (glitch) a very serious issue. The reporter goes up there to talk to them about what it's like to create an entire community of kids and their parents who are smoking marijuana for medical reasons. And I see a lot of young people who are really, really interested in these social issues, very interested in learning about the past. That has really surprised me living in Korea for part of the time, the modernity slapping us in the face and yet they are still very proud, and I think that never goes away that desire to get in touch with your heritage. But I have to say that until it makes money, it's going to be always very hard as an entrepreneur. And it's an age old question

DW What elements do you think are important for a new media curriculum? For the makers of tomorrow.

KB I would go back to coding and programming. I would definitely talk about storytelling, but storytelling in a different way. I think there are a lot of people who confuse giving facts with storytelling and Journalism with storytelling. And I have had that problem myself; I used to be a foreign correspondent. It took me nearly two years to go from putting facts first to putting the story first. I think that you need to understand analytics; I think that you also need to understand business models. I think you need to understand who your audience is and I think you need to be very open to a 360 degree way of communicating with the world, which means, am I using all the media platforms that are available to me? Am I communicating online, am I using social media, am I using the functions of a smart T.V. And I think also to stay incredibly informed and to try (inaudible). I think if I was a teacher I would try to assign people to start curating because in that process of curating you discover so much about what people are doing. It forces you, for the sake of my K-Pop film I watched four thousand YouTube videos, which I never want to do ever again, about K-Poppers. But I learned so much about how extraordinary young people are and the amazing creativity that they have just sitting by themselves in front of a computer doing Photoshop or whatever it is, and how bright and wonderful they are. It was very inspiring. So I would make sure that we don't talk about things a lot, as much as we involve ourselves in them. I think teaching sometimes can be very distant. I would totally emerge people, get into user generated content. I would absolutely force people to do user generated content every week, to film themselves and find new ways, and it could be anything. Make me a six second video, make me a story but tell it to me in a way that I haven't seen yet. I think constantly, and pulling different mediums, say take your Manga and then use the Manga in an application that is connected to Ecommerce that is connected to, you know. We are doing this in China, we have this programme we have just put on air, the first time it's ever been done in China and I would almost say the world, but Cure codes on everything. We are in the third episode now; it's on nationwide satellite broadcaster. It's a food show and they're teaching them how to do shrimp scampi, it's a Chinese chef. So if you click on the cure code, you not only get ingredients, you get the griddle pan and forks and knives and stuff because a lot of people don't even have utensils for the west. And we got in our first run, something like a thousand three hundred orders, which is amazing for people who are flipping around on channels. To take their phone out and to scan a cure code on their T.V screen was really amazing. And I would study different cultures, and I would always look. I think it is important to, I think the best test of understanding really and being creative is to look at yourself and how you use things. I watch myself and what I enjoy, I'm a big gamer and I watch myself and what I enjoy about a game. Why I like it so much, why I'm playing it and the kind of behavioural psychology that I get from looking how the other guys get playing against me. So it's about exposure to a wide range of things and getting people to use that exposure to

innovate. I think that we imitate and we innovate. So if I was going to do a course I suppose I would do the first course on imitation and the second part of it on innovation.

DW Wow fantastic Keiko. That was very rich stuff and thank you so much. I really appreciate your generosity of spirit and thought.

KB Thanks again and good luck.

DW Be well. See you.

APPENDIX E

Proficiency Drill – Notes for Observers

What you're doing is paying special attention to how well the pieces fit together to make a whole. Your purpose is NOT to judge or assess, it IS to give **constructive criticism**. When speaking in the feedback session, the spirit in which you are to speak is that of peer supporting peer to be the very best they can be. Do not even remotely suggest a tone of anyone doing anything "wrong". Speak more towards how someone might be most effective in that job. Be sensitive to people's feelings and respectful of them as budding craftspeople.

Mention specific problems you observed.
Mention specific successes you observed.
Mention opportunities for improvement.

Here is a sampling of the things you might be looking for. Don't stop at this list. Think of things on your own as well.

★ COMMUNICATION

Verbal

- Speaking clearly, audibly, coherently.
- Just the right amount of words – not too many, not too few.
- Did the listener listen actively and did they understand what was being communicated?
- Did the listener acknowledge the communication?
- Did the listener repeat back the key words so that the speaker knew they'd been heard and understood?

Non-Verbal

- Clear communication from sender
- Understanding by receiver

Overall

- Did the group have healthy channels of communication?

★ TEAMWORK

Individual

- Healthy balance of doing one's own job and contributing to the team effort.
- Being an active participant in the group agenda.
- Positive, "can-do" attitude? If not, what got in the way?
- Quiet and attentive? If not, what got in the way?

Group

- Cohesive unit? Or collection of individuals each with their own agenda?
- All on one page?
- Well-oiled machine? Or random parts each doing different things?
- Professional decorum

★ TIME MANAGEMENT

Individual

- Did (any given crew member or specialist team) pace themselves with what they had to do?
Or did they saunter through leisurely at the beginning then rush through toward the end?
- Did (s/he / they) arrange in advance for the (extra) time they needed for the given task?
- Were they excessively slow, amazingly fast or nicely proficient?

Group

- Did the group feel as if they were on the same clock?
Or did some sail whilst others dragged?
- Did they get everything done by the finish time?

★ TECHNICAL PERFORMANCE

Individual

- Knowledge of job
 - Familiarity with tasks
 - Familiarity with tools
- Each task performed thoroughly or were corners cut?
- Calm and confident?
If not, what got in the way?

Group

- Kept the group waiting or ready when all else were?
- Rehearsals, shots and resets ("back-to-one") executed quickly and with precision

★ GENERAL OBSERVER

- Please make any comments you feel are pertinent.
They may include the above issues and/or others you identify on your own.