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**THE USE OF VIRTUAL INSTRUMENTS BY
AUSTRALIAN SCREEN COMPOSERS**

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A thesis submitted in fulfillment of
requirements for the degree of
Doctor of Philosophy

Sydney Conservatorium of Music
University of Sydney

2016

Declaration

I, Craig Ashley Morgan, declare that the research presented here is my own original work and has not been submitted to any other institution for the award of a degree.

Signed: _____

Date: _____

Abstract

Recent technological advancements, strong competition and targeted marketing strategies by virtual instrument merchants have established virtual instruments and digital instrument samples as essential components of a professional screen composer's toolset. The democratisation of these powerful tools has led to broad accessibility to virtual instruments and the digital sequencing software required to run them. Virtual instruments are portable, powerful, and affordable—they are no longer the exclusive domain of expensive recording studios.

This thesis aims to quantify and qualify the parameters surrounding screen music composition in this digital age and introduce to the literature new empirical data together with the experiences of working screen music professionals.

This is achieved by following a mixed methods sequential exploratory methodology starting with a survey of Australian screen composers ($n=102$) where they are asked to answer questions with a recent cue in mind. Informed by the results of the survey, semi-structured interviews were conducted and recorded with working Australian screen composers ($n=22$).

When combined the meta-inferences confirm that virtual instruments are vital for Australian screen composers to do their job, especially now that their tools are democratised. Screen composers are able to swiftly create cues that are finished products and not demos for their director and film-team.

These changes have also shaped a new paradigm of film and television directors to expect final and completed versions of cues from Australian screen composers and not working drafts.

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I wish to sincerely thank Dr James Wierzbicki my amazing supervisor who was a constant fountain of inspiration during this journey. No question was too big or small and every interaction boosted me along. This thesis would not exist without your professionalism and boundless encouragement. Thank you James!

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I also want to acknowledge that I meet and worked on the land of the Gadigal people of the Eora Nation. I wish to pay respect to their Elders—past, present and future—and acknowledge the important role all Aboriginal and Torres Strait Islander people continue to play within Australia and its community.

Ethics Approval



Research Integrity
Human Research Ethics Committee

Thursday, 16 July 2015

Dr James Wierzbicki
Arts Music Unit; Sydney Conservatorium of Music
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Dear James

Your request to modify the above project was considered by the Executive of the Human Research Ethics Committee at its meeting on 7 July 2015 and the response was considered on 14 July 2015.

The Committee had no ethical objections to the modification/s and has approved the project to proceed.

Details of the approval are as follows:

Project No.: 2013/299
Project Title: The use of virtual instruments by Australian screen composers

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

A handwritten signature in cursive script that reads 'Helen Mitchell'.

Dr Helen Mitchell
Chair
Human Research Ethics Committee

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.

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1 Chapter One: Introduction.

1.1 Introduction.

Writing music for the screen was once a manual process, involving the creation of a musical score using pencil and paper and trial and error with an orchestra or ensemble in a professional recording studio. Today, powerful and portable digital sequencing software and music notation programs have become screen-music-industry standards. Use of these tools represents a fundamental shift in the way screen composers¹ work and communicate with their teammates. What was once analogue and manual is now digital and automated—and the change was rapid.

One of the key components of working in this new digital environment is the broad use of virtual instruments. These professionally sampled instrument libraries are often used to create draft versions of the screen composer's vision of the musical score that the film's director and producers can examine before a revised finished score is placed in front of a real orchestra to play and record. Additionally, recent technological advancements, strong competition and clever marketing strategies by the creators of these virtual instruments have levelled the playing field by lowering the price and broadening the access to these sophisticated and once expensive musical instrument sample databases.

Use of these powerful tools represents a fundamental shift in choice of instrumentation because of the tools used to create screen music—a shift away from recordings of real performances on real instruments. This change delivers unprecedented autonomy to the

¹ That is, composers who write music for the cinema, television, on-line content and computer games.

screen composer because of the quality of virtual instruments. This is particularly significant today given the mobility of the devices on which this software operates, empowering laptops, tablets and even smart-phones to create cinema-grade music at a time and place convenient to the screen composer. Screen composers today embrace and exploit these cost-effective resources, elevating the status of virtual instruments to a position that deserves scholarly attention.

This investigation seeks to understand how professional screen composers who write music for a living use virtual instruments in order to do their jobs. This study aims to furnish the literature with quantitative and qualitative data about the key factors surrounding screen-music composition. These data will provide a contemporary snapshot of how, when and where screen composers work and enrich our understanding of this small group of professionals.

By approaching the research in a unique way, this project also aims to reveal any changes in the nature of relationships that might now exist between the screen composer, their tools, instrumentation choices, film genre, other members of the film team and satisfaction of the work they deliver.

This research is needed as some elements of the technology surrounding screen-music composition have converged sharply in recent years to create a unique situation in which there is a scarcity of viable alternatives, and this places acute focus on a small number of technological providers who are now recognised as global leaders and are subsequently used as industry standards. Presently, there is a deficit of choice when it comes to serious screen-music composition tools.

This research aims to quantify and qualify the parameters specifically surrounding screen-music composition—something that is conspicuous by its absence here in Australia in 2015.

My hypothesis is that the use of virtual instruments by screen music composers is influencing the characteristics of the music that features in the final cut of the film. I also hypothesise that use of these tools has fundamentally changed the working habits of screen composers, increasing their knowledge of their tools and satisfaction with their musical outcomes.

Factors involved in this investigation include:

- basic demographics,
- which digital tools are used,
- the genre of the film,
- the music's 'purpose' in the film,
- instrumentation choices (including the use of virtual instruments),
- time given to compose,
- screen composer satisfaction and,
- recorded and transcribed interviews with numerous working screen-composers.

This research and my approach is original and reveals new data via a comprehensive mixed-methodology design. First, some definitions are needed.

1.2 Definitions.

Virtual instruments² are recordings of real instruments saved to a computer as a file.

These recordings are very sophisticated and they usually encompass the full range of the recorded instruments' abilities plus some extended techniques. An exhaustive discussion of the use of virtual instruments appears later in the thesis.

These virtual instrument files can be loaded into a Digital Audio Workstation (DAW)³ for digital recording, manipulation and synchronisation with film. DAWs are able to load multiple virtual instruments one on top of another, then set to play and create the screen composers' composition.

Audio signals are created by recording anything via a microphone⁴. Different to the musical inputs described above, audio signals actually create a waveform in the DAW. These audio recordings could be of a person singing or of a solo flue. The signal is imported into the DAW allowing the screen user to alter, transpose or modify in a way that synchronises the audio signal with the video.

Terminological complexity and blurred definition boundaries are common in this emerging field, however, I have maintained consistent nomenclature throughout this thesis to ensure clarity.

1.3 Why this research is timely.

In 2010 I attended Australia's premier film school institution as a successful applicant in the Graduate Diploma of Screen Music course, The Australian Film Television Radio and School (AFTRS). Being new to the industry and observing it with 'fresh eyes'

² Purchased from online vendors including: Kontakt, 8Dio, CineSamples and The Vienna Symphonic Library.

³ Purchased from online vendors including: LogicPro, ProTools and Digital Performer.

⁴ Microphones plug directly into the DAW and convert sound waves into digital waveforms.

allowed me to identify objectively various elements that were remarkable. During this nine-month course, it became increasingly evident to me that the entire industry had just been through a radical change. The shift from analogue to digital working methods had manifested itself both in a day-to-day experience and in physical form as the school was now in a new purpose-built building. It was also apparent to me that when talking to screen composers the main topics of conversation were sample libraries, virtual instruments and the computer programs required to run them. The use of virtual instruments was of great importance and possessed an impressive array of 'artistic potential'. The use of virtual instruments was at a watershed moment and I was in a unique position to observe the rapid changes that were happening around me.

When I graduated at the end of that year, I decided to further my interest in this field with this original research, which started in 2011.

1.4 The motivation for this study.

While at AFTRS I approached the library in search of published literature to help me better understand the Australian screen composer landscape, I sought some basic quantification of screen composers, their tools and the way that they worked. Apart from the clear and substantial comments made by Rebecca Coyle in her book *'Screen Scores. Studies in Contemporary Australian Film Music'* (Coyle, 1998), I found that literature in this area was lacking.

Other than self-help guides and magazines written by enthusiasts, in addition to many books focused on single films or directors, there were no empirical studies published on this exact subject. I had identified a lacuna and I was in the right place at the right time to close that gap.

1.5 The background of this study.

As mentioned, screen-music composition has evolved in the last fifteen years. A process that was once hand-written, analogue and available to the select few who could afford recording studio time is now digital, vastly accessible and portable with a reduced need for expensive recording studios. To some this change happened overnight. Others, who were acutely aware of the possibilities of digital technology, rode the wave of success as digital tools infiltrated film and pop-music industries where they found a niche market. This particular study started out under a broader title: 'The Role of Technology in Screen-Music Composition'. However, the more I investigated the literature (see Chapter Two for a literature review), the more I realised that the pertinent topic at hand was the use of virtual instruments and digital sequencing software.

Until now virtual instruments have been used primarily to create draft versions of cues for the director before they are placed in front of a real orchestra or ensemble.⁵

However, recent advancements in the quality and affordability of virtual instruments have changed their role from an 'audition tool' to the very performing device that features in the final score. There are two elements at work here: the first is the democratisation of virtual instruments and Digital Audio Workstations (DAWs), the second is the sophisticated nature of modern instrument sample databases that make them almost indistinguishable from the real thing.

Producers and directors are now alive to these changes and have come to expect a cheaper and more cost-effective post production process, with music almost always

⁵ What Jeff Burger describes as "demonstration versions" in his essay "Synthesizer upstarts conquer Hollywood" (Wierzbicki et al., 2012, p.233).

being the final consideration.⁶ How did we get to this point? How is performed music slipping away from under our noses yet still remaining present? What are the crucial touchstones and events?

1.6 Research questions and methodology.

After scaling down the original scope of this project from a grand worldwide survey of all living screen composers to a manageable sample in my home country of Australia, I arrived at the following research questions:

1. What is the nature of the basic parameters that surround screen-music composition in Australia?
2. What is the nature and use of virtual instruments in the creation of screen music?
3. Does the use of virtual instruments influence the characteristics of the music that features in the final cut of the film?
4. What is the impact of virtual instrument democratisation on screen composers' satisfaction?
5. Does the increased use of virtual instruments alter the musical expectations of directors and producers?

To fully and comprehensively investigate these questions I followed Creswell's 2007 epistemology Mixed Methods Sequential Exploratory Design in which quantitative data and qualitative data build upon each other, deepening the knowledge about this subject with every stage. (Creswell, 2007)

⁶ This is especially relevant to new and emerging film makers, attempting to gain a foothold in the Australian film industry.

1.7 Purpose statement.

This study addresses the lack of specific empirical and qualitative data concerning the use of virtual instruments by Australian screen composers. The purpose of this exploratory sequential study will identify the tools, working methods and personal satisfactions of currently working Australian screen composers. The first phase of the study was a quantitative exploration of a large set of screen composers using the on-line survey data tool Survey Monkey. The second qualitative phase was informed from the results of the first phase with forty-six screen composers electing to participate in an interview conducted and recorded via phone, Skype or face-to-face.

1.8 Thesis organisation.

Chapters two and three are a review of the literature followed by a comprehensive outline of the research design and methodology in chapter four. Chapter five is dedicated to the quantitative and qualitative results, then chapter six includes the discussion and meta-inferences. Chapter seven concludes this investigation.

2 Chapter Two: Literature review.

2.1 Film music.

There is a great deal of published literature dealing with music in film. Due to the broad spectrum of topics possible when reviewing this literature, I want to manage the readers' expectations by explaining the boundaries and the carefully considered scope of this project. The literature review is organised by theme. I focus on the intersection of four main 'topic spheres': Film music, Electronic music, Electronic music in film and Virtual instruments, shown conceptually by Figure 1. These topics will be framed by the ideas of recent advances in film sound and unconventional MIDI input.

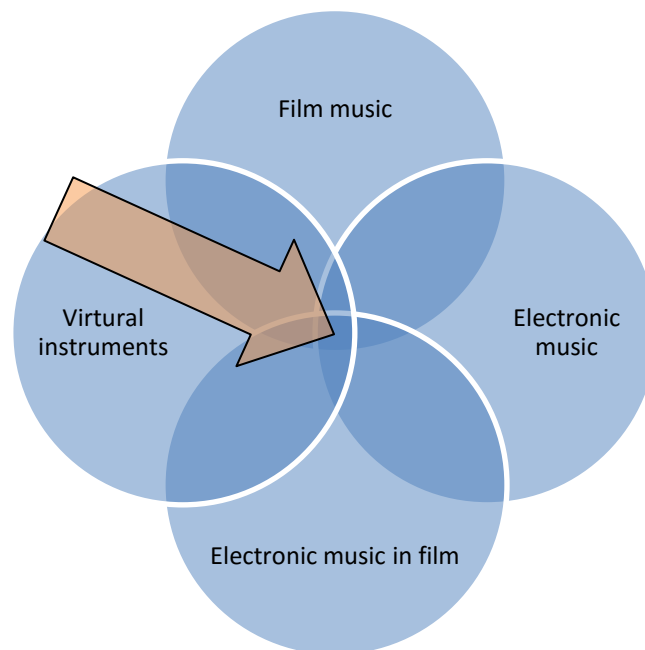


Figure 1: Focus of this research (shown by the arrow).

There has always been a social critique of music in film. (Alberge, 2008), (Mitchell, 2009), (Rosar, 2010, p. 99-125), (Ridder, 2011). There are also published pieces on the

expectations of changing production values within the screen music community. (AFTRS, 2010), (Raiklen, 2011), (Chion, 1994, p. 115-122). Even scholarly work on the absence of music in film.⁷ (Wierzbicki et al., 2012, p. 254-257), (Morgan, 2013), (Wierzbicki, 2014). Aside from the commentary of what music should be, there is the large group of established musicologists informing us on what film music really consists of. Wierzbicki's (2009) seminal work *Film Music: A History* is authoritative in its scope from the very beginnings before sound in film to modern day technologies. Cooke's (2001) article in *Film music. The New Grove Dictionary of Music and Musicians* is also enlightening and substantial. Cooke's (2008) book *A History of Film Music* is a very important asset to film music literature. Kassabian's (2001) *Hearing Film. Tracking Identifications in Contemporary Hollywood Film Music* is a confident work indexing the details we need to know about contemporary film music. Gorbman's (1987) influential work *Unheard Melodies: Narrative Film Music* has shaped many discussions about the rules and regulations that describe how music must and must not perform in film. Chion (1994) *The Voice in Cinema* is essential so that various elements that constitute a films' whole are understood. This is in addition to Chion's collaboration in Chion et al., (1994) *Audio-Vision: Sound on Screen* which gives rare insight into sound in film and to Chion himself—a thoroughly personal work that is shaped by subjective insight. In Wierzbicki's et al., (2012) *The Routledge Film Music Sourcebook*, various important essays are gathered and assembled in one place, including material from John Cage to Elmer Bernstein. Marks (1979) *Film Music: The Material, Literature and Present State of Research* describes in great detail the difficulty of accessing film music materials, especially before the introduction of the VHS and DVD. This is

⁷ In Michael Haneke's films, for example.

contrast to Stilwell's (2002) *Music in Films: A Critical Review of the Literature*, where there is a handsome and comprehensive catalogue of the various items that make up the literature of film music due to the availability of VHS and DVD copies—somewhat analogous with the topic of the discussion and thus all the more relevant. Additionally, Jacobs (2015) *Film Rhythm after Sound: Technology Music and Performance* analyses this evolution via close examination of prototypes of early sound filmmaking, as well as contemporary discussions of rhythm, tempo, and pacing—this is relevant here as Jacobs considers aesthetic results brought about by technological change.

Karlin and Wright's (2004) *On the track: A guide to contemporary film scoring* offers a comprehensive guide to scoring for film and television. Covering all styles and genres, the authors, both noted film composers, cover everything from the nuts-and-bolts of timing, cuing, and recording through balancing the composer's aesthetic vision with the needs of the film itself. Unlike other books that are aimed at the person 'dreaming' of a career, this is truly a guide that can be used by everyone from students to technically sophisticated professionals. It contains over 100 interviews with noted composers, illustrating the many technical points made through the text. This document is important because many changes have come about since this work was published, as this thesis will show.

Davis's (1999) *Complete Guide to Film Scoring-the Art and Business of Writing Music for Movies and TV* is essential for anyone interested in the business, process and procedures of writing music for film or television, this book teaches the Berklee approach to the art, covering topics such as: preparing and recording a score, contracts and fees, publishing, royalties, copyrights and much more. Features interviews with 21 top film-scoring professionals, including Michael Kamen, Alf Clausen, Alan Silvestri,

Marc Shaiman, Mark Snow, Harry Gregson-Williams and Elmer Bernstein. Also, Ian Sapiro's (2013) Ian Eshkeri's (2013) *Stardust: A Film Score Guide* also must be mentioned here. This work contains a precise dissection of the music contained in the film *Stardust* (2007). The composer, Ian Eshkeri, is analysed regarding his musical and filmic background, Eshkeri's working methods and approach to scoring. This is in addition to careful details on the creation and production of the score plus analysis and readings of the score. Both works are noteworthy for their contribution to film scoring literature because they present models of or outline the processes involved in screen-score composition and production. Different from these works, this thesis updates the literature with a unique contribution focused on Australian screen composers.

A remarkable study that must be included is Faulkner's (2003) *Music on demand: Composers and careers in the Hollywood film industry* gives us insight into "composers in Hollywood, the lives they lead, the situations they create and especially the way they organise their activities and speak about them" (ibid, p.9). This is an important touchstone in terms of sociological research on film composers. Faulkner shows that the Hollywood film industry, like most work communities, is dominated by a highly productive and visible elite who exercise major influence on the control of available resources, career chances, and access to opportunity. Faulkner traces a network of connections that bind together filmmakers (employers) and composers (employees) and reveals how work is allocated among composers and the division of labor within the Hollywood film community, using statistical analysis and highly revealing personal interviews.

Sapiro's (2011) *Scoring the score: The role of the orchestrator in the contemporary British film industry* is an important addition to the literature because it, like the current

investigation, challenges widely-held assumptions about the linearity and global uniformity of film-score production processes. Sapiro is focused on the role of the orchestrator while this investigation is focused on the more basic statistics and data from film composers themselves—nonetheless, Sapiro's work is an important touchstone.

Walus' (2012) *A New Modular Approach to the Composition of Film Music* documents the investigation and development of a new method of composing film music with a flexible structure, which more easily facilitates the mapping and redrafting of music during the film editing process. This work provides some useful insights into the scoring processes in the digital age—something especially relevant to the aims of this thesis.

2.2 Electronic music.

Electronic music has a long and documented history. Manning's (1987) *Electronic and Computer Music* was ahead of its time and dealt with music and actual computers.

Chadabe's (1997) *Electric Sound. The Past and Promise of Electronic Music* together with Griffiths' (2011) *Modern Music and After* provide context, scope and meaning to the idea of electronic music.

Collins and d'Escriván's (2007) *The Cambridge*

Companion to Electronic Music is also a substantial and descriptive account of

electronic music and an essential touchstone for this thesis. Holmes' (2002) *Electronic and Experimental Music: Pioneers in Technology and Composition* details the history

of electronic music throughout the world, and the people who created it; from the theory of sound production to key composers and instrument designers—a complete and

thorough examination of the genre.

Wierzbicki's (2005) *Louis and Bebe Barron's Forbidden Planet: A Film Score Guide* is authoritative here. Wierzbicki describes in detail the various 'electronic tonalities' that Louis and Bebe Barron fashioned for this landmark film. This is in addition to his comprehensive coverage in Wierzbicki (2009) *Film Music: A History* and Wierzbicki's et al., (2012) *The Routledge Film Music Sourcebook*. All three works combine to deliver an extensive coverage of electronic music in film. Horn's (1988) book *Digital Electronic Music Synthesizers* was also well ahead of its time in helping us understand the potential of digital music and its uses. Anderson's (2008) obituary for Bebe Barron laid bare the remarkable work performed by Barron and her musical legacy. This work was closely followed by Prior's (2008) *OK COMPUTER: Mobility, Software and the Laptop Musician* where he informed us about the many new paradigms that exist now that music has become digital. Prior's (2009) *Software Sequencers and Cyborg Singers: Popular Music in the Digital Hypermodern* elaborated on the great affordances that could be made by the use of digital software. Apple (2015) summarised the breathtaking advancements that were made including the first program that emulated sound generation entirely by means of a computer. Here in Australia, The Fairlight Sampling Synthesiser was a major breakthrough. Pop sensation Kate Bush used the Australian Fairlight in her hit track "Babooshka",⁸ where smashing glass was mixed into the recording after a sample of smashing glass had been played back at different pitches.

2.3 Electronic music in film.

Electronic music in film was summarised by Cook (1998) in his book *Analyzing Musical Multimedia*. His book is an elegant account of electronic music in film and in

⁸ 'Babooshka' is the first track on Kate Bush's album *'Never For Ever'* (1980).

television. Wierzbicki's (2005) *Louis and Bebe Barron's Forbidden Planet: A Film Score Guide* provides us with the precise details of the score to that groundbreaking film and provides a history, up to 1956, of electronic music in European, Russian and American science-fiction films. Winters's (2012) *Musical Wallpaper?: Towards an Appreciation of Non-narrating Music in Film* comments on the current state of affairs regarding electronic film music that just blends into the background. Minett's (2013) *Beyond the Badass: Electronic Dance Music Meets Film Music Practice* focuses on the role of electronic dance music in modern films.

While the above literature provides a solid base, it barely scratches the surface of what Australian screen composers are actually doing today. For instance, Coyle's (1998) book *Screen Scores. Studies in Contemporary Australian Film Music* is a rigorous and comprehensive detail on films including *Shine* (1996), *The Piano* (1993), *The Adventures of Priscilla: Queen of the Desert* (1994), *Romper Stomper* (1992) and the *Mad Max* trilogy,⁹ there was little mention of the screen composers' working methods, especially in a digital age. While Coyle's contribution is significant, it does not focus specifically on electronic music in film. Additionally, the 'New Instruments' section of *The Routledge Film Music Sourcebook*, (Wierzbicki et al., 2012, pp. 231-257) consists of articles written before the democratisation of virtual instruments and Digital Audio Workstations (DAWs).¹⁰ The articles in this section contain important contributions fundamental to this thesis; from Jeff Burger's (1987) *Synthesiser Upstarts Conquer Hollywood*, to Michael Prager's (2004) *The Unreal Orchestra, Part 1: The Virtual Film Score*. This section ends with the acutely relevant article Matt Hurwitz's (2007) *Sound*

⁹ 1979, 1981 and 1985 respectively.

¹⁰ They were first published between 1987 and 2007.

for Picture: Hans Zimmer's Scoring Collective—Composer Collaboration at Remote Control Productions. This literature assists in focusing the lens of this investigation. Moreover, Partos (2011) remarks on a new trend that has emerged because of the advancements in visual-editing technology: "The art of composing to a picture that is constantly changing is something that composers now need to master" (ibid., p. 2). This new set of rules is ground-breaking, and its implications for screen-music production are legion. Unfortunately, Partos does not suggest ways in which this problem may be approached.

2.4 Virtual instruments.

While there is abundant literature on music in film, there is scarce literature on the use of virtual instruments in film and television. In fact, there are just a few which I will explain one by one. Importantly, in 2010 the Australia Council for the Arts published the results of a study entitled 'Do you really expect to get paid? An economic study of professional artists in Australia' (Throsby and Zednik, 2010). This is a significant touchstone as the report contains useful and relevant data surrounding employment, unemployment rates, access to government benefits and general data regarding the use of new technologies by working artists. Among the data contained in this report is valuable information about 'composers' and their use of new technologies including 'electronic musical instruments' and 'music composition and notation software'. Sixty-three per cent of 'composers' during 2009–2010 registered their frequent use of 'electronic musical instruments' and fifty-eight per cent responded that they frequently used 'music composition and notation software'. While there is much to be admired about this data, there is much confusion about the definition of the key parameters, particularly in reference to the aims of this thesis.

First, Throsby and Zednik group all types of composers under one uniting title of 'composers' so unfortunately it is impossible to decipher if the 'composer' is a screen composer, a classical music composer, a theatre or ceremonial composer or even an international rock/pop composer. All composers are grouped together. Second, the wording summarising the use of 'electronic musical instruments' is unclear as it could mean the use of an electronic piano or a synthesiser, an electric guitar or indeed virtual instruments—what constitutes an 'electronic musical instrument' is vague. Third, data regarding the 'composers' frequent use of 'music composition *and* notation software' is impossible to split. The researchers have grouped these two distinctly different computer programs together as if they are one. From my personal experience as a screen composer, there was no single computer program that performed all these tasks¹¹ at the time of the research (2009). The research by Throsby and Zednik (2010) is meritorious but its non-specific nature inspires and compels me to investigate and clarify with precision the elements surrounding virtual instrument use by Australian screen composers.

Remaining with corporal research and in an attempt to describe human interactions with digital technology, Gall and Breeze (2005) explored 'the multimodal affordances of technology' by highlighting the importance of the on-screen icons used within digital sequencing software and the naming conventions of the various samples. They found that the choice of the sample selected by the subject was largely influenced by what name the sample was given. For example, if the sample was named 'Mystic Gold Stereo', subjects' choices were directly influenced by these three words—in a way the words are a descriptive promise of what the sample is going to deliver when used.

¹¹ In 2016, LogicPro and ProTools have formidable notation capabilities; however, they are nothing like the separate digital notation programs Finale and Sibelius.

Although the results of this study are fascinating, they are limited because children were used as subjects; nevertheless, Gall and Breeze provide a touchstone on which my research builds.

The importance and ongoing relevance of sample nomenclature within the virtual instrument community is again shown by a Facebook notification from 8Dio Productions, which sent a message to their member base asking them for sample submissions (identifications) that pointed to a particular mood, feeling or symbol. The '8Dio symbol and mood survey' assembled sounds, instruments and styles together collecting them by symbol, not by name. I am interested in this because of the way the sounds were collected, assembled and grouped. 8Dio (a virtual instrument merchant) asked for submissions representing 'Angelic Sounds' from their customer base/user community. The feedback was then grouped using symbols, not names or descriptions. This is noteworthy as previous research on virtual instrumentation choice by Gall and Breeze (2005) found the name given to the sample/instrument/sound was a key factor. Here, there are no names or descriptions, simply symbols. This is something new and different and suggests that semiotics play a role in future of virtual instrumentation choice.¹² The link to my research here, I suspect, is in the creation of favourites—are the particular samples chosen by name or are they chosen by how they sound?

Helpful work in this area originates from Prior (Prior, 2008, 2009). Prior (2008) explores the increasing presence of laptops in music making, especially during performances in front of audiences. His elegant examination of the subject concludes that there is a residual anxiety amongst audience members about the automatic abilities

¹² Facebook subscription – notification from 8Dio productions www.8dio.com / press release 2nd December 2013).

of the laptop that seemingly undermine the musicianship and creativity of the performer. This is important to the current research due to the clear connections between mobility, creativity and use of software.

Prior (2009) focuses on pop-music creation by highlighting the role of the computer as it favours creative processes such as repeated creation, formation and iteration. Prior also recognizes that MIDI protocols and 'soft synths' (now referred to as virtual instruments) are all symbolic of a standardized language that has been driven by the economies and innovation that define capitalism. "We are partners in complex human-machine assemblages that make it increasingly difficult to separate human creativity from technological affordance", Prior writes (Prior, 2009, pp. 82–83). This was supported by Stuart (2003) who sensed that audience members were cheated of a "loss-of-spectacle"(p. 62) during his performances. I agree strongly with Prior's notions; nonetheless, I also recognise that his work is focused on pop-music creation and not on screen-music composition where there are similar but different forces involved.

Like Prior's notion of a hyper-modern moment, Casanelles (2013) presented at the *Music and the Moving Image Conference 2013* using the terms Hyperorchestra and Hyperreality—defining them as "an impossible orchestra without its electronic components". Casanelles suggested that the "larger than life score" is perfect for the film, and there was a handsome case-study reference to the popular movie *Inception* (2010), scored by Hans Zimmer.

The issues of reality, emulation and verisimilitude are theorised and discussed by Baudrillard's (1994) work *Simulacra and simulation*. This impressive and comprehensive work discusses 'The Divine Irreference of Images', 'The Hyperreal and the Imaginary' and the 'Hypermarket and Hypercommodity'. Baudrillard says:

That is why today this "material" production is that of the hyperreal itself. It retains all the features, the whole discourse of traditional production, but it is no longer anything but its scaled-down refraction (thus hyper-realists fix a real from which all meaning and charm, all depth and energy of representation have vanished in a hallucinatory resemblance). Thus everywhere the hyperrealism of simulation is translated by the hallucinatory resemblance of the real to itself". (Baudrillard, 1994, p.24)

The use of virtual instruments when combined with recordings of performed instruments suddenly becomes a hyperreal moment—this elevates the contentious term 'hyperreality' to one worthy of our attention.

Love's (2013) PhD thesis asks "How have film score compositional methodologies evolved to the present day?" He explores this through writing a score for the silent film *Ménilmontant* (1936). The score features music for acoustic and virtual instruments, deployed in settings ranging from small ensemble to orchestra.

Perhaps the most important study and use of virtual instruments was in Klein's (2011) PhD thesis "The Pomegranate Cycle: Reconfiguring Opera through Performance, Technology and Composition". This landmark musical contribution uses a combination of virtual instruments, real recordings and performance as a means of driving change in the operatic world. What is evident here is the power of Klein's work—it is portable, it needs no orchestra for the audience to enjoy the work and therefore it is eminently authoritative in its potential and scope.

Klein (2011) rightly includes statements from Godlovitch (1998) and they are certainly relevant here in reference to virtual instruments:

Godlovitch states that the synthesiser was "conceived as a displacement technology" (Godlovitch, 1998, p. 69), and it follows that virtual instruments are the "ultimate" (ibid.,

p. 78) manifestation of the synthesiser's functionality. The craft of classical music is threatened because the synthesiser facilitates playing "to the point where the results are dead easy to achieve It gives anyone with minimal effort and skill the power to create the very results for which the musician has spent years in training". (Godlovitch, 1998, p. 78)

Godlovitch and Klein are clearly referring to classical music intended for the concert hall or opera theatre, not music composed for the screen. However, many composers who write for the concert hall also write for the screen, and this makes Godlovitch's comments relevant (and revealing), indeed.¹³ It is also important to note that early electronic instruments were highly experimental and were not originally thought of as replacements for acoustic instruments.

In addition to the published literature there are several 'how to' books and magazines aimed at screen composers which provide first-hand assistance. I place these here at the end of the literature review to highlight the scholarly gap in the field. Some examples include: Kompanek's (2004) *From Score to Screen: Sequencers, Score and Second Thoughts, the New Film Scoring Process*, Pejrolo and DeRosa's (2007) *Acoustic and MIDI Orchestration for the Contemporary Composer: A Practical Guide to Writing and Sequencing for the Solo Orchestra*; and Gilreath's (2010) *The Guide to MIDI Orchestration*. This is in addition to popular websites like Sound on Sound¹⁴ and Virtual Instruments Control.¹⁵ These works are important as they are often the first point of contact for young or emerging screen composers.

¹³ Such specialised delimitations of topic is evidence of a still-growing field.

¹⁴ www.soundonsound.com

¹⁵ www.vi-control.net

3 Chapter Three: Virtual instruments.

Virtual instruments, sometimes known as sampled instrument databases, soft synths, Virtual Studio Technology (VST) or recorded instrument samples, are a key part of the technology that screen composers use every day. They are different from synthesized instruments in that they are not artificial reconstructions of a waveform. Virtual instruments are sophisticated state-of-the-art recordings of real performers in real acoustic spaces possessing formidable technical specifications.¹⁶

These performers are set up and recorded around the globe, with most virtual instrument merchants recording and producing their products in California, USA. However, the online and digital nature of the product also means that more and more virtual instrument merchants are setting up elsewhere: in Germany, The United Kingdom, Czech Republic and China.

Screen composers can easily audition an entire orchestra or a simple solo instrument and synchronize their ideas perfectly to a moving video image using powerful digital sequencing software programs known as Digital Audio Workstations or DAWs.¹⁷

It is significantly important here to emphasise that virtual instruments are not approximations of waveforms. They are direct recordings of an instrument while it is being played by a professional musician—these make up the majority of modern instrument databases available for purchase. Of course, there are other products for sale, such as synthesisers and other products that do not pretend to be anything else but the abstract sound that they are described as. For example, "Fuzzy Alien Bass" is not an approximation of a contrabass or a cello; it is a unique creation from the imagination of

¹⁶ 44.1kHz and 24-bit depth – correct at the time of publishing.

¹⁷ The most popular are LogicPro, ProTools and Digital Performer.

the sonic engineers that produce and market these attractive and useful products. As sophisticated and impressive as virtual instruments have become, I suggest there is nothing quite like recording with a symphony orchestra given the opportunity.

Working relationships are different now in the digital age—a director in Paris may work closely with a screen composer in New Zealand as the freedom afforded to them by the internet is revolutionary. Globalisation also means that everyone is aware of the standards involved as professionals from all around the globe strive to maintain their position within a global 'arrangement of workers'. The film team of old is strengthened as a group as world-wide release dates for major blockbuster films are often synchronised.

Familiarity with the digital environment means being aware of computer programs used by other members of the film teams—especially digital natives¹⁸ who know intuitively the meanings of icons, functionality of buttons and deliverables of computer programs not usually associated with their particular field of speciality. An editor who usually works with the Apple programme Final Cut Pro may visit the studio of a screen composer (who usually works with the Apple program Logic Pro) and suggest changes to the score because both the screen composer and the editor use programs made by the same parent company.

This very scenario happened to me when I was stuck and needed assistance when using ProTools. I knew that the film's editor used a program that has the same parent company; I asked for him to visit my suite and he instantly recognised the style of the digital workstation and the meanings of the icons, and he quickly identified where the problem was simply because he knew the nature of the system I used. This was not

¹⁸ Those that were born into the digital age, in contrast to digital immigrants who learnt to use computers at some time during their adult life, according to Wang, Myers and Sundaram (2013).

because of his knowledge in music but because of his familiarity with the platform on which it operated.

The very nature of film-score composition is utilitarian in nature. Music provides a service as outlined in the literature review; however, just because it is utilitarian does not mean that it should not provide the screen composer with elements of satisfaction when completed. Naturally, the vocation of actually being a screen composer in itself hints that satisfaction is going to be derived from the creation of film music, but there is little empirical data on this subject. To remedy this, I built into both the survey and the interviews questions that would furnish what has until now been anecdotal conversations on the subject.

That being said, there are John Williams and Danny Elfman: Both are famous screen composers and have attracted a great deal of interest in their craft. There have been documentaries made focusing on the recording sessions that these two screen composers have been associated with—namely: *Star Wars: A New Hope* (1977), *Star Wars: The Empire Strikes Back* (1980), *Star Wars: The Return of the Jedi* (1983), *War of the Worlds* (2005) and *Batman* (1990), *The Simpsons* (1989), *The Nightmare before Christmas* (1993).¹⁹ The conversational style adopted by the film makers in both documentaries associated with the *Star Wars* trilogy (less than fifteen minutes running time) provides a snapshot into various moments of the end process, the orchestral recording. In these documentaries, both Williams and Elfman express their deep satisfaction with the work they have produced and are overjoyed that the music they have written meets with the approval of the director and producers of the film. It does not show them eking out ideas at a piano for a director's approval. Elfman remembers

¹⁹ While there are many internet-based interviews with modern screen composers (at www.vi-control.net and www.scoringsessions.com), actual interviews based on digital methodologies are relatively scarce.

the days when a "dog and pony act with a piano was required to communicate your musical ideas to a prospective director" (Bond, 2005, p. 47). Such an act no is no longer needed. Elfman's comment shows that the composer views digital tools as a major improvement. Williams, on the other hand, is regularly included in the marketing build-up before a major release—he is a commodity that the marketing team use to their advantage.²⁰

The music has already been written and what we see in these documentaries are parts of the recording session with full orchestra and chorus or vignettes through the mixing window. Note that these documentaries usually come as 'special features' when you purchase the latest format version of the blockbuster.²¹

3.1 Digital democratisation.

The ability to create film music was not always within the grasp of many, historically speaking; the golden age of movie scoring has a rich tradition and was largely reserved for expensive production houses, especially regarding orchestral scoring. (Mitchell, 2009) Through the years and around the globe, screen-music-composition processes have changed as technology changed. Sadoff (2010) reviews the changes in processes via conversational interviews with Ira Newborn, from scoring and synchronising a score to a film via stopwatches and visual cues through to burnt-in time codes and the VCR age. Coyle (2005) provides a historical perspective specific to Australian cinema and composers. However, both stop short of describing the recent changes in screen composers' working methods in this new digital age, especially regarding digital tools.

²⁰ I focus on Elfman and Williams because of their preeminent fame.

²¹ Now, with the internet, 'YouTube' has many of these special features online and are easily accessed, without the permission of the creator or distributor.

Prior's (2009) essay *Software Sequencers and Cyborg Singers: Popular Music in the Digital Hypermodern* explains with clarity the strong bonds composers and consumers alike have with digital information. Prior explains that "digital production techniques are meeting broader tendencies towards flexibility and de-materialization leading to cultural acceleration and intensity—a hypermodern moment" (Prior, 2009, p. 82).

Digital sequencing technology is rudimentary for popular-music production and, by extension, screen music. Prior is also aware of the general workflows of pop-music composers. He states:

"routines of composition become shaped by the aesthetics of the layout—and the cognitive processes they call upon. The act of composing is as much a result of cursor movement, scrolling and clicking as it is of playing notes on a keyboard or strumming a guitar. Digital composition [pop music] increasingly takes place as a conversation between composer and visual representations of Icons, Windows of the graphic interface" (ibid., p. 87).

While this literature lays an important foundation for digital pop-music composition, it is not directly focused on changes to screen-composer working habits. I will build upon this seminal piece of writing as it offers a sturdy framework and solid theoretical precedence on which to base this thesis.

Prior's notions are clearly evident today. Advances in computer technology have made possible what would have seemed impossible to many fifteen years ago—essentially, the liberation of digital tools from hardware. Powerful digital software is available to 'average' computer users. Each new MacBook Pro²² has the program GarageBand installed, allowing anyone to engage in music composition. This program is powerful

²² GarageBand became standard from January 6th 2004. (Apple, 2015)

and useful, despite its unassuming name. The program is easy to use and intuitive in design, and the new user can expect to create some type of musical product at the conclusion of their first session with the program.

Importantly, this program sets expectations; it creates an interface aesthetic, a conceptual design with the user regarding what a digital composition tool is capable of.

Tracks are easy to add, modify and delete. The action of composition here favours repeated creation, formation and iteration, something that Prior (2009) in his investigations observed clearly. Vertical layering, rather than horizontal phrasing, have become commonplace, signalling a fundamental alteration in composition technique.

The ramifications of this 'entry level' tool are significant, as it has destabilised the stronghold of expensive music production studios.

Music and video synchronisation is made possible by programs known as Digital Sequencing Software. These highly sophisticated programs are powerful as they allow the alignment of time-coded video with music at a cinematic-grade accuracy. These tools were only recently available to exclusive recording studios and the wealthy; however, due to increased competition and advancements in computer technology, they too are democratised.

This idea of the democratisation of digital tools is important as it signals a fundamental shift in who is able to access the technology used to create cinema-grade music cues. As mentioned, this technology was once proprietary technology often hard-wired into the mixing studio desks of expensive recording institutions. Music recorded in these studios could be supplemented with instrument samples resulting in a sleek musical product that was a 'step up' when compared to music recorded at lesser studios. These studios had an advantage and they charged a premium to use their services. This physical

dialectic was dealt a game-changing blow when programs including Cubase, Logic, ProTools and Digital Performer were able to be used on personal computers. As soon as this occurred (in the mid 1990s) the demand for virtual instruments exploded in parallel with the sudden increase in home recording studios. Suddenly, screen composers were able to record audio at home and then mix those performances in with virtual instruments without expensive recording studios. Since then, the advancements in computer technology have delivered faster and bigger-capacity hardware able to handle the large files created by high-quality audio recordings. Additionally, virtual instruments have become increasingly sophisticated by improvements made to their recording techniques and expanding the functionality of the product.

Looking at the situation today, there is serious competition between the merchants of virtual instruments as there are many options for the screen composer to choose from—this has pushed down the cost of virtual instruments and DAWs by the simple economic laws of supply and demand. This has placed the ability to compose and synchronise music cues to video into the hands of anyone who has this affordable hardware and software.²³ The impact of digital democratisation will be explored in detail by working screen composers in the qualitative results section of this thesis.

Music notation software programs (the word processor equivalent for music notation, examples include Sibelius and Finale) have also expanded their capabilities to include the synchronisation of video, music and notation, providing an even deeper level of computerised assistance for screen composers. Music notation software is an important consideration for screen composers as it may or may not link with their DAW of choice. Importantly, all these programs share one basic element: their digital nature. They all

²³ According to the Apple website, LogicProX costs \$250AUD.

reduce their data to binary code (zeros and ones) and are governed by the rules of MIDI. Consequently, instrument files, protocols, music, video and all the markers, commands and subtle performance events required for cinema-ready music are completely transferrable to other programs.

3.2 Changes in supply 2011–2016.

Magnifying the importance of this area are the changes in the scant number of companies that create and market virtual instrument packages to screen composers.²⁴ Virtual instruments are what the digital programs described above use, allowing the composer to orchestrate their score according to the virtual instruments installed on their system. Specifically, these samples are high-fidelity digital computer files that are readily transferrable between users, platforms and programs. Though they are widely used among screen composers, some insight into how they are created will help illuminate this discussion.

Virtual instrument samples are created by recording human performers playing an actual musical instrument in a controlled recording studio or concert hall environment. Sophisticated microphones are used to capture the sounds of the instrument as the performer plays through the instrument's entire range, giving merchants of virtual instrument packages many combinations of pitches, dynamics, articulations and playing techniques. Many different types of instruments are recorded, from traditional instruments found in the symphony orchestra to rare Asian and Indian instruments to pianos and drums. Via the recording process, the signal is converted from a naturally

²⁴ Though this has changed somewhat during this investigation (2011–2016). The number of virtual instrument merchants has, by my estimations, tripled—especially to incorporate more cinematic style sounds.

produced sound wave, travelling from the vibrating part of (or near) the instrument, through the air until it hits part of the microphone. Here the sound wave is converted into a digital signal, commonly known as a digital wave form, by either electromagnetic induction (dynamic microphones), capacitance change (condenser microphone), piezoelectric generation or light modulation. Commonly, this transformation occurs at a high bit-rate (24-bit) allowing for a dynamic range of 144 decibels (dB), well within the 140 dB dynamic range of human hearing. (AFTRS 2010)

When reproduced, by activating a note on a MIDI keyboard or by creating a note in a notation or sequencing program, the computer recalls the appropriate file and the recording is played. At the recording stage, default settings are applied to each and every sample, at each recorded pitch, dynamic, attack, decay and technique. If unchanged by the screen composer, these reproduced samples sound obviously like sampled instruments. It is clear both to those with a musical background and to those without a musical background that the notes reproduced are sampled and do not originate from a 'real' source. Even if the recordings are of a high standard, there are a number of elements that pose particular problems. For example, an oboe can only play one note at a time. However, in the virtual instrument world, the composer can instruct the program to play multiple notes at the same time, creating a sound that is usually impossible for one oboe. Various interval jumps characteristic of some harder-to-play instruments (like the French horn) produce distinctive timbres—something that is lost when reproducing the very same intervallic jumps with samples.

Unknowingly, an oligopoly of virtual instrument merchants has created a limited and identifiable sound palette that is more often than not recognisable to the trained ear.²⁵

Virtual instrument merchants have created this democratisation by being competitive in the marketplace, by lowering their prices in relation to their opponents and offering deals and custom packages for screen composers to purchase.

Chion (1994) through his concept of 'materialising sound indices' expanded on how the nature of sounds, their production and reproduction make us feel. This is acutely relevant here as the sounds originate from the same place, influencing how we feel about the sound, ultimately affecting the success of the music's purpose²⁶ within the film. Audiences may be distracted and suspicious of the quality of the sounds that create the musical score rather than reacting to the composers' 'intention for the music'.

Whether music is intended to function as simple underscore, be referential to other pre-existing music or just used to glue scenes together, if an audience member is placed in this unwanted situation of personal sonic enquiry, the "suspension of disbelief" required for a successful cinematic experience is annulled, severely influencing the audience member's enjoyment. This idea requires further empirical research.

Not everyone recognises that this is a potential problem. Raiklen (2011) indicates that 95% of sounds used in his scores are customised in order to retain his personal aesthetic, and Wood (2005) surmises that many composers enjoy the challenge of working with modern equipment so they may distinguish themselves as composers who are using cutting-edge technologies. Screen composers commonly combine the sounds of sampled instruments with instruments recorded in their studios. This is an effective

²⁵ I view and listen to many short films as part of my association with the AGSC (Australian Guild of Screen Composers) and AACTA (Australian Academy of Cinematic and Television Arts).

²⁶ Gorbman (1987).

way to multiply the number of instrument combinations and add an element of "realism/reality" to the final mixed recording. This increase in verisimilitude allows the composer to mix genres and instrument groups that would not normally occupy the same space—a truly postmodern aesthetic.

However, the virtual variables described here are finite. There are a limited number of virtual instruments and a limited number of modifications that can be applied to them. Even with the addition of 'real' recorded instruments mixed in, this is a finite 'sound pool'. Granted, the customisation of virtual instruments is possible, and this results in hundreds of thousands of varied, interesting and surprising sound combinations.

Furthermore, new products and updates from new virtual instrument merchants are released monthly. However, this sound pool is finite and so are the tools used to manipulate these sounds even though the sound and effect combinations could run into the billions.

This situation is further amplified by the creation of 'favourites' by screen composers. Driven by ever-shortening post-production timelines, modern screen composers take advantage of efficiencies whenever they can, whether the changes are procedural or by the customisation of tools. I suspect both aspects are at work here, with screen composers assembling 'favourite' instruments or instrument combinations in advance to save time for when a cue is needed in a hurry. A standard template is constructed containing the screen composer's favourite instruments, settings and viewing options so that when a new cue is needed this template may be quickly accessed and used.

Aceituno, Castet, Desinte-Catherine and Hachet (2012) offer another view on this area, suggesting that "musicians are able to change the structure of their instruments in the same time they are playing them" (ibid., p. 1). This research supports the functionality

of most virtual instruments as they can be up dated 'on the fly' by the use of a modification wheel (MOD wheel) or foot pedal. Rather than associating these real-time changes with physical objects, screen composers use these functionalities to deepen the verisimilitude of the virtual instrument performance. These performances are more often than not performed alone by the screen composer in his or her studio, then directly recorded on to a Digital Sequencing Software application.

Furthermore, these 'favourite' instruments are selected by the composer with knowledge of how well those instruments will sound on their personal system and is the space the music is destined for—the cinema. Samples that are impressive, show better-than-average reproduction quality and sound 'real' are preferred. Samples that behave in a reliable and expected fashion are also preferred.²⁷ This allows the composer to work with a true representation of what will ultimately be presented to the director or the film's music decision maker.

In this situation there is little time for experimentation, 'trial and error' or time-consuming sonic manipulation or digital synthesis due to collapsing post production schedules. Use of a pre-existing template saves time and frees the composer to focus on other music-related tasks—like administration or, indeed, another project. This is important because the way music is being written has changed—and I suspect this shapes the expectations of producers and directors and ultimately consumers.

3.3 Software design and digital compliance.

Music creation is to many composers an extremely personal artistic expression that draws upon deeply private and uniquely different methodologies. Wallas (1926) and

²⁷ Samples that are new to the market are preferred by some screen composers.

later Webster (2003) defined four general stages of composition: preparation, incubation, illumination and verification. These useful classifications of music composition are descriptive of music composition, in general, but not of screen-music composition. Although aspects of these stages appear similar to those of screen-music composition, I believe that use of new digital technologies demands different skills that accompany the composer through his or her creative journey.

Today, industry standards for screen music exist (AFTRS 2010). In order to deliver and collaborate with today's professional recording studios, certain programs and standardised settings must be adhered to. In what is arguably the global hub of current film-score recording, Hollywood, California, many recording studios provide music services to post-production houses; there, LogicPro, ProTools, Digital Performer (DP), Cubase, Sibelius and Finale are the leading programs. In order to be an active member of this industry, screen-composers must know, understand and use these programs. How did this come about?

The large companies listed above (and on international stock exchanges) are enormously successful because of their strategic marketing and technical integration philosophies; they engage the young/aspirational screen composers with entry level access,²⁸ build upon that relationship, exploit connections with notation software, and link their software with attractive and time-saving hardware—thereby 'capturing' the individual. The user becomes accustomed to the functionalities and abilities of the programme; once this choice is made, switching to another platform or brand to compose screen music is usually difficult. This strong integration creates a high level of

²⁸ Perhaps at film school, like I was.

"stickiness" for the product and for the brand, which is further amplified by compatibility of the export formats consistent with international standards.

A practical example of this need to adhere to industry standards was observed by Finsterer (2007). It was found that music-production teams consisted of unexpectedly large numbers of people with dedicated roles, working from the same sequencing and notation tools. The relevance to this investigation is simple: screen composers must adhere to basic industry standards in order for their music to exist on the screen, irrespective of their own personal preferences. These standards force the screen composer to adapt their own working methods to fit that of the software used by the recording/mastering studio. There are two competing dynamics at play here; first, the vision of the composer, and second, the vision of the software designer who created the industry-standard program. Somewhere at the union of these two aesthetic visions composer and software designer share 'common ground', and share creativity.

It is important to acknowledge that virtual instruments and DAWs are imperfect and do not provide all the answers to a screen-composer's challenges, nor do they provide a 'silver bullet' for person-to-person interactions that could be far more disruptive to the screen composer's vision, including:

1. The vision of the director / producer,
2. The values of any funding bodies,
3. Time given to create the cue,
4. Budget.

These important personal interactions will be discussed fully in this thesis when the results from the personal interviews with working screen composers are revealed.

4 Chapter Four: Research methodology and design.

4.1 Introduction and pilot study.

This chapter discusses in detail the methodological choice and the research design process of this study based on the research questions. Specifically, it explains why mixed-methods research is considered appropriate for this thesis, what potential benefits can be obtained, and the weaknesses of this strategy.

The survey part of the design is used to find out how the participants respond to questions designed to furnish me with data to be used in statistical tests and other quantitative scales—in order to address the research questions. This method was chosen because of the very nature of working with computerized tools, as it lends itself to screen composers who use computers and other digital technology as part of their day-to-day routine. The qualitative element of the study is used to find out how participants respond to a semi-structured set of questions informed by the results of the survey. This qualitative part of the study affords us a window into how screen composers feel about the use of virtual instruments and, importantly, contextualises the quantitative results. In combination these methods allow a rich description of people's knowledge and experience of the use of digital instruments.

Based on the mixed methods sequential exploratory framework, this investigation started with a pilot study of eight people trailing the online survey. I designed the survey in the Survey Monkey online application and released it to eight friends of mine—with whom I attended AFTRS in 2010. I asked for their feedback and monitored the results as they came through. The idea of a pilot is to release the survey to a small group to ensure that everything that you expect to receive in terms of data (like ones and

zeros, numerical digits or characters) flow through to the export stage as expected. I am glad that I did perform a pilot because not everything was working correctly, and I learnt a great many things from the pilot :

- There was a problem with the automatic routing /logic. If this had not been detected, my real survey would have produced useless data.

- Feedback from the participants suggested that completion rates would increase if the questions were not mandatory, so I changed the settings so no questions were mandatory,

- I deleted superfluous and repetitive questions; the survey was streamlined to capture only relevant information,

- Six out of the eight elected to be interviewed for the second stage,

- Once exported, the data looked clean and ready to work with in Microsoft Excel.

Later, I realised that these eight people could not take part in the real survey and were subsequently excluded from the launch at the beginning of October 2013. They were excluded because they had prior knowledge of the questions, content and direction of the study. I also wanted to work with a clean set of data untainted by participants having previous experience with the survey.

From the lessons learnt from the pilot study I had somewhere to start. At first "I didn't know what I didn't know", but the pilot study gave me a direction for the main study. It also gave me clues on how to "brand" official invitation emails and provide hyperlinks to the real survey in the invitation email. I did this from my University of Sydney email account, as there is some 'artefact prestige' associated with the University, plus I attached a PDF copy of my business card.

In addition to the pilot study, I have also been informed by my own experiences as a screen composer and several years of 'conversational' anecdotes on the subject. In designing the best way forward I wanted to ensure that the data I collected was valuable, useful, robust and enlightening—with a view to answering my research questions. As such, this research has a mixed-methods sequential exploratory design, which means that there are multiple stages that build upon one another, deepening the knowledge about this subject with every stage, as described by Creswell (2007):

The mixed-methods sequential explanatory design, is highly popular among researchers and implies collecting and analysing first quantitative and then qualitative data in two consecutive phases within one study. Its characteristics are well described in the literature.

(Tashakkori and Teddlie 1998; Creswell 2003, 2005; Creswell et al.2003),
The design has found application in both social and behavioural sciences research (Kinnick and Kempner 1988; Ceci 1991; Klassen and Burnaby 1993; Janz et al. 1996, p. 65; Ivankova et al. 2006).

Figure 2 shows the various stages of the research and how a cascading effect really does strengthen and build on initial quantitative results.

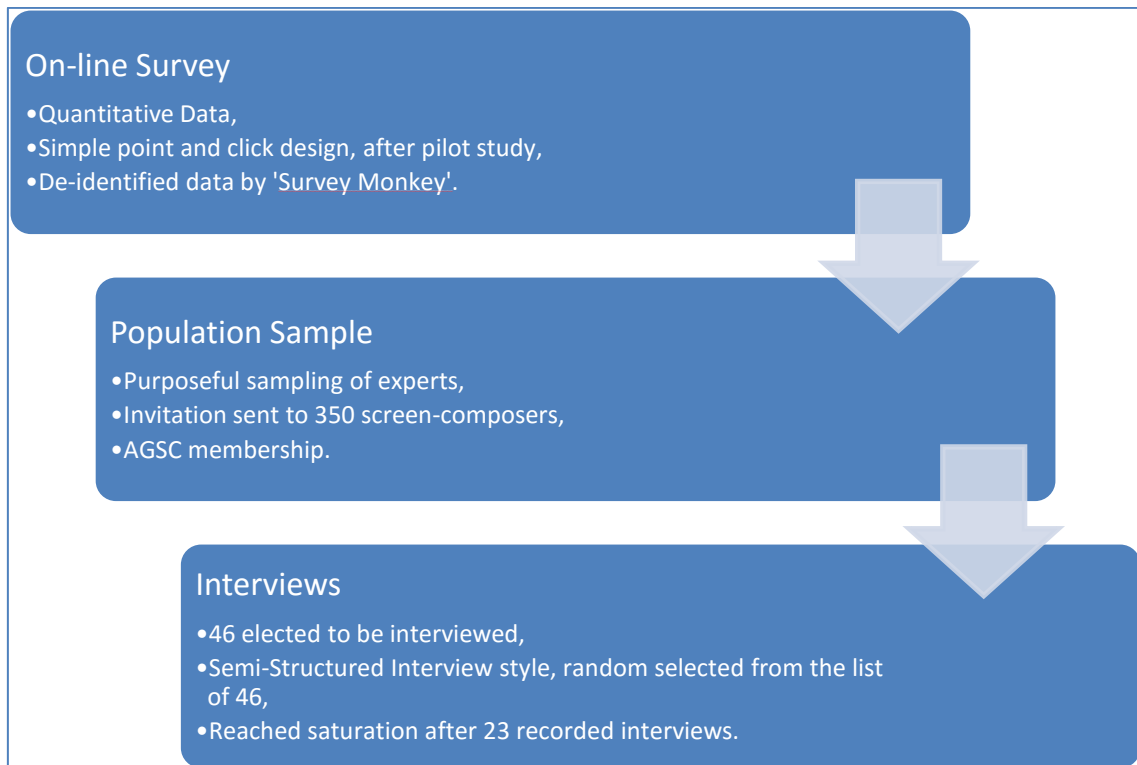


Figure 2: Methodological Overview. This research employed a mixed methods sequential exploratory design.

The mixed-method research was used to investigate the research questions posed earlier in this thesis. In particular, this thesis is founded on a dual-stage mixed-methods Combining Exploratory Design in order to address the research questions and hypotheses. The first stage was an online survey collecting quantitative data. The second stage involved interviews providing comprehensive qualitative data. This design was used "so that the researcher forms groups based on initial quantitative results and follow up with the groups through subsequent qualitative research" (Creswell, 2007, p. 72). Additionally, quantitative participant characteristics may be used to guide purposeful sampling for a qualitative phase. This particular design offers a strong framework and flexibility.

With Survey Monkey I designed a simple survey with a 'point-and-click' approach consisting of inbuilt logic that did not ask irrelevant questions. My goal was to not

annoy the working screen composer, but allow her or him fluid and swift passage through my survey so as to enhance the possibility of greater response rates—the survey had to be user-friendly. There were no trick questions and there was no concealment or deception.²⁹

The survey was launched on the fourth of October 2013 for a period of one month. My intention here was to take a literal snapshot of the working Australian-based screen composer community at that point in time. The participants were specifically targeted. An invitation to participate was sent to 350 screen composers currently engaged in the business of screen-music composition.

The population consisted of screen composers over the age of eighteen who were currently in the business of creating music for the screen, whether it be for television, film or online content. The type of sampling was Purposive Sampling. Composers who compose exclusively for the concert hall and not for the screen were excluded. Minors were also excluded. In order to gain a representative sample of this population I created a simple-to-use online survey that was accessed by means of a hyperlink that was distributed with a Participant Information Sheet and a handsome invitation letter. The hyperlink was disseminated in three ways. First, I sent an email to screen composers who are personal contacts. Second, an email was sent to the working members of the Australian Guild of Screen Composers (AGSC); in all cases, the identities of individuals were safeguarded by the use of the 'blind copy' function so no individuals' details were revealed; in other words, it was an example of 'passive snowballing'—a useful technique used to identify members of the rare population. Lastly, the hyperlink was attached to my personal Facebook homepage and to other

²⁹ This is confirmed by the supporting Ethics Documentation near the beginning of this thesis.

specifically relevant social-media groups³⁰ such as 'Australian Screen Composers' and 'Australian Score'. Rather than taking a 'scattergun' approach, I thought it would be better to be precise in identifying potential respondents via this method.

Participation in the survey was voluntary and at the very most it took less than fifteen minutes to complete. Consent was granted by the act of participating in the survey. The host (surveymonkey.com) automatically de-identified all respondents. There was, however, an option for respondents to identify themselves as potential participants in the interviews that made up the second phase of the study. Regarding justification for the sample size, it needed to be as many as possible so as to establish a representative sample of the Australian screen-composer population; such a sample size also was needed so that statistical analysis could be performed on the data with a view to achieving statistically significant results. All respondents were at least eighteen years of age and there were no gender restrictions.

4.2 Mixed-methods sequential theory.

The decision to choose a mixed-methods approach was made with a great deal of consideration. Creswell (2007) was the most instructive in collaboration and feedback from my leadership team. The explanatory design was a two-phase mixed-methods design incorporating qualitative data to assist, expand or build upon the initial quantitative results (ibid., p. 71). Creswell elaborates:

The mixed-methods sequential explanatory design consists of two distinct phases: quantitative followed by qualitative (Creswell et al. 2003). In this design, a researcher first collects and analyses the quantitative (numeric) data. The qualitative (text) data are collected and analysed second in the sequence and help explain, or elaborate on, the

³⁰ Facebook and Linked-In.

quantitative results obtained in the first phase. The second, qualitative, phase builds on the first, quantitative, phase, and the two phases are connected in the intermediate stage in the study. The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain those statistical results by exploring participants' views in more depth. (Rossman and Wilson 1985; Tashakkori and Teddlie 1998; Creswell 2003).

The strengths and weaknesses of this mixed-methods design have been widely discussed in the literature (Creswell, Goodchild, and Turner 1996; Green and Caracelli 1997; Creswell 2003, 2005; Moghaddam, Walker, and Harre 2003). Its advantages include straightforwardness and opportunities for the exploration of the quantitative results in detail. This design can be especially useful when unexpected results arise from a quantitative study (Morse 1991). "The limitations of this design are lengthy time and feasibility of resources to collect and analyse both types of data" (Ivankova et al., 2006, p. 61)

Ivankova says: "Mixing in the sequential explanatory design can take two forms: (1) connecting quantitative and qualitative phases of the study through selecting the participants for the second phase and developing qualitative data collection protocols grounded in the results of the statistical tests and (2) integrating quantitative and qualitative results while discussing the outcomes of the whole study and drawing implications. Such mixing of the quantitative and qualitative methods results in higher quality of inferences (Tashakkori and Teddlie 2003) and underscores the elaborating purpose of the mixed-methods sequential explanatory design. The complexity of the mixed-methods designs calls for a visual presentation of the study procedures to ensure

better conceptual understanding of such designs by both researchers and intended audiences" (Ivankova et al., 2006, p. 61).

4.3 Philosophical assumptions.

Research methodology refers to "the overall approach to the research process, from the theoretical underpinning to the collection and analysis of the data" (Collis and Hussey, 2003, p. 55). It is the general approach adopted by a researcher to investigate the research topic. The methodological choice a researcher makes is determined by both his/her philosophical assumptions about ontology, human nature and epistemology (Collis and Hussey, 2003; Morgan and Smircich, 1980) and the research question they are investigating (Collis and Hussey, 2003). This section of the thesis addresses the different philosophical assumptions on these three dimensions: ontology, human nature and epistemology.

4.3.1 Ontology and human nature.

Ontology and human nature are concerned with the views that social scientists hold about the world and human beings, which together provide the grounds of "social theorizing and embrace different epistemological and methodological positions" (Morgan and Smircich, 1980, p. 28). In addition, ontology is concerned with the assumptions we make about the nature of what exists; it asks the valid question: what is reality? Ontology is also associated with the nature of reality and depending on which path you take, you will have a differing worldview.

"Worldview and paradigm means how we view the world and, thus, go about conducting research. A worldview is a basic set of beliefs or assumptions that guide our enquiries" (Guba and Lincoln, 2005; Creswell, 2007, p. 21). This is a philosophy deeply

rooted in our personal experiences, our culture and our history—and they may change during our lives and be shaped by new experiences and new thoughts (ibid., p. 21)

Table 1: Four worldviews used in research. Source: (Creswell, 2007, p. 22).

Postpositivism	Constructivism	Advocacy and Participatory	Pragmatism
<ul style="list-style-type: none"> • Determination • Reductionism • Emperical observation and measurement • Theory verification 	<ul style="list-style-type: none"> • Understanding • Multiple participant meanings • Social and historical construction • Theory generation 	<ul style="list-style-type: none"> • Political • Empowerment and issue oriented • Collaborative • Change oriented 	<ul style="list-style-type: none"> • Consequences of actions • Problem centered • Pluralistic • Real-world practice oriented

This research project borrows elements from all of the above world views. Firstly, Postpositivism is usually associated with qualitative researchers; I have used this theory via the interviews with screen composers. Constructivism is typically associated with qualitative approaches—this works from a different worldview, but again this is relevant to the interviews I conducted with real people. The understanding or meaning of phenomena, formed by participants and their subjective views, make up this worldview. In this form of inquiry, research is shaped 'from the bottom up': from individual perspectives to broad patterns and, ultimately, to theory. Advocacy and Participatory world views are influenced by political concerns and this approach is more often associated with qualitative approaches than quantitative approaches. This project has political and change-oriented aspects to it. Pragmatism is typically associated with

mixed methods research; the focus is on the consequences of research, on the primary importance of the question asked rather than the methods, and multiple methods of data collection inform the problems under investigation. Thus, it is pluralistic and oriented toward 'what works' in practice. Pragmatism is certainly the overriding world view that this thesis takes given the real-world consequences of the use of virtual instruments by Australian screen composers (Creswell, 2007, p. 23).

4.3.2 Epistemology.

The epistemological approach utilised in this thesis is that of pure practicality with a knowledge of 'what will actually work' in order to address the research questions. In addition, the multi-stage nature of this research lends itself to expediency given its sequential nature and the time frames of completing a project of this size and scope in the time allowed.

The relationship between me and the group of peers that I am researching is close. They are my colleagues, friends and at times competitors. As a member of this relatively small group, I am known as an emerging screen-composer/researcher due to my interactions with them—including the broad email invitation introducing myself as a PhD research student and the twenty-three interviews conducted with them. Creswell explains:

The epistemological approach used for this investigation is a mixed methodology, Explanatory Design utilising a Follow-up Explanations Model. This choice of design is appropriate due to the purposeful sampling techniques. That is, a homogeneous sampling of individuals who have a membership in a sub group with distinctive characteristics. (ibid., p. 73).

The sample that I collected was representative of the entire population of active screen composers.³¹ The same individuals were sampled in the second stage of the research, through the provision of their name and email address—the researcher scheduled appointments that were convenient to both parties and recorded interviews³² were conducted late in January and early February 2014.

Regarding the relationship between me and the subjects, I maintained a professional standard even though I knew many of the interviewees. Having a semi-structured interview design also assisted as it kept the interview 'on track'.

This of course did not apply to the online survey, as the respondents were automatically de-identified as they submitted their survey. However, those who elected to provide their names and email addresses at the end of the survey in order to take part in the interview could be identified.

With each of the interviews I kept a record (field notebook) as to the quality of the interview. The field notebook assisted in recording various facts about the way in which the interviewee responded. For instance, did the interviewee understand the question? Was rephrasing or prompting needed? Were they an experienced or emerging screen composer? I also took note of any interviewees who seemed false, incomplete, disingenuous or were 'second guessing' their answers.

4.3.3 Axiology.

'Axiology' primarily refers to bias and the stance the researcher took. There is a dimension of axiology that refers to the 'role of value in inquiry' (for example,

³¹ How do I know this? $102/350 = 29\%$. I understand that this is a good response rate. A screen composer working with computer tools lends itself to them participating in a well designed interesting survey.

³² With the recorded consent of the participant, as required by the Low Risk Human Ethics Department of the University of Sydney.

Tashakkori and Teddlie, 1998). I can clearly state that there is a fair level of bias in this thesis, but where it is displayed it will be made known. In fact, this investigation would not exist if there were not some amount of bias in the researcher's mind. In this case, the researcher is ingrained in the Australian screen-composer community, so bias was considered very carefully. This was achieved by running concepts, ideas and drafts past my leadership team and by the Human Ethics department so that a balanced position could be achieved—this is in addition to direct feedback from audience members at various local, national and international presentations during Question and Answer times. Remaining professional and maintaining a comfortable distance from the research was an active part of my *modus operandi* .

4.3.4 Methodology.

'Combining' is the key word here as I combine the results from the multi-stage mixed-methods exploratory design and create a meta-inference that is informed from the two methodologies. My worldview is pragmatism; the approach (methodology) combines deductive and inductive thinking as I mix both qualitative data from the survey and quantitative data from the interviews (ibid., p. 23). See Table 2 for a full list of my psychological decisions.

4.3.5 Rhetoric.

This is the style of writing used—here it will be a mixture of formal (to communicate with absolute clarity the results of the quantitative section) and mostly informal—which lends itself to the candid responses transcribed by me from the personal interviews, which are real-life experiences.

4.4 The philosophical choices made in this thesis

The philosophical choices made in this thesis are summarised in the table below.

Table 2: Philosophical choices made in this thesis.

Worldview Element	Pragmatism	For Example
Ontology	Singular and Multiple Realities.	Researchers test hypotheses and provide multiple perspectives.
Epistemology	Practicality.	Researchers collect data by 'what works' to address research question.
Axiology	Multiple Stances.	Researchers include both biased and unbiased perspectives.
Methodology	Combining.	Researchers collect both quantitative and qualitative data and mix them.
Rhetoric	Formal and Informal.	Researchers may employ both formal and informal styles of writing.

From a need to identify broad trends within a population, collecting data via a survey was a natural choice and well suited to studying the problem. It is worth mentioning here that the problem is that there is no data around a professional group of experienced and talented screen composers especially in this moment of vast digital change—a pivotal moment that may see some of their film team otiose.

4.4.1 Mixed-methods research as a methodology.

Mixed-methods research is a reputable and valid way of reporting numerical and experience-based research to the world. The combination of empirical data and interviews with willing participants is a powerful, rigorous and well-rounded approach that is fulfilling and sincerely satisfying. It is a 'dialectical position' proposed by Greene and Caracelli (1997), who saw the value in exploiting multiple paradigm stances in their research. Of course there are those who do not agree that mixed-methods research is

meritorious, who believe that a purist stance is best or who simply do not understand the different tactics "thrown together willy-nilly", without a good rationale and without a research design to follow (Plano Clark, 2005, p. 132). A generous catalogue of Exploratory mixed-method research projects are listed on pages 172 and 173 of Creswell (2007), indicating to me that multiple stances and paradigms are beneficial to addressing the research questions.

For example, Marton and Säljö (1976) carried out astonishing research on how students went about reading and making sense of a written text with a small number of subjects and led to the ground-breaking identification of surface and deep approaches to learning (Marton and Booth, 1997). This initial study was able to identify a wide range of themes that could form the basis for a quantitative tool such as the questionnaire, in this particular case the many questionnaires on 'approaches to learning', for example, the *Study Process Questionnaire* (see Biggs, Kember and Leung, 2001). Fielding and Schreier (2001) give a keen discussion of the issues concerning qualitative and quantitative approaches and their combinations to research problems (Gordon, Reid and Petocz, 2013).

4.4.2 Mixed-methods research in this study.

Given the scope and magnitude of the subject a mixed-methods approach seemed natural for this research. My natural predilection to measure things first stems from my background in science³³ where there are vast sets of numbers and parameters to measure. I agree totally with Ivankova et al., (2006) regarding this extract:

³³ Atmospheric science and then bio-meteorology.

We showed that establishing the priority of the quantitative or qualitative approach within a sequential explanatory study depends on the particular design a researcher chooses for each phase of the study, the volume of the data collected during each phase, and the rigor and scope of the data analysis within each phase. In this mixed-methods design, the sequence of the quantitative and qualitative data collection is determined by the study purpose and research questions. A quantitative phase comes first in the sequence because the study goal is to seek an in-depth explanation of the results from the quantitative measures (Ivankova et al., 2006, p. 190).

To be clear, this is a mixed-methods research project and not a mixed-*model* investigation. The latter is a style of research given to a category of sophisticated, quantitative, statistical techniques that take into account both fixed and random effects during quantitative data analysis and parameter estimation (Cobb, 1998). Page 172 of Creswell (2007) has a list of citations to published papers on mixed-methods exploratory research that further strengthen and validate this style of enquiry.

4.5 Design (Epistemology).

The design of this study is a mixed-methods sequential exploratory design in which quantitative data was collected and then analysed. Following on from the results of that analysis, qualitative data was then collected and analysed. The following flow chart adapted from Teddlie and Tashakkori (2009) shows conceptually my design. It is important to note that via a systematic elimination of less suitable epistemologies I arrived at this one. I started with empirical data via a survey; this ruled out other designs that focused on case studies, for example. This strengthens the choice of the mixed-methods sequential exploratory design.

It needs to be recognised that the process that I am using here is induction (which refers to reasoning from the particular to the general) rather than deduction (which refers to reasoning from the general to the specific).

It is also worth mentioning that this study is about absolutism rather than relativism because of the nature of the data collected—it is real, it is current and it is informative.

Ideographic rather than nomothetic methods were used, and humanism rather than naturalism was used. Humanism focuses on the doctrine that researchers should focus on the human characteristics of people, including free will, autonomy, creativity, emotionality, rationality, morality, love for beauty and uniqueness.

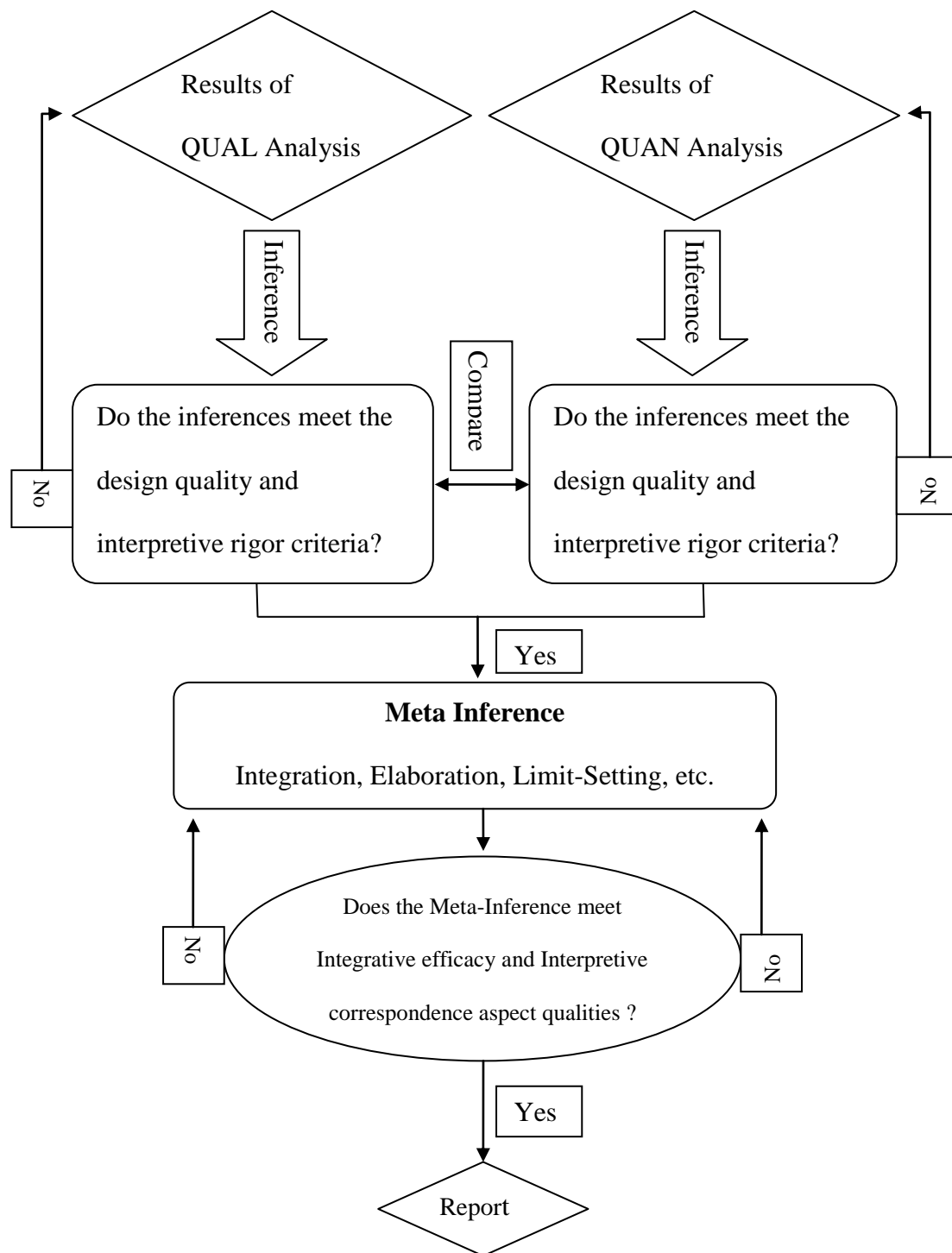


Figure 3: The process of evaluation for inference quality, from (Teddlie and Tashakkori, 2009, p. 307).

4.6 Online survey participants.

Prospective participants were invited to participate in this survey via an email invitation that contained a hyperlink to the survey. The email invitation was disseminated in three ways.

1. It was sent via email to screen composers who known to me personally.
2. It was also sent via email to industry organisations of which I am a paid student member; they sent the hyperlink on my behalf. I had conversations with the following organisations about their participation in this project: most importantly the AGSC (Australian Guild of Screen Composers) of which I am a board member, AACTA (Australian Academy of Cinematic and Television Arts) of which I am a regular jury member and AFTRS (Australian Film Television and Radio School Alumni). In all cases, the identity of the individual was safeguarded by the use of the 'blind copy' function so no individual's details were revealed.³⁴

3. Lastly, social media also distributed the hyperlink to the survey in a customized and targeted fashion. It was not a generalised distribution. Specific Facebook and Linked-In groups were used to invite potential respondents to participate in the survey.

Participation in the survey was voluntary. The survey had a simple point-and-click design, taking fifteen minutes to complete at the most.³⁵ Consent was achieved by participation in the survey and by its automatic electronic return. Please see Appendix A for the survey questions. The host (surveymonkey.com) automatically de-identified all

³⁴ In an effort to avoid 'passive snowballing'.

³⁵ Personal feedback to me suggested that the time taken to complete the survey was eight minutes.

respondents. There was an option for the respondents to identify themselves as participants in the second phase of the study—a semi-structured recorded interview that was later transcribed and analysed.

All data was de-identified by the online survey tool. Data is stored on password-protected machines and documents. Again, there was no deception or concealment in this investigation.

4.7 Online survey questions.

The reason for conducting a survey is to collect valuable data. Prior surveys that were circulated about the screen-composer community were either too broad in scope or were simply poorly designed. So, when designing the survey for this investigation I considered the feedback from the pilot study, my own experiences and other more-successful surveys. I took the best elements/questions from those surveys in consideration when I designed my survey. A critical element of the survey was inbuilt logic and common sense. Directing the respondent through the survey with the least amount of personal distress was my aim with a view to capturing as much information as possible. I also aimed to gather as many volunteers as possible for a personal recorded interview.

The following (Figure 4) reveals my broad-stroke design of the survey showing the major headings:

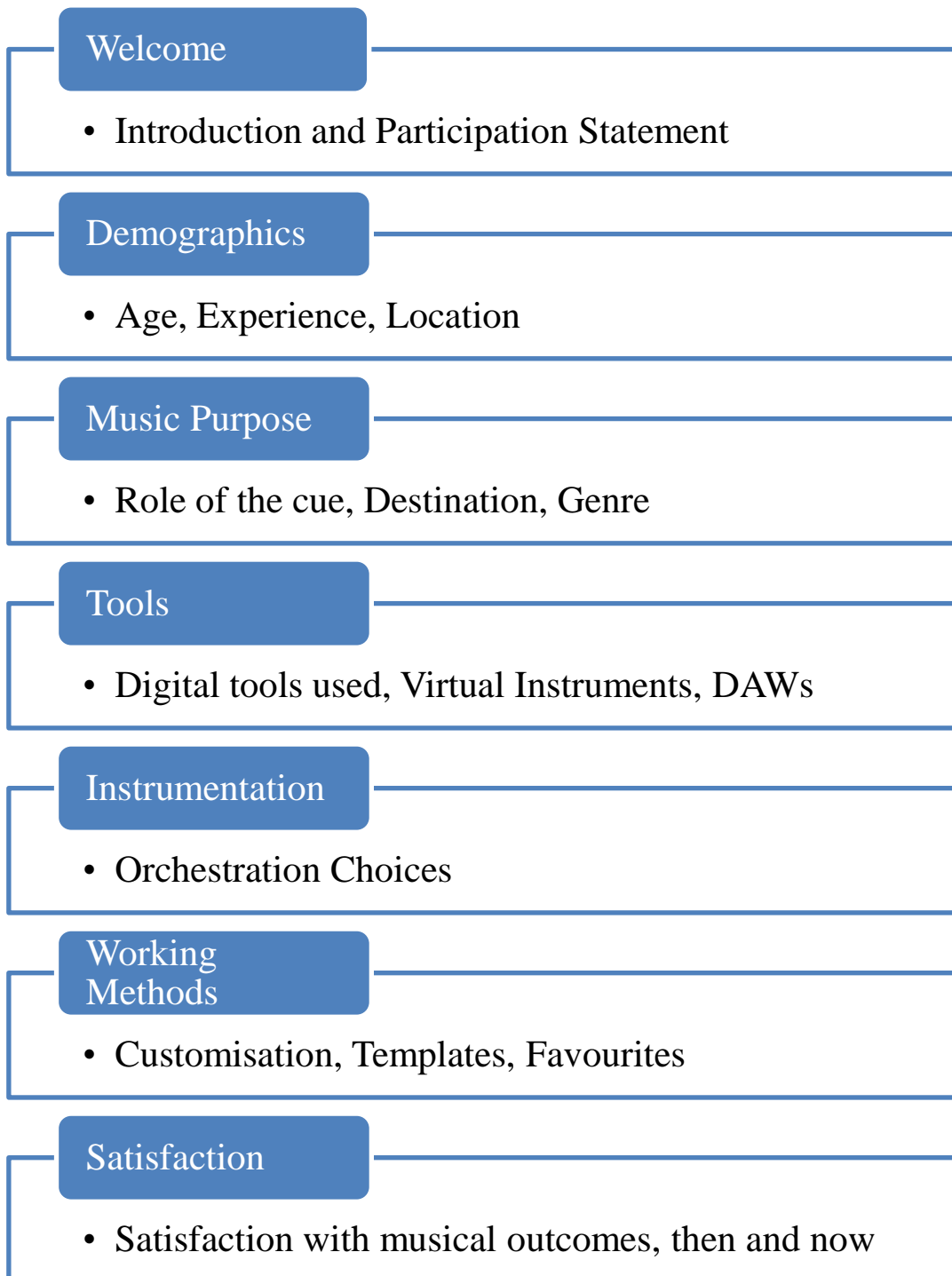


Figure 4: Survey Topic Areas and their position within the survey. See Appendix A for all the survey questions and valid responses.

The respondent had been informed on the information sheet. I arranged a time and date that was suitable both to me and the interviewee over a period of two months at the start of 2014. I wanted to strike while the subject of my investigation was fresh in the respondents' minds—this proved beneficial as many had busy schedules. This helped the investigation as the survey, the questions and the topic were still in the minds of the respondents.

4.8 Qualitative measurement.

Forty-six screen composers elected to be interviewed—I was overjoyed at the number of people who wanted to participate; this indicated to me that they had an opinion on this topic and wanted to participate. I knew that I could not interview everyone so I needed to devise a system of selecting those who were to be contacted and interviewed. I created a list of all forty-six screen composers and assigned a randomly generated number to each of them, then (after copying and pasting the random number with its true value) I sorted the list and started from the top down. I thought a random selection of these enthusiastic respondents was the best way of keeping my bias at bay. All interviews were recorded and they ranged from thirty minutes to seventy minutes. I transcribed the interviews soon after they took place so there was no loss of momentum to the study—and so I could recall as much as possible in addition to the audio recording. These transcriptions were used later for text analysis via the NVivo software program.

4.9 Interview questions – semi-structured.

For the full question sheet including prompts, see Appendix B; however, Figure 5 shows the continuation of thematic topics evident in the survey, fashioned from the

pilot. I choose this open-question format so that I could allow the respondent to do all the talking, with a few prompts and encouraging verbal "nods". There is nothing worse than talking in an interview and not knowing if the person on the other side is listening - I called these 'active listening' prompts.³⁶

In addition, I analysed the data from the survey to assist with the formation of interview questions. Given my professional experience as a Global Business Analyst with a major credit card company for over eleven years I was well placed to collect, manage and summarise the survey data in a short space of time. This included identifying various trends in the data that could be expanded upon by screen composers once interviews began. The main areas of my attention gravitated around the survey results precluding to: instrumentation, budget, satisfaction (then and now) and time given to create a musical cue. Histograms, regression analysis, summaries of averages and separating the data by various parameters allowed me to create the final interview questions.

³⁶ For example: " a-ha", "I understand", "please go on".

Digital Tools

- Use of Virtual Instruments
- Democratisation of Virtual Instruments
- Modification and Customisation
- Importance of being contemporary

Working Methods

- Virtual Instruments and decision making
- Virtual Instruments and Budget
- Expectations of Directors and Virtual Instruments
- Virtual Instruments and non-conventional MIDI

Satisfaction

- Virtual Instruments and your satisfaction as a screen composer
- Virtual Instruments' role in the future of screen-music

Figure 5: Broad topics of the Semi Structured Interview Questions. A reminder that interviews were conducted by telephone, Skype and face-to-face.

Qualitative research directly investigates subjective experience because it is their lived experience. I understand that in the early decades of the twentieth century subject experience was dismissed as unreliable because it was not objective and therefore irrelevant to scientific psychology. I disagree with this claim and maintain instead that studying subjective experience is important. Qualitative research incorporates meaningful stories in addition to measurable variables. For the traditional quantitative research, human phenomena are studied scientifically by converting them into numerically measurable independent and dependent variables. For the qualitative

researcher who wants to study subjective experience, restricting data to measurable variables is unnecessarily limiting. The qualitative research paradigms assume that the best way to learn about people's subjective experience is to ask them about it, and then listen carefully to what they say. People almost always talk about their own experience in storied form. In this way qualitative research is based on textual data rather than quantitative data, on stories rather than numbers.

Qualitative research allows for naturalistic observation and description, rather than testing general laws of physics or other scientific endeavours. As Auerbach and Silverstein say:

Qualitative research has the potential to avoid interpreting difference as deficit because it assumes that difference rather than uniformity, of behaviour is the norm. The qualitative research begins with naturalistic observation that is, detailed description of the phenomenon being studied. Naturalistic observation is useful, not only to identify the lived experience of the individuals being studied, but also to understand the relevant contexts of the experiences. From the qualitative perspective, generalizable scientific laws if they exist at all, can only be developed after taking into account the diversity caused by variations in context (Auerbach and Silverstein, 2003, p. 26–27).

Research participants are expert informants. They have unique experiences, and because this is such a small group, their choice of words, sentences and phrases do echo each other and resonate over and over—until that point of saturation is reached. No matter how many more screen composers you interview, the same words, the same phrases the same themes tend to repeat themselves.

5 Chapter Five: Results.

I have given great care and consideration when presenting the results of this thesis. As you can imagine, there is a lot of data—and my aim is to lay bare the relevant data that most suitably address the research questions of this thesis as clearly and as comprehensively as possible. The results will be presented as they were collected, the survey results first and then the results from the interviews. It is also my goal to 'tell the story' of this research in a straightforward way so the most salient results will appear in the main body of the thesis; the remainder will be logically preserved at the rear in an appendix.

5.1 Quantitative results.

These are the results from the online survey hosted by the product 'Survey Monkey'. As noted above, all responses are de-identified so not even the researcher can identify the respondent. First I cover the basic statistics about the responses then later I treat the data to more advanced inferential statistics in order to answer the research questions.

5.1.1 Geographical distribution.

Regarding the first summary, 139 respondents answered the survey; two were clearly bogus and set aside, and the remainder are presented here. Unsurprisingly, most respondents were based in Australia. Given the overwhelming response from 102 Australian screen composers, I decided to focus my attention on this, the most substantial and robust group. The reason for not including responses that were not based in Australia is simply because there is not enough data to create meaningful statistical results from such a small set of respondents. I am confident that the data collected is a

good representative sample of the active screen composer population, about one in four.

Figure 6 shows the distribution of the results across the various respondent locations.

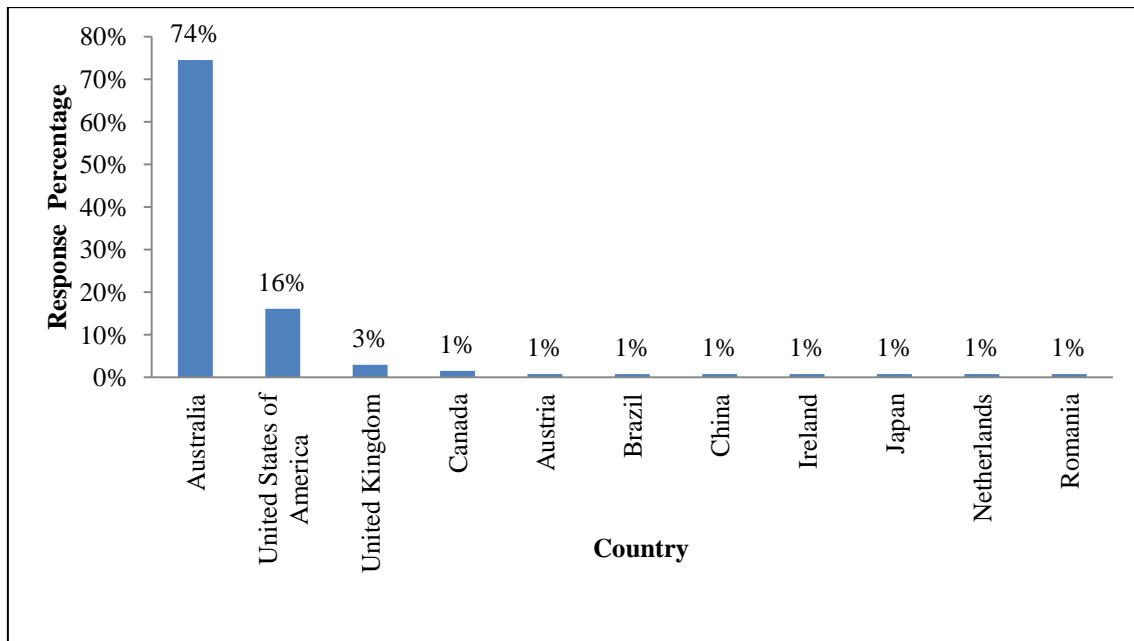


Figure 6: Respondent Location. Answer to the question "In which country are you based?"

The results shown in Figure 7 indicate that most respondents completed the survey in the first week. What I would like to make clear is that there were no incentives to participate in the survey. What this indicates to me is that people have a strong opinion about their digital tools—they had something they wanted to say about this topic. I got the firm impression that this topic was important to them and they wanted to be part of the research.

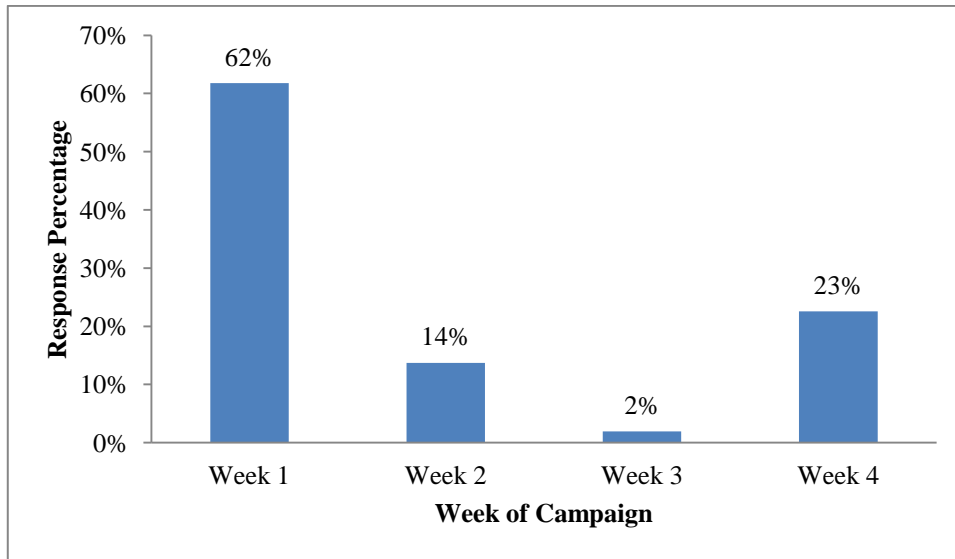


Figure 7: This graph shows the response distribution by week. It clearly shows that most were willing and ready to take part as soon as the survey was released.

5.1.2 Age and experience.

The respondents were asked some general demographic questions, for example, "What is your age?" and "Approximately, how many years have you been composing music for the screen?" Figure 8 is a histogram of the ages of the respondents with a 'normal' distribution bell-curve superimposed upon it. What I gathered from this data is that the ages of the respondents were not unlike the shape of the normal distribution. This shows a solid result as it tells me two things: first, I have a good range of ages; second, it allows for more general statistical models to be employed later in this investigation.

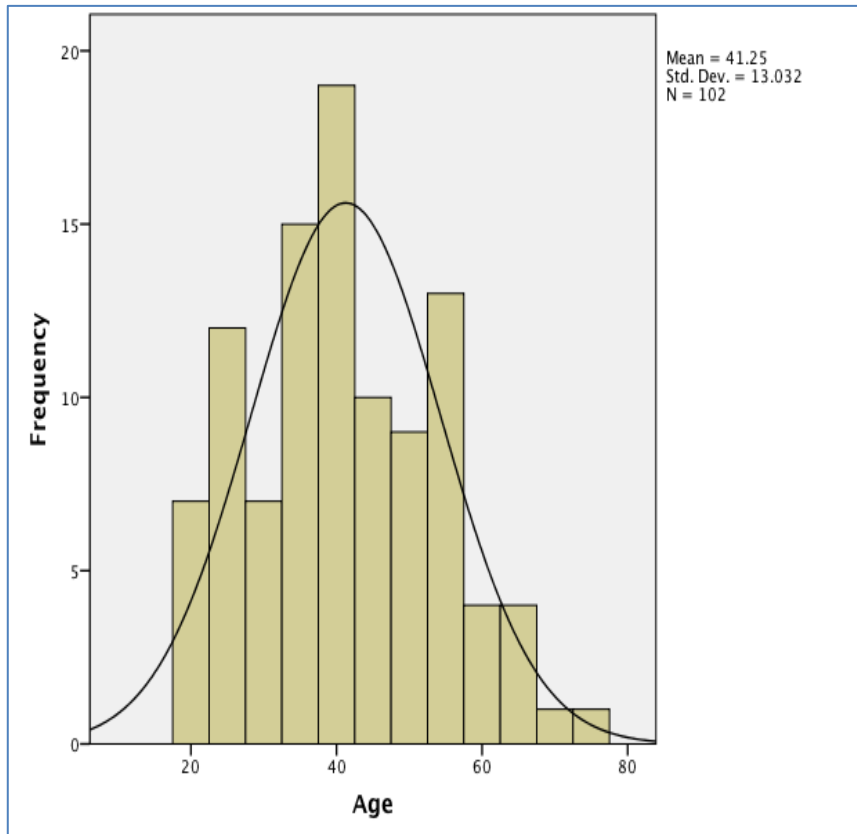


Figure 8: Histogram showing the frequency of respondents' age. A near-'normal' bell-curve distribution is observed.

Experience is also treated to a histogram graph shown here as Figure 9. As you can see the distribution of experience is slightly skewed to the left, meaning that there were more respondents with lower than mean years of experience. The most populous bin was between six and eight years.

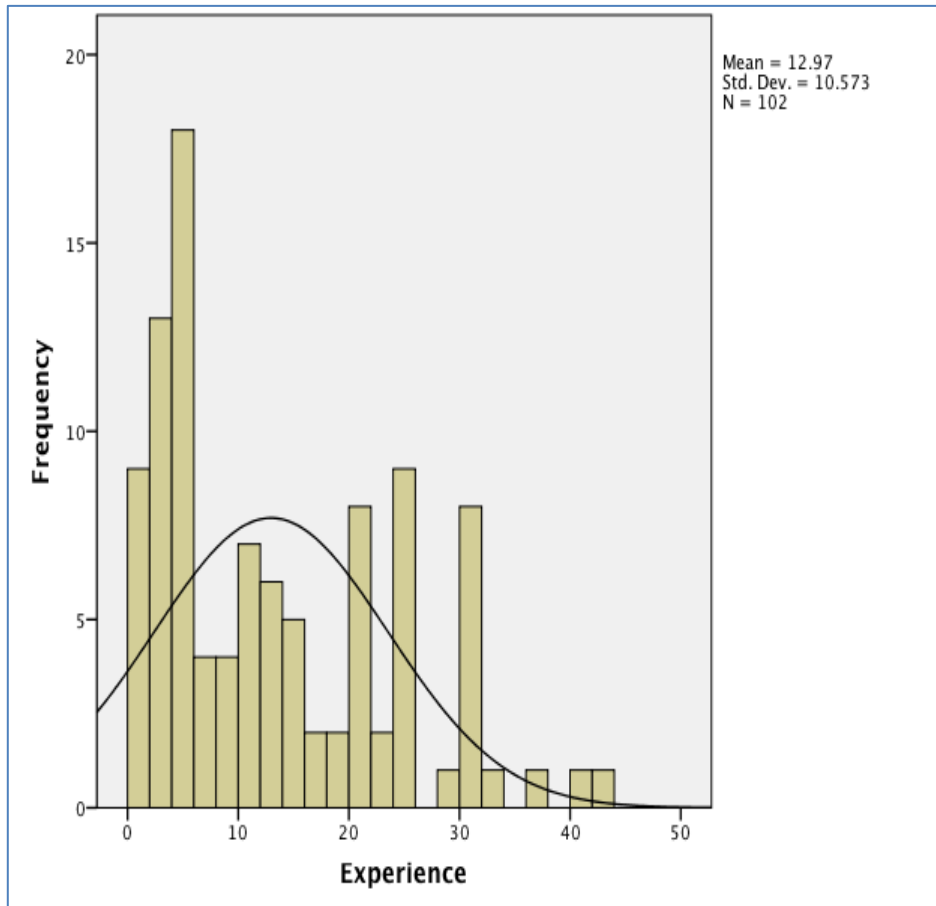


Figure 9: Histogram showing the frequency of the respondents' approximate years of experience. The graph shows a slightly skewed distribution to the left showing a mean of approximately thirteen years.

Figure 10 shows the distribution of age and experience of the respondents, plotted with age on the x -axis and experience on the y -axis. As we can see, there is a strong positive relationship between the two factors—this makes sense. As age increases, so should experience in the industry. What does this actually mean? Figure 10 shows a good range of age and experience without any outliers. In terms of the survey and its results you can see that there is a wide range of respondents, with a breadth of experience. Details of the regression and its significance will appear later in this results section.

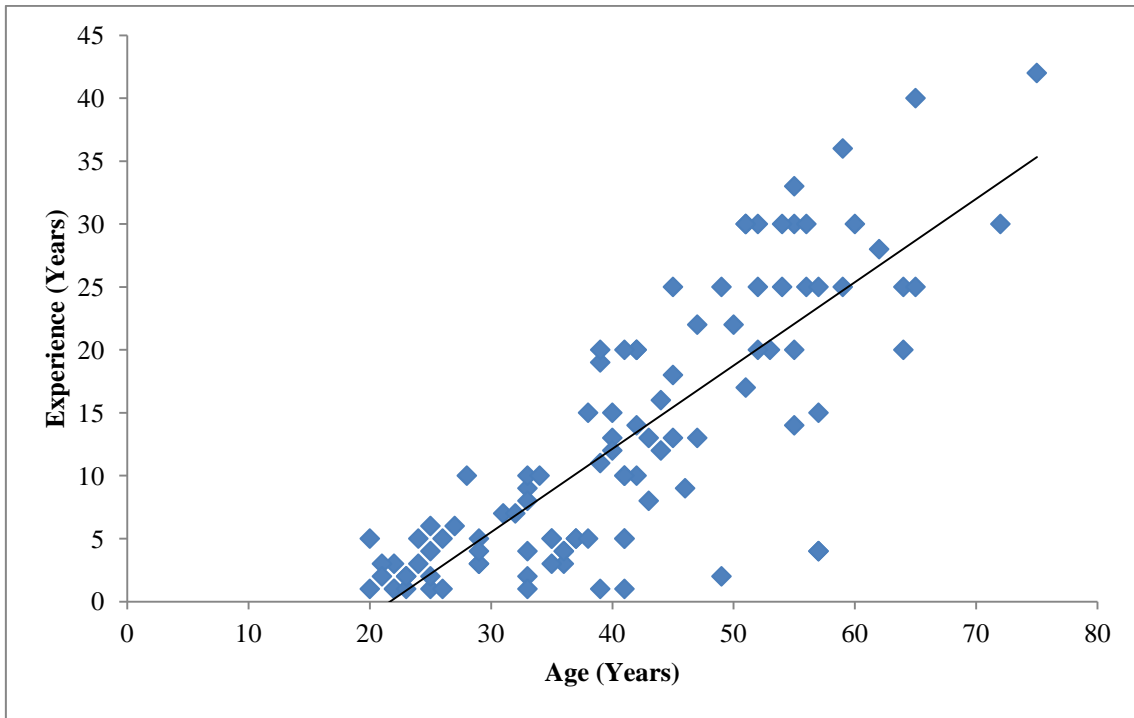


Figure 10: Age and experience of the respondents plotted in a (x,y) format.

5.1.3 Nature of the cue.

Respondents were asked to categorize the nature of the cue that they had in mind (Figure 11). It is clear that non-diegetic (off screen) cues dominated this sample.

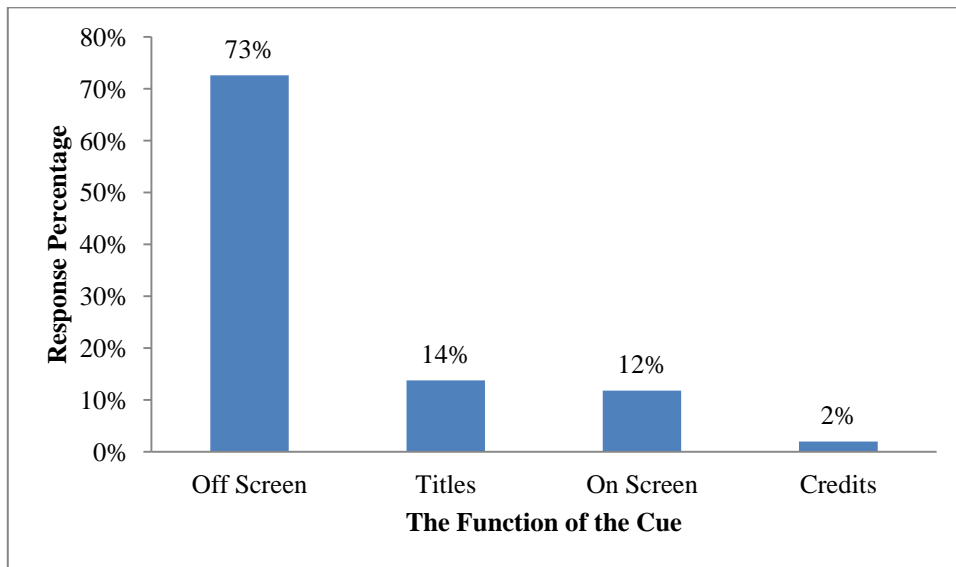


Figure 11: Function of the music written.

Respondents were also asked to categorize the genre of the cue. Here in Figure 12 drama was the most populous at 33%.

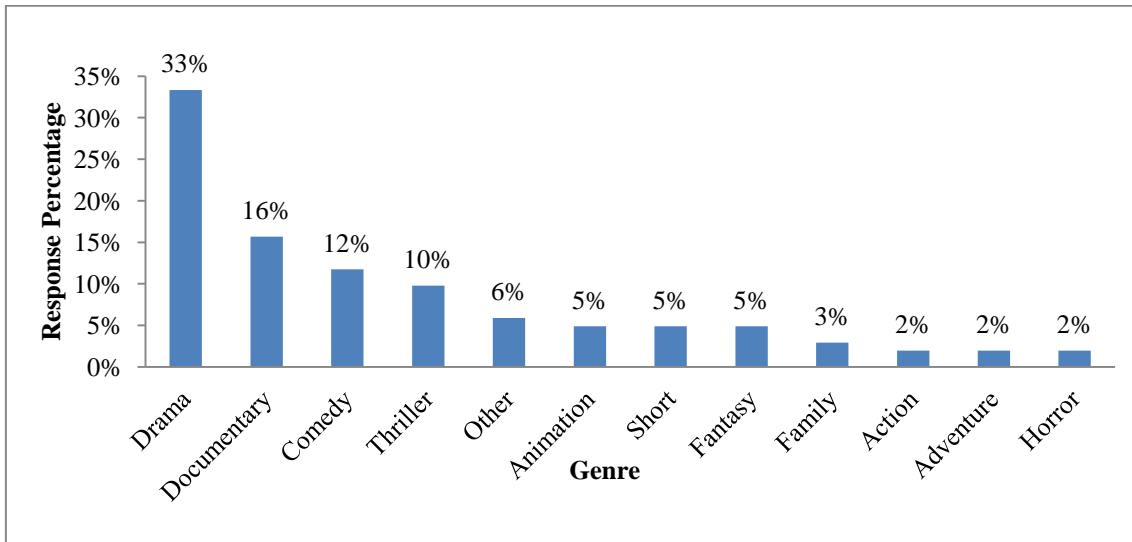


Figure 12: Genre distribution. ('Other' contains: religious, sci-fi and mystery).

5.1.4 Intention to be played by humans.

Question 5.1 of the online survey asked the respondents if the cue was intended to be played by humans. In a way, this question is linked with question 3.2 regarding instrumentation and was another way of asking if the cue was created using virtual instruments. However, its wording could have been taken to mean "Would you ever consider this cue to be played by humans at any time in the future?"³⁷ The results from the question are revealing with 57% indicating that their cues were not intended to be played by humans. This contrasts with the 29% who selected virtual instruments only in question 3.2. I believe the correct/real answer exists somewhere in between these two figures. This idea will be discussed in depth later in the thesis.

³⁷ Throughout Australia, symphony orchestras have film music programmed into their subscription concerts.

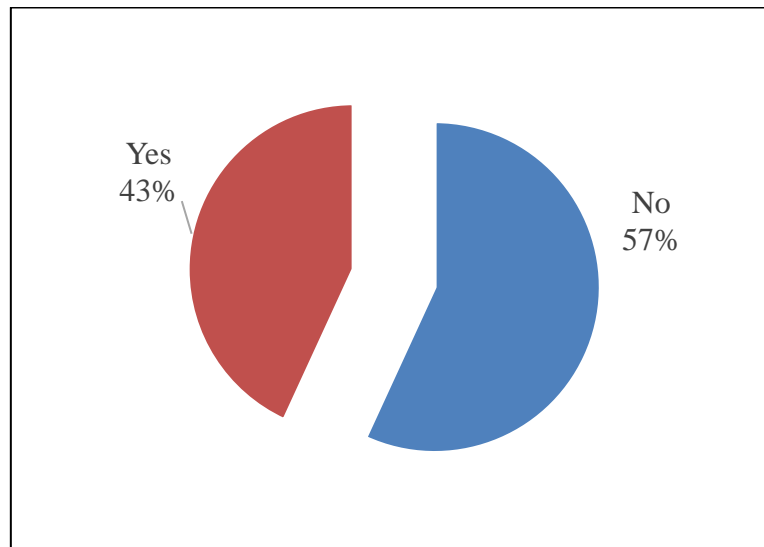


Figure 13: Intention for the cue to be played by humans.

5.1.5 Composition location.

In this digital age of mobile phones and iPads I thought it interesting to find out if musical cues written for the screen were being composed away from the traditional model of a studio, just as Prior (2003) had suggested. Interestingly, average age between these two answers was very slight and not the vast difference I had expected. In an attempt to look for answers here I checked the age and experience data for these parameters, hoping to find an answer. Analysing the data from those respondents who answered 'Yes' to the question "Was the cue was written in more than one location?", gave their average age as 41.7 years. Those that choose 'No' were on average 42.8 years old ($n=92$). The vast difference I was searching for was simply not there, so I looked further and checked the experience parameters. Those who indicated that they composed the cue in more than one place had an average experience of 12.6 years and those that did not had an average experience of 14.9 years. With the difference being

just 2.3 years I anticipate that in the very near future this percentage will be much greater.³⁸

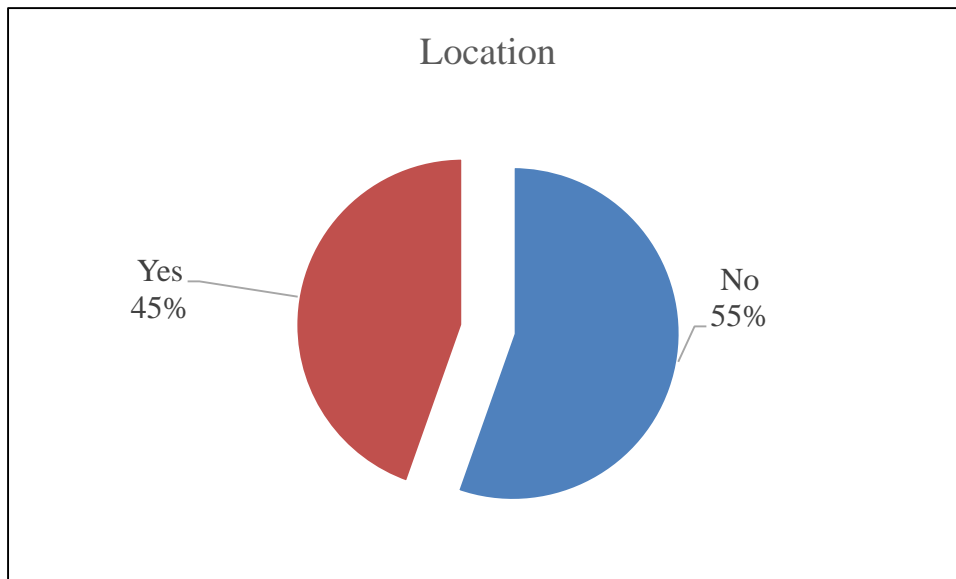


Figure 14: Was the cue composed in more than one location?

5.1.6 Instrumentation.

From the data, three distinct orchestration groups emerged: first, cues that were created by virtual instruments only; second, cues created by the using performers only; and third, cues that were a combination of the two containing a mixture of virtual instruments and recorded performers by the screen composer. Their relative proportions to each other are summarised here with their respective percentages of cues from the survey.

³⁸ The sample was taken in October 2013.

Virtual Instruments Only	Performers Only	Combination
<ul style="list-style-type: none"> • Cue created by sampled instruments / virtual instrument libraries. • Use of Digital Sequencing software • Little use of Notation software 	<ul style="list-style-type: none"> • Cue created by recording performers in a home or professional recording studio. • Use of both Digital Sequencing Software and Notation software. 	<ul style="list-style-type: none"> • Cue created by a combination of virtual instruments and real instrument recordings specific to that project. • Prolific use of both Digital Sequencing Software and Notation Software.

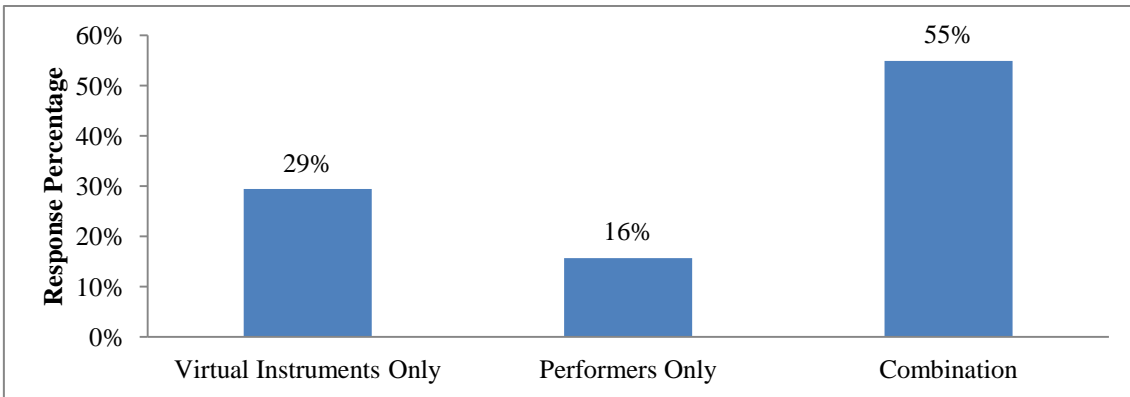


Figure 15: The three distinct orchestration groups their descriptions and relative proportions for the sample group.

This percentage mix is revealing and unique to this project. These results show for the first time the relative proportion of the instrumentation behind the written cues. The information to remember here is that a combination of virtual instruments and real performances constitutes the bulk of cues in this study. This data provides a solid baseline for any future research so that comparisons and trends can be identified.

5.1.7 Age, experience and instrumentation.

Here we have a view as to the average age and average experience of the screen composers in the sample. This chart was created by averaging the results data from the survey, first via the number of years experience field then via the number of years age field. Both data sets shown in the graph are average years. On average, younger, less experienced screen composers wrote cues that used virtual instruments only (blue bar)

On average, older, more experienced screen composers wrote cues that used a combination of virtual and real instruments (green bar).

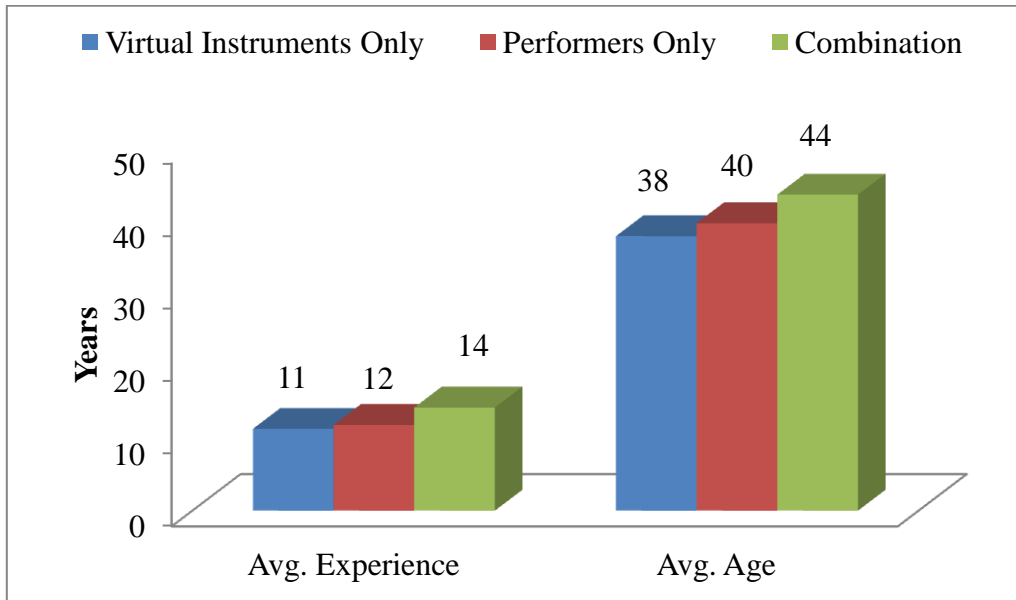


Figure 16: Average age and average years experience by instrumentation.

5.1.8 Destination of the cue.

Figure 17 below shows the results for the intended destination of the cue—and there is a lot to be gained from proper analysis of this data set. The results tell us not only about the intended destination but about which demographic is writing for which destination. As we can see, the majority of cues in this sample were destined for the cinema in one form or another, then television, then festivals and so on.

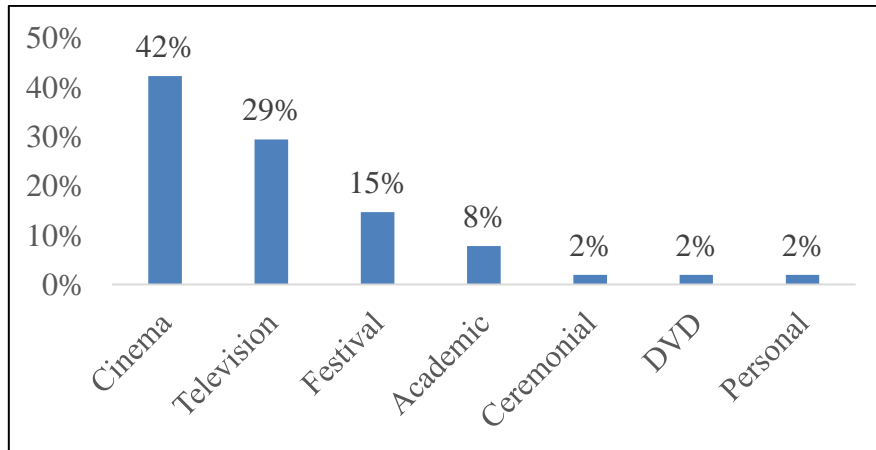


Figure 17: Intended destination of the written cue.

Looking at destination cinema, for example, most of the instrumentation is a combination of virtual instruments and real studio recordings.

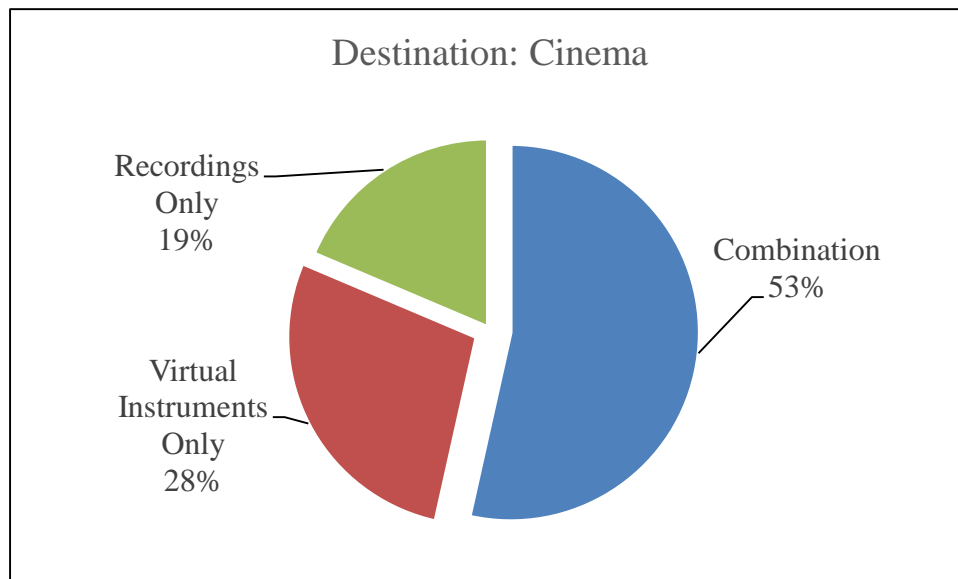


Figure 18: Figure showing instrumental breakdown of cues destined for the cinema. (n=43).

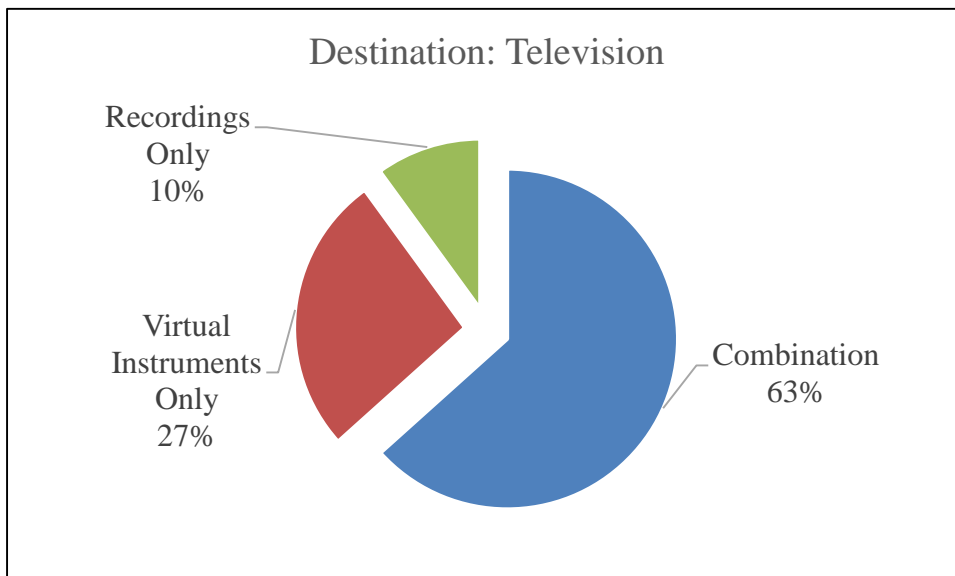


Figure 19: Figure showing destination television ($n=30$).

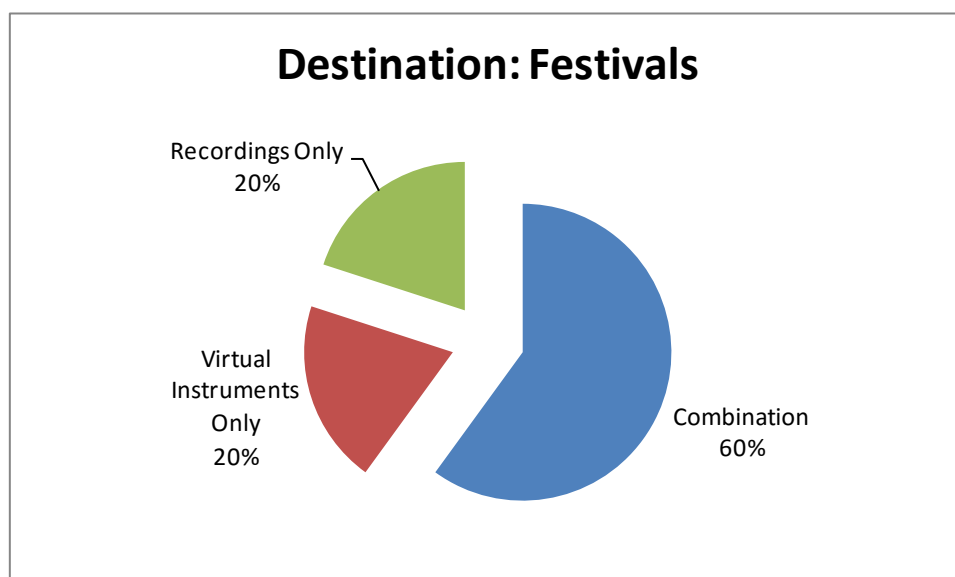


Figure 20: Figure showing destination festivals ($n=15$).

5.1.9 Destination and time given to compose the cue.

As I was sampling a large number of screen composers, I knew that there would be various destinations for their work and I wanted to capture that in this survey. The results show the differences in instrumentation by destination, and the differences are revealing. When considering where a cue (within a film) is to be performed the

composer must think about the physical space the film is destined for. This means different musical forces may be used or certain musical genre stereotypes adhered to; for example, if the cue is for an outdoor festival, the music would likely be mixed slightly louder than if the cue was for television. What follows is a statistical analysis of the 'average time to compose a cue'³⁹ split by the intended destination of the project.

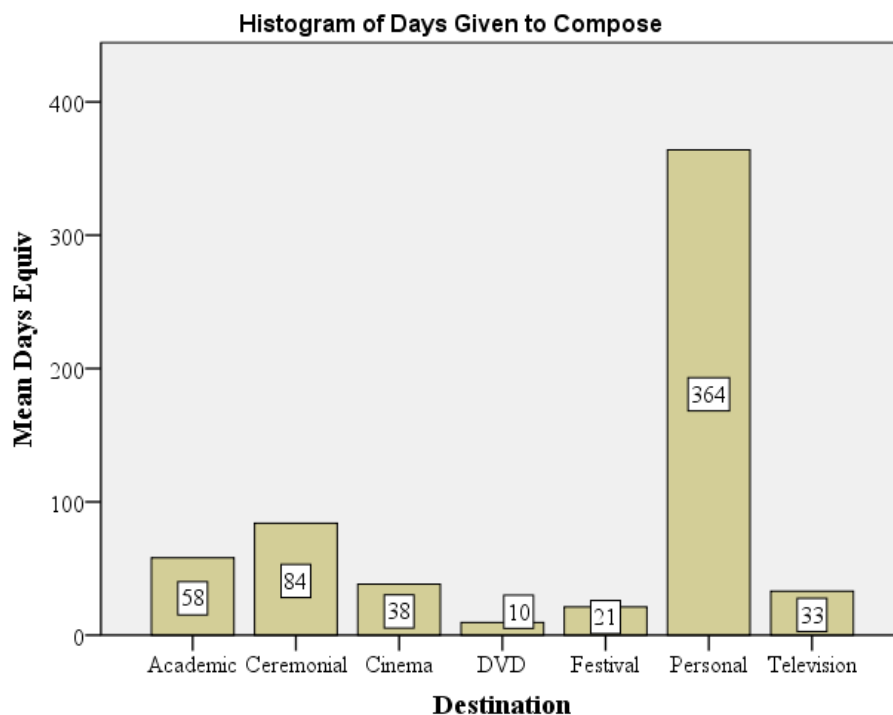


Figure 21: Meaningful results from the analysis between average days given to compose a cue by the intended destination. What we can clearly see are the differences from, say, personal projects, to the demands of television and cinema.

Figure 22 shows dramatically the differences in the mean number of days given to write the cue by destination of the cue. This data speaks volumes about the time pressures imposed upon composers when writing for various types of customers—for example, personal projects have a much longer time-frame than, say, television. One is renowned

³⁹ From the 'Days given to compose' survey answer.

for a quick turnaround and the other could be described as a 'passion project'⁴⁰ that is 'on the backburner' in a screen composer's schedule.

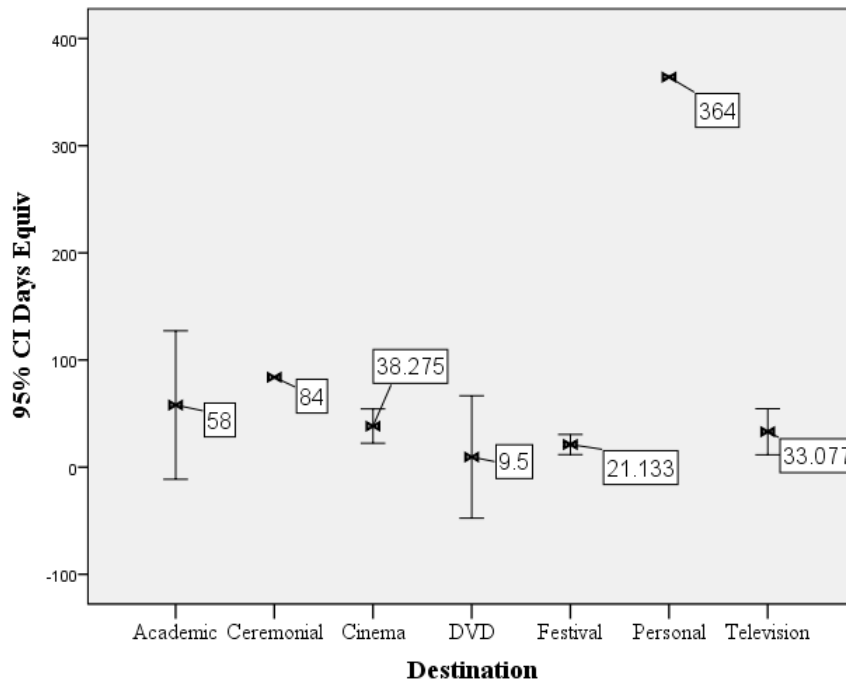


Figure 22: Variability of values around the mean for each destination.

From the above data we clearly see the differences in variability according to destination. Note the large variability around DVD and academic categories and relatively small variability around cinema and television. These results make sense as those productions that go 'straight to DVD' have different social dynamics surrounding them as opposed to those of television. These dynamics are driven by the consumer and are made clear to the screen composer via the director.

I am unsurprised that the festival category shows such slim variability, as personal experience has taught me many lessons about directors looking for a screen composer at the eleventh hour.⁴¹ The lack of variability around personal projects strengthens the

⁴⁰ A project driven by 'personal interests' in the subject rather than financial concerns or personal gain.

⁴¹ This seems to happen year after year.

notion about many screen composers 'having something on the backburner' and, finally, ceremonial work seems to have little or no variability.

5.1.10 Genre and instrumentation.

Here I investigate the distribution of cues split by the genre of the cue. This is important because there are instrumentation trends that are apparent by genre of the film/movie. Starting with an overall perspective Figure 23 shows the actual number of cues per genre (please note that these are not per centages, it is clearer to show the data this way). Figure 23 shows that most of the cues captured by the survey fall under the drama genre, followed by documentary then comedy then thriller. The dominance of drama could be explained by the composer 'not selecting the correct genre of the film'—for example, the film may have been a sci-fi drama or a family movie that had a lot of drama in it. Or perhaps the drama sequences within the film needed music and hence remembered most keenly by the screen composer.

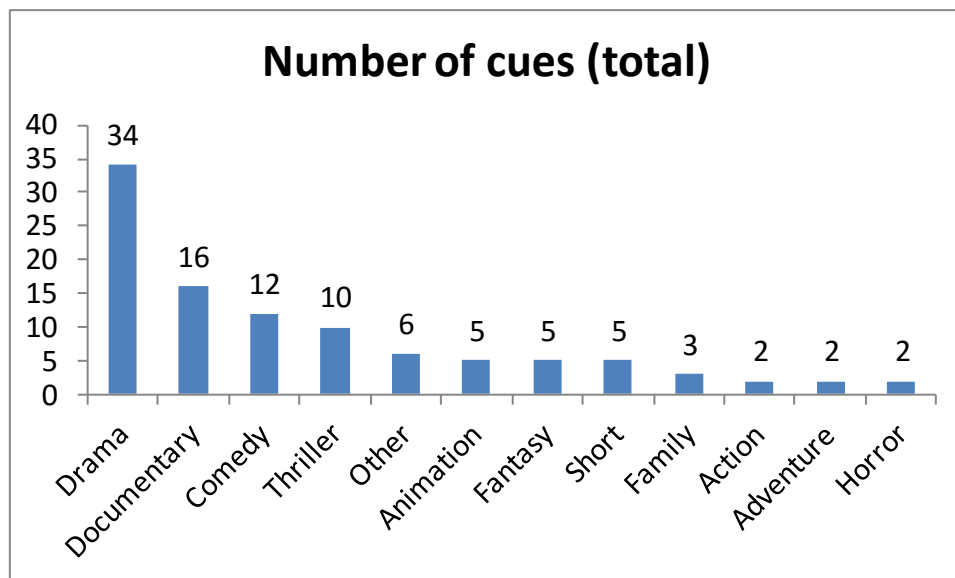


Figure 23: The total number of cues by genre.

Drilling down into the details of the cues via their instrumentation and genre reveals that virtual instruments were used for mostly for drama cues. Shown by Figure 24.

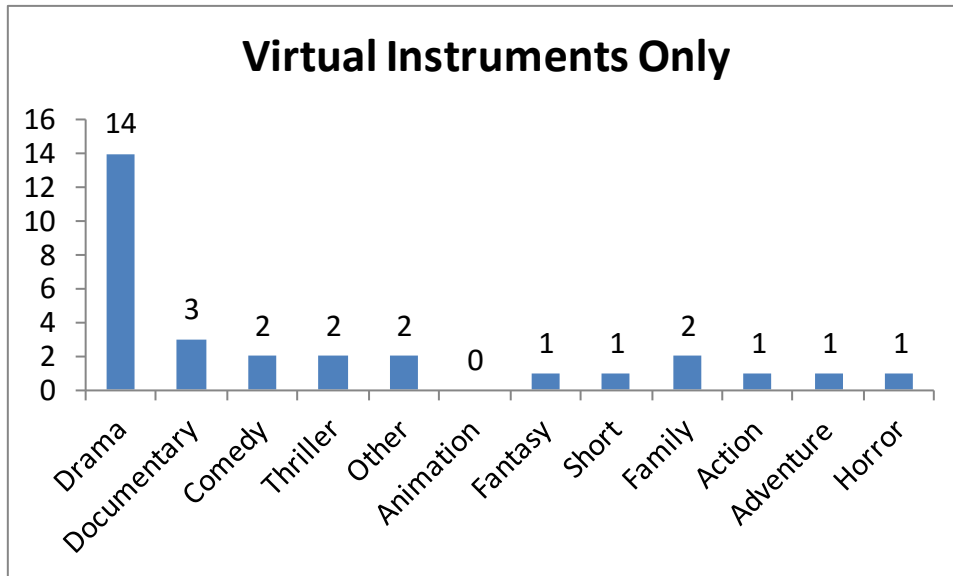


Figure 24: Number of cues by genre using virtual instruments only.

Isolating cues that were created via recordings only provides the data for Figure 25. Again drama genre cues record the highest number, followed by comedy and short films.

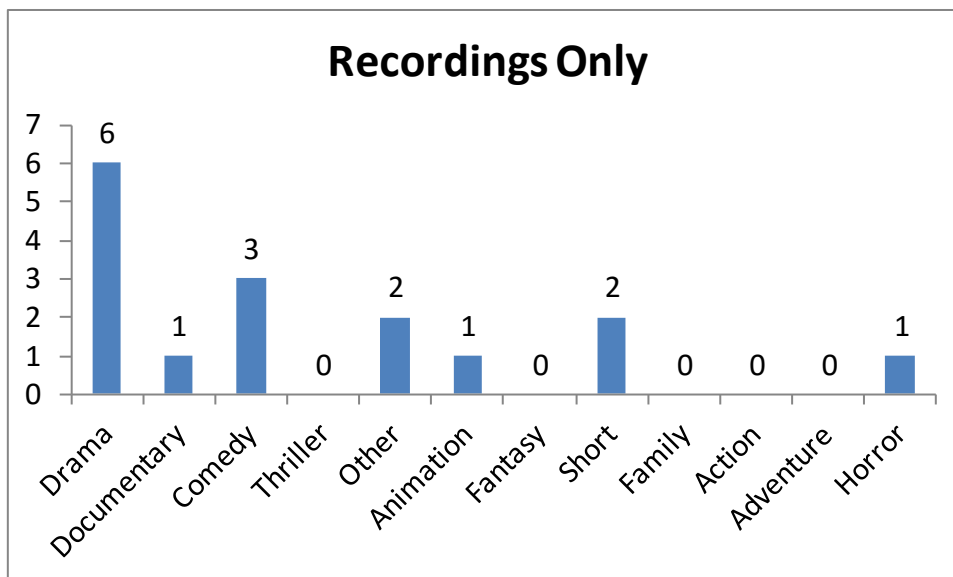


Figure 25: Number of cues by genre created using recordings.

Looking at cues created from a combination of virtual instruments and recorded performances there is much more diversity across genres, indicating that this method of creating cues is more successful across the board. Drama cues are closely followed by

cues identified as documentaries then thrillers. The mixing of a performance (either by the composer or from a paid professional) with virtual instruments provides the most successful distribution of cues across genres.

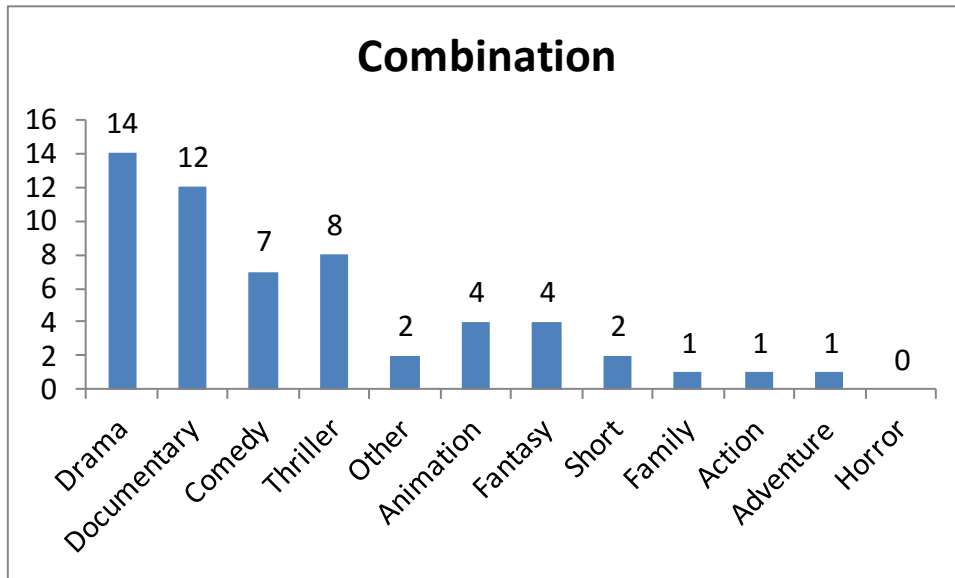


Figure 26: Number of cues by genre created by a combination of virtual instruments and recordings of performances.

5.1.11 Budget.

Here we investigate the impact of a budget on a cue as recorded by the survey. Overall 61 per cent of cues had a budget, 39 percent did not. This result alone is interesting but when we pull apart the data and expose budget's relationship with other parameters (like instrumentation) it becomes powerful.

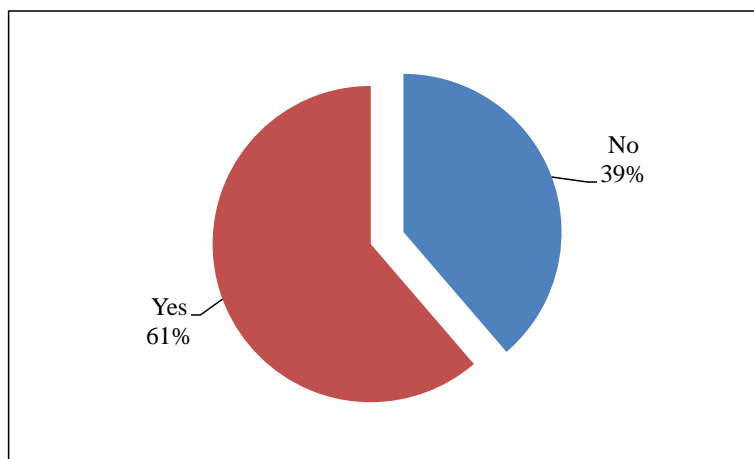


Figure 27: Results to the question: "Was there a budget for the cue?" (n=96)

5.1.12 Budget and instrumentation.

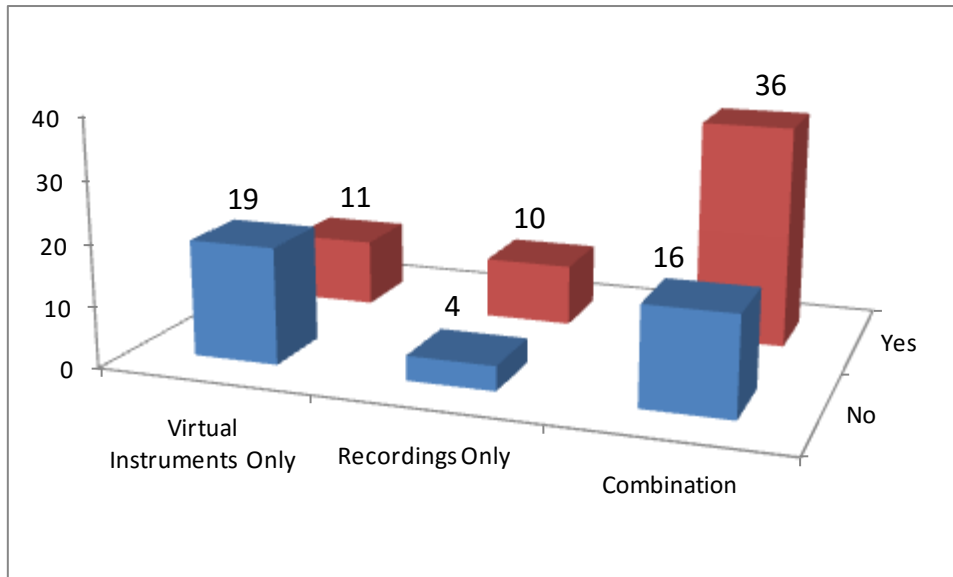


Figure 28: Budget and instrumentation split by budget (n=96).

This graph shows the impact of a budget on a cue split by instrumentation, note that the data displayed are actual number of cues. The results show that although a lack of budget does tend to result in the use of virtual instruments, nearly as many of the cues in this sample also included live performers. By contrast the results show that the majority of cues written with a budget used a combination approach, with virtual only and performance only roughly even.

5.2 Digital tools.

In this section I elaborate on the tools used by the screen composers to generate the cue they 'kept in mind' while completing the survey.

5.2.1 Digital sequencing software.

Digital sequencing software, otherwise known as Digital Audio Workstations (DAWs), is nothing short of a revolution in terms of handling music files and synchronizing them to video files. There is much to say about the capabilities of these extraordinary products including:

- Non-destructive live editing of cinema-grade music,
- Capacity of the programs to manage multiple complex tasks,
- Ability to synchronise music with specific 'hit-points' within the film with absolute precision,
- Time stretching of an audio recording without changing the pitch (reflected in the interviews, as an important/useful advancement of the technology),
- Sophisticated plug-ins that mimic real-world instruments and effects.

The look and feel of the top DAWs mimic the well-known layout of the recording studio, with tracks, slider bars and buttons. When viewed in another way, these tracks and slider bars are stacked one on top of another creating a multi-layered ensemble of instruments, effects and various automations. The design is very user-friendly as suggested by Norman (1988) in his seminal book *The Design of Everyday Things*. An instruction manual is not required in order to understand how basic things operate. Virtual instruments can be assigned to these tracks so in effect you may copy the traditional layout of a symphonic score, with piccolo at the top and contrabass at the bottom. One virtual instrument is stacked on top of another. All a screen composer needs to do is select the instrument he or she is interested in, select record and play away on a keyboard. The virtual instrument was manufactured/produced by carefully recording professional musicians playing their instruments in various ways at the most

sophisticated recording studios around the world—most are located in the United States, but others exist and thrive in Europe and Britain. I'm assuming that the computer and the DAW are connected to a musical keyboard. The information is encoded into MIDI and stored along that particular track. Other information is recorded as the screen composer plays, including, velocity and any other type of modulation—for example, digital information received from a MOD wheel or the sustain pedal of the keyboard. Track upon track is recorded and can be played back 'all at the same time' delivering a virtual performance that would have been impossible fifteen years ago.

From this description it sounds as though there are no limits to the power and abilities of a virtual instrument orchestra. There are limits and the most common one is computing power, memory or space on your computer because sophisticated virtual instruments have very large file sizes. Another limiting factor is the financial cost of quality virtual instruments that will do justice to the music written. This factor, however, has recently been overcome with various international virtual instrument companies vying for market share and the hearts and minds of screen composers. They have achieved this by fierce competition on the price of the virtual instruments, access to regular updates and accessories.

DAWs have also been in a vigorous market-share war seeking to capture screen composers and entice them to use their particular DAW platform. A classic example is between the two largest market shareholders here in Australia, ProTools and LogicPro. Both of these DAWs are powerful digital programs that synchronise music with film. This is the important point: the DAW needs to be able to adhere to the pressure of changing and advancing international standards. DAWs need be state of the art, be able to handle various frame-per-second rates; they also need to slot-in with the other

members of the film-team, like the sound designer, the foley expert and of course the editor.

In reference to the results of the survey of Australian screen composers, most of them primarily used LogicPro in the creation of the cue I asked them to remember. This information would be invaluable to the marketing departments of Apple and AVID (the parent companies of Logic Pro and ProTools respectively) as it would show them some evidence on what DAWs screen composers are actually using.

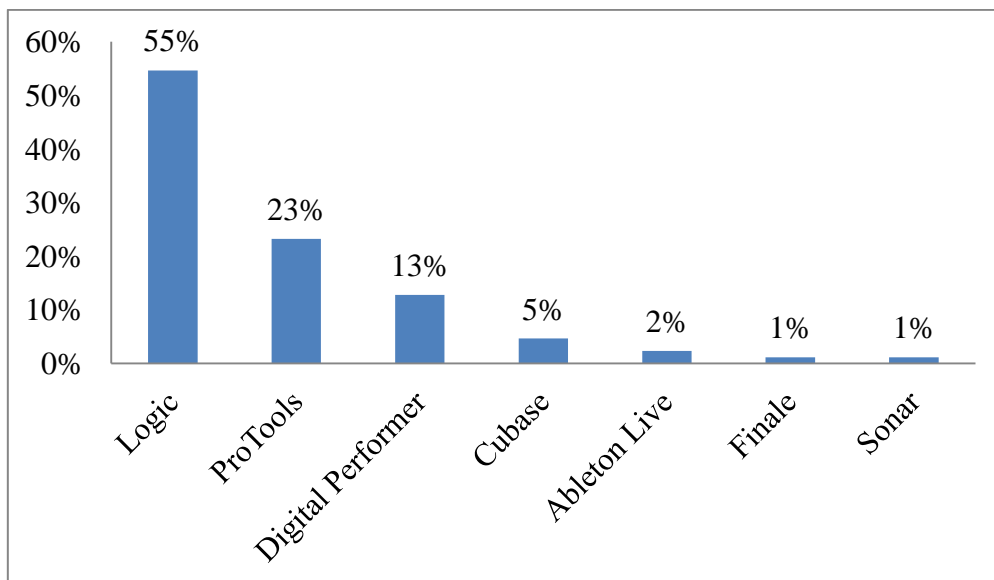


Figure 29: In answer to the question "What is the primary digital sequencing software programme you used to create the cue?"

I mentioned that these results show the primary DAW used in the creation on the cue I asked the screen composers to remember; what about other tools or DAWs ? The figure below (Figure 30) shows the secondary DAW they used (if any) to produce the cue. As we can see, most screen composers did not use another DAW—suggesting that the cue itself was created and finished in the primary DAW. By the same token, fifteen cues were somehow imported into ProTools for the next stage of their creation. This is a

curious fact which plays to the strengths of ProTools and its seamless connections with physical mixing boards and, importantly, export ability to the digital notation program Sibelius.

The sixty-nine cues that did not have a secondary DAW suggests to me that the cue was composed, mastered and finalised in the primary DAW. It also suggests to me that no professionally recorded live audio was involved in the creation of the cue because ProTools is the leading platform for professional recording studios as it has integrated itself into every professional recording studio that I have seen.⁴² I refer to professional recordings that involve a recording studio, a recording studio engineer, copyists and perhaps an orchestra or large ensemble.⁴³ It is entirely possible for a home studio system to record live audio tracks using LogicPro.

This data suggests to me that the actual or real number of cues that I asked screen composers to remember that were exclusively created by virtual instruments is somewhat closer to 55% rather than 29%.

⁴² That is not to say that there are professional Apple recording studios in Australia; it is just that I have never seen one—ProTools and AVID have the advantage here. I know that some studios use the Fairlight mixing desk.

⁴³ Like 'Trackdown' or 'Studio 131'.

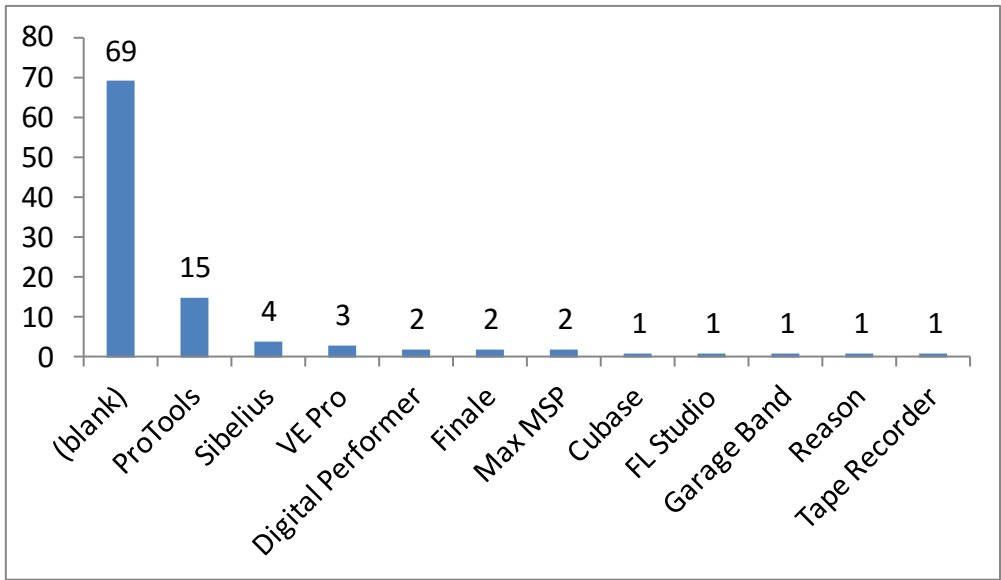


Figure 30: Secondary digital sequencing software used to create the cue (n=102).

5.2.2 Digital Notation Software.

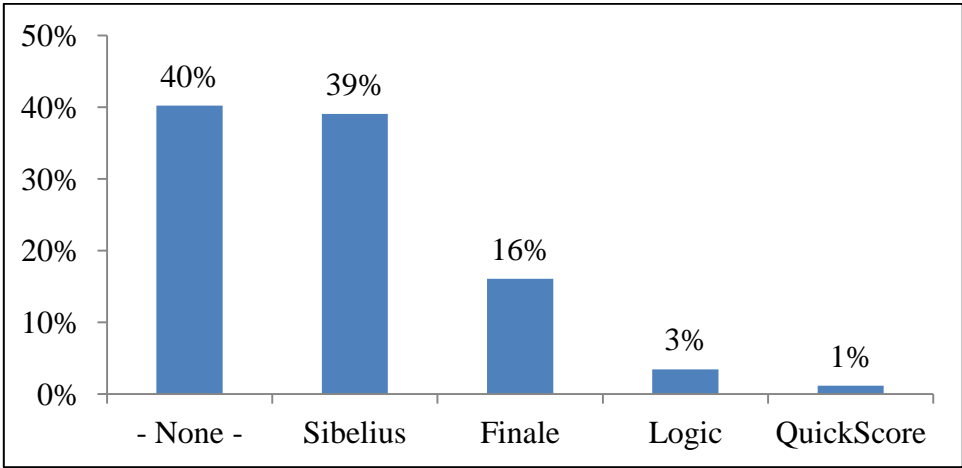


Figure 31: Primary digital notation software used for the creation of parts for an orchestra or ensemble to play the cue (there was no secondary option for this chart).

The use of digital notation software indicates that the cue is going to be performed by an ensemble or performer as they need to read the notated music. The results shown in Figure 31 show that Sibelius is the leading notation software tool at the time of this survey. Leading the results with a figure of 40% is 'none'—this indicates to me that a notation program was not needed for the cue to be finalised, meaning that the cue was

created using virtual instruments only. Again, this result differs from the question that specifically asks about the instrumentation of the cue the screen composer had in mind⁴⁴. This difference in results between questions signals to me that perhaps the respondent is being cautious about revealing just how many cues they are creating using exclusively virtual instruments⁴⁵. Alternatively, these results may indicate that other non-digital tools were used and a performer was involved. It is possible that the screen composer could have handwritten some sort of musical instructions for the performer—or simply had a 'jam session' in order to create the cue.

5.2.3 Self-rating of competency on digital tools.

Via the survey each screen composer was asked to rate how competent they think they are at the tools they are using. I seek the answer to the question "How well do you think you know your tools and their functionalities, and can you utilise them to their greatest purpose?" Figure 32 indicates that 83% of the screen composers who answered this question ($n=88$) considered themselves highly competent⁴⁶ at using their digital tools in general—I consider this a high result, compared to the other end of the scale where there were no respondents who indicated that they were 'one out of five' on an equal point scale of their digital competency. Clearly, digital tools are designed to be user friendly.

⁴⁴ Only 29% of respondents indicated that their cue was created using virtual instruments only.

⁴⁵ This may also indicate that there is a stigma about the use of virtual instruments.

⁴⁶ If I take 41% from the response score of four and add it to the 42% response score of five.

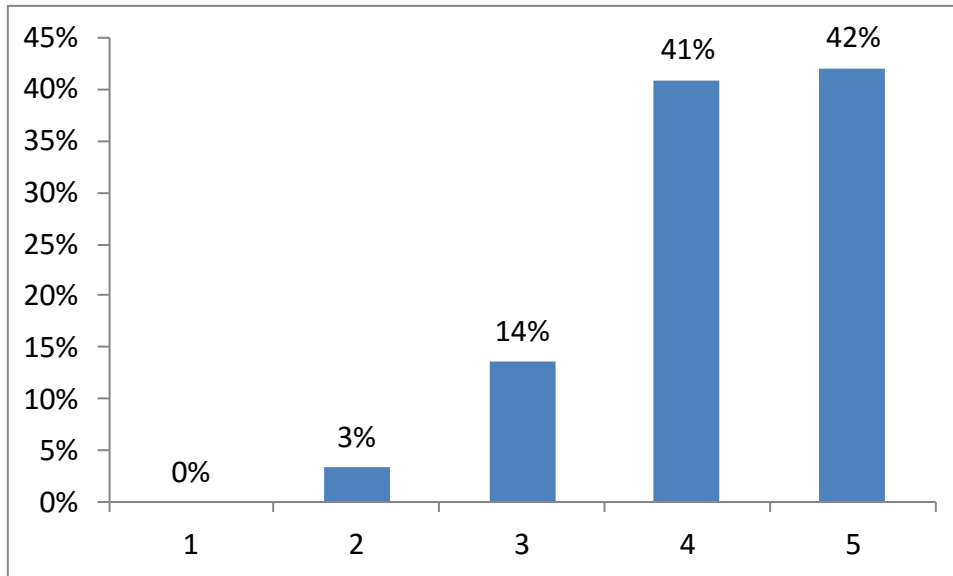


Figure 32: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how do you rate your competency with your digital tools?" ($n=88$).

This result speaks volumes about the population and how screen composers operate.

With such a high response rate to that question comes a question, that I think cuts straight to the core of one of the key issues here—digital compliance and the willingness to comply with industry standards. Compliance with industry standards means that you are a serious screen composer able to produce results that adhere with the strict and ever-specific specifications laid out by producers and directors. In a nutshell, if you can operate your digital tools to a high standard than you are able to interact with the complex screen-music industry—if you cannot, then you probably don't stand a chance of surviving as a viable screen composer—or you are famous enough to employ staff that will do much of the manual labour for you.

5.2.4 Satisfaction with your virtual instruments.

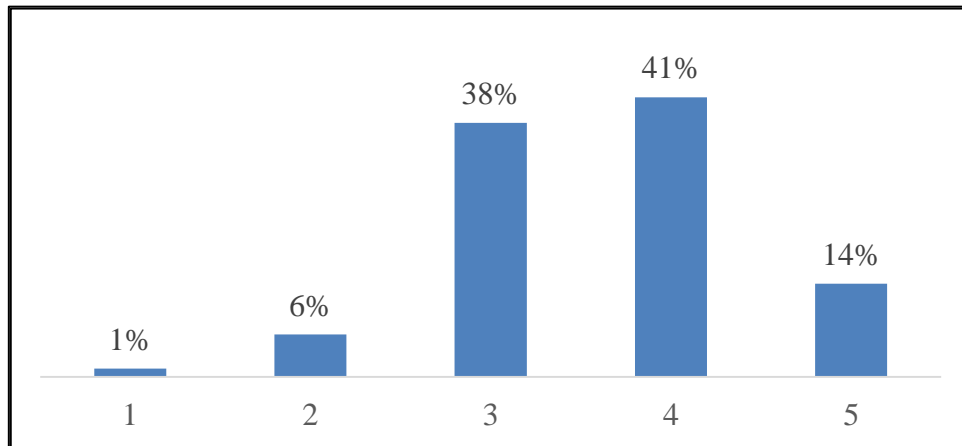


Figure 33: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how do you rate your satisfaction with your virtual instruments?" ($n=80$).

This is an important graph. When considered in conjunction with the previous question about competency, it shows that most respondents are satisfied (with the greatest score being 4 out of 5), but there was always room for improvement. 14% of respondents were completely satisfied with the virtual instruments they had at their disposal—less than half of the result who selected the mid-point result of 38%. These are key indicators as I found that in speaking to screen composers about their work I was really speaking to them about their virtual instruments and how good the virtual instruments are and how well they could operate them.

5.2.5 Satisfaction with your digital audio workstation.

In regard to the specific question about DAWs, the industry standard for screen music composition, the following answers come into sharp focus and would be a great marketing asset to virtual instrument merchants who would like to gain some insight on their opposition.

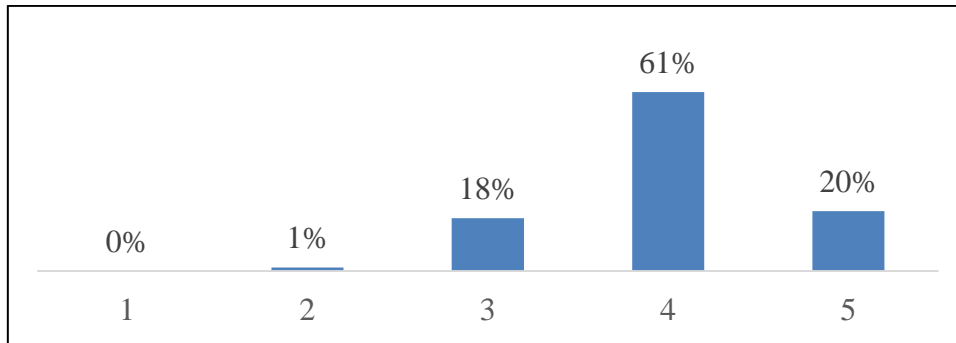


Figure 34: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how do you rate your satisfaction with your primary digital sequencing software?" ($n=84$).

From the results, most respondents suggest that the software could be one step better⁴⁷. I think this is also an important result as screen composers may not feel as though they are realising their entire musical vision.⁴⁸ On the other hand it may be a reflection of how well the screen composers know their software. Do they know just enough to get by? Or are they experts on the tools that provide them with their income.

5.2.6 Satisfaction of digital notation software.

Different from the DAWs that we have been investigating, Digital Notation Software converts MIDI information into traditional notation for performers to read and play from. These notation programs are ingenious and are really the 'missing link' between music played and composed on a computer versus music played by a real person.

⁴⁷ Note that no one indicated they rated themselves as '1' on the self-rating scale.

⁴⁸ This information would be of great use to manufacturers of Digital Sequencing Software (like Avid and Apple).

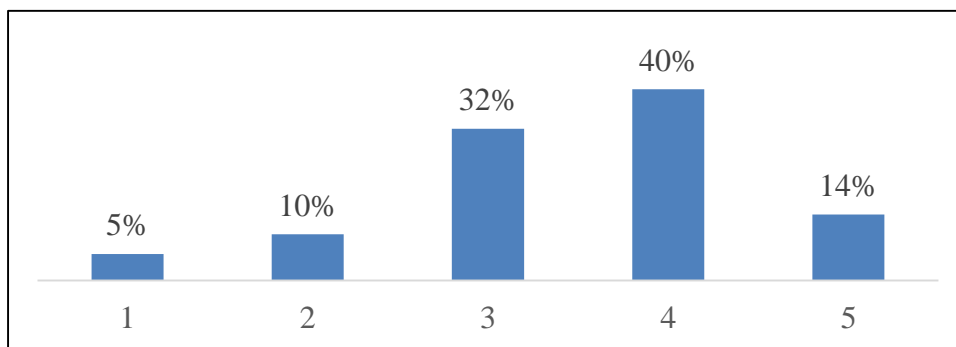


Figure 35: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how do you rate your satisfaction with your digital notation software?" ($n=73$).

This graph, Figure 35, has a similar shape to the previous question about DAWs. This shape naturally tells me that the manufacturer is doing a good job and screen composers are getting results from their software; however, the software is not perfect, and not everyone has chosen five out of five. Interestingly, there is more dissatisfaction, with 15% indicating a one or two on the equally spaced scale. This result indicates to me that there is a large portion of clients who use this software but do not like using it. Interestingly, there were also fewer respondents to this question than previous questions.

5.2.7 Satisfaction and your musical vision.

Another dataset valuable to merchants of virtual instruments and DAWs concerns how well their products reflect the screen composers' musical vision.

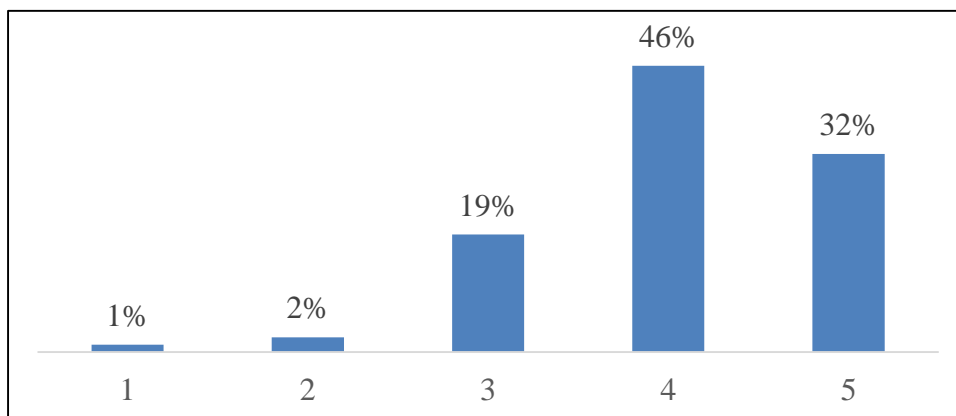


Figure 36: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how satisfied are you that your tools reflect your musical vision?" ($n=85$).

This question is broader and is not specifically aimed at the cue in question. Even if it were, the results show a resounding satisfaction with the tools at the screen composers' disposal. This is also reflected in the higher response rate of $n=85$ for this question—it indicates to me that the respondents have a strong opinion about this particular question and would like to have their thoughts and responses listened to.

5.2.8 Favourites and customisation.

Via the survey I asked respondents if they had a preset template or a group of favourites that they regularly work from. This is especially important when working for television as there are often short turn-arounds for the work needed. These results indicate that there is a resounding trend in the use of favourite groups—within all instrumental categories. When looking at Figure 37 it is clear that no matter what instrumental group you belong to, the screen composers have a group of favourites and they work from it. This is an important result when considering the research questions and the aims of this thesis.

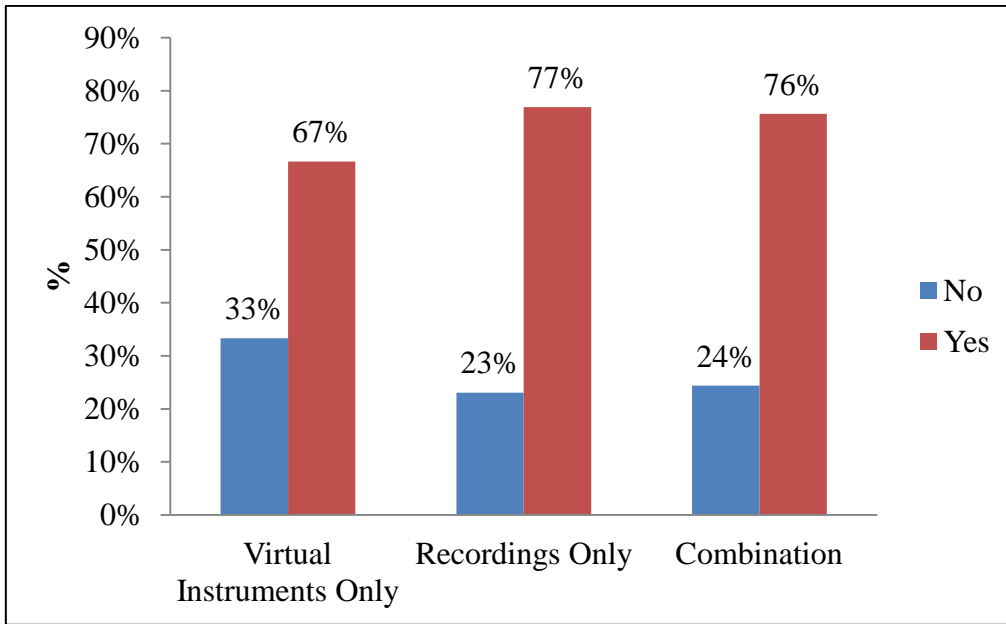


Figure 37: In response to the question "Do you work from a group of favourites?" (n=84).

Further exploring this topic, I asked about virtual instrument customisation. 35% of respondents were very clear, indicating that they do customise the virtual tools. A resounding 36% fell into the middle category, indicating one of two things: one, they are genuinely half-way on the 5-point scale or; two, they are 'sitting on the fence' and just selecting the middle value in the survey.

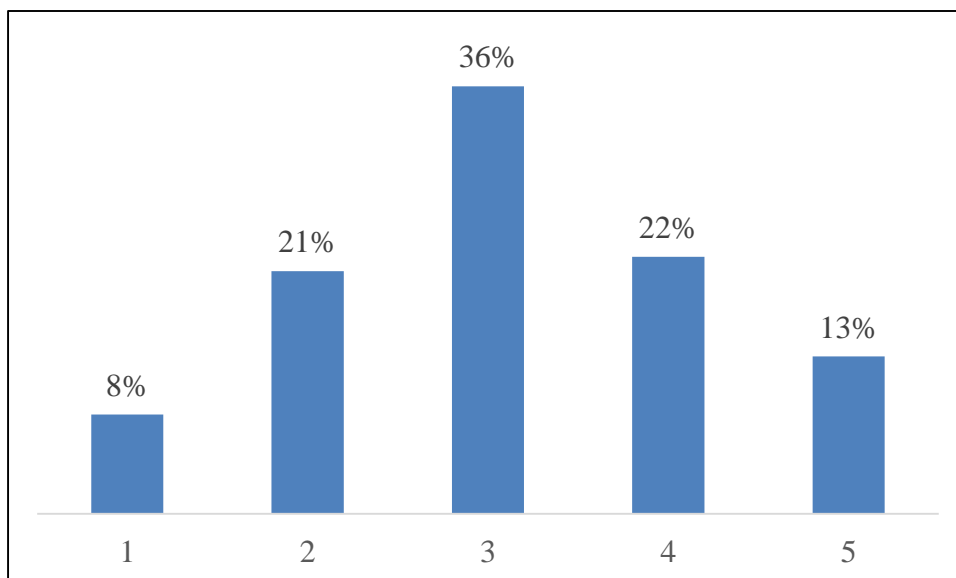


Figure 38: In response to the question "On an equal scale from one to five where one is the lowest and five is the greatest, how much do you customise your virtual instruments?" ($n=83$).

In Figure 39 I have excluded the instrumental category of real performers and focused on cues written for 'virtual instruments only' and those classified as a 'combination' of the two. Understanding this graph is important: the higher the rank (number selected) the more customisation the cue has. Apart from the five out of five score, each of the other scores experience customisation. Furthermore, those customisations were greater for virtual instrument cues. The highest score (five out of five) indicates that there was more customisation for those cues classified as combination, leading to the conclusion that those cues with a high amount of customisation were more likely to be cues written for a combination of virtual instruments and real performers.

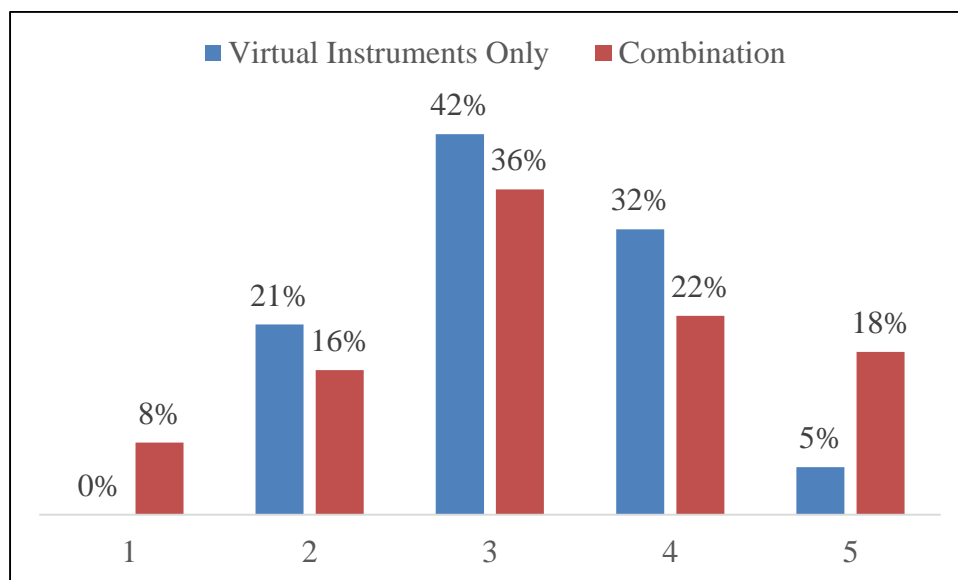


Figure 39: Customisation by instrumentation—those cues with a high level of customisation were more likely to be a combination of virtual and real performers.

5.2.9 Instrumental evasion.

Following on from the notion of favourites and templates, I assert there are certain instruments that screen composers avoid. The reasons for doing so will be elaborated upon in the results from the qualitative interviews.

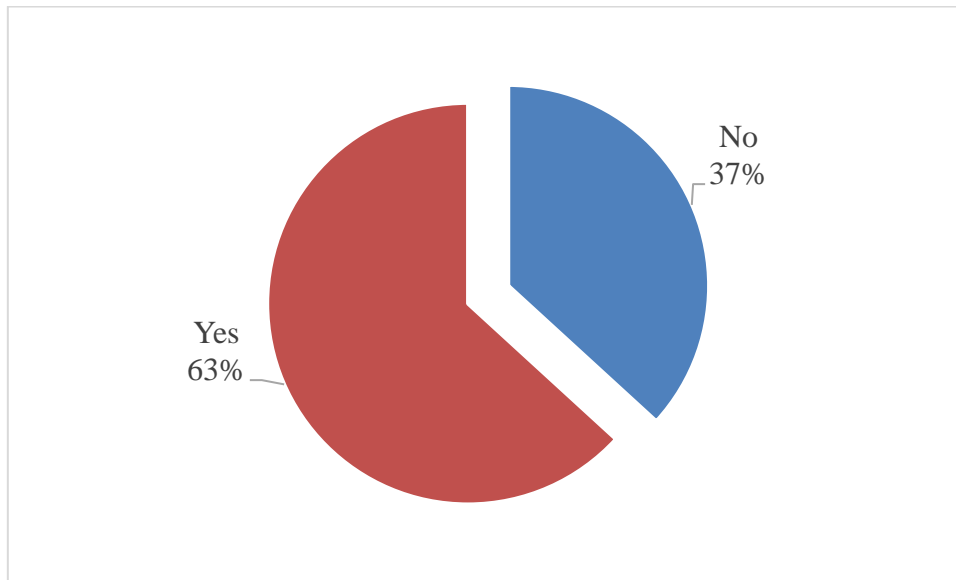


Figure 40: In response to the question "Are there certain instruments you avoid?"(n=95).

The strong response to this question with $n=95$ shows that this is a topic that screen composers want to explore and talk about—something they have a strong opinion on. This comes down to the fundamental reason a screen composer chooses a virtual instrument and that is to create a faithful reproduction of the original instrument—the virtual instrument has to sound good. From the results of the survey there was a clear indication that instruments of the woodwind family were being excluded from cues because they do not sound as good as other members of the virtual orchestra. This notion links in with the theme of template building and the current trend of preferencing brass, ostinato strings and heavy percussion which will be explored in the qualitative results below.

5.3 Influence of other film-team members.

Rarely do screen composers work without feedback from others in their teams. However, they may work alone isolated in their studios. This series of questions investigated who had the most influence over the screen-composers' decisions about the cue. The results here are split by the various film-team members with the results ranging from one to five, with one being the lowest amount of influence and five being the greatest amount of influence on the cue. The results here give us a clear indication of who has the greatest influence over the decisions made by the screen composer—the director followed by the producer.

5.3.1 Director.

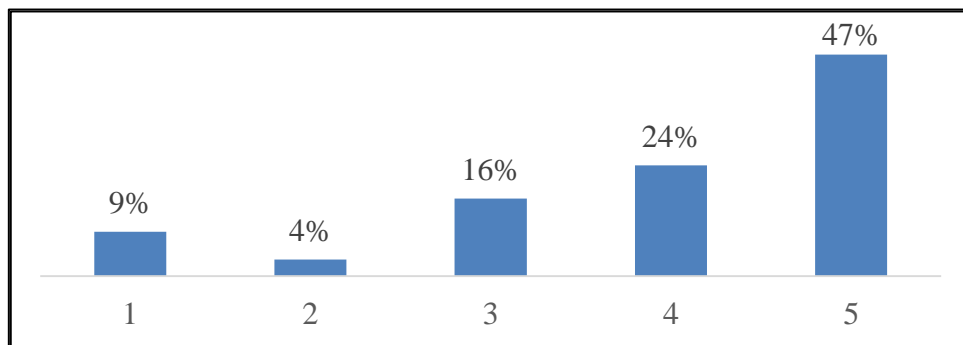


Figure 41: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate the influence the director had on the creation on the cue".

5.3.2 Editor.

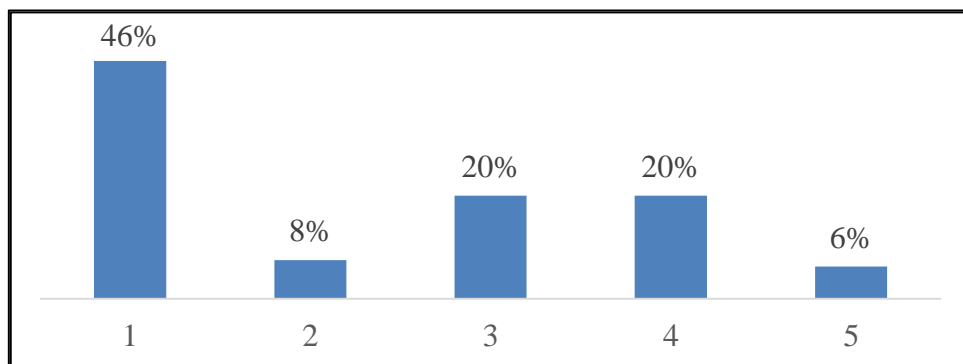


Figure 42: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate the influence the editor had on the creation of the cue".

5.3.3 Producer.

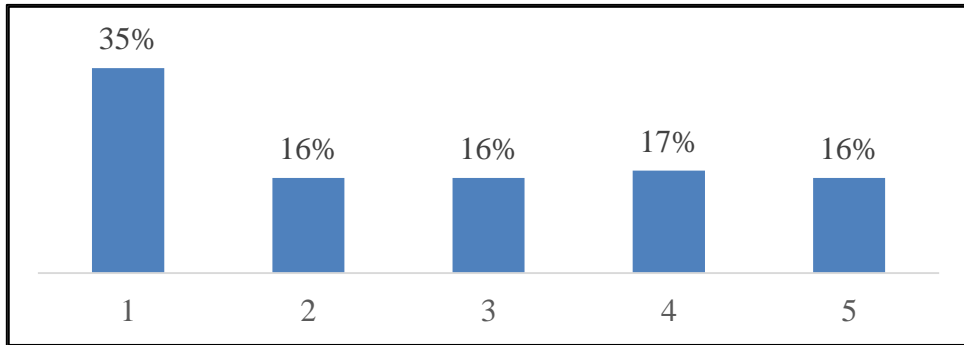


Figure 43: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate the influence the producer had on the creation on the cue".

5.3.4 Music Supervisor.

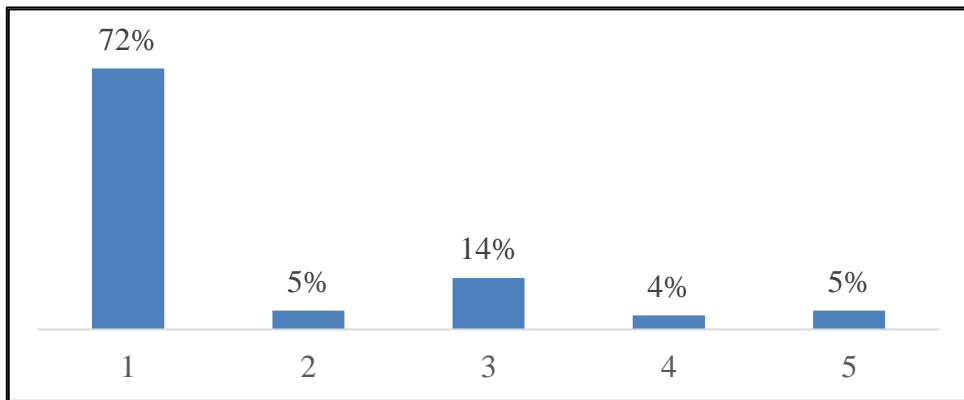


Figure 44: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate the influence the music supervisor (if applicable) had on the creation on the cue".

5.3.5 Other team members.

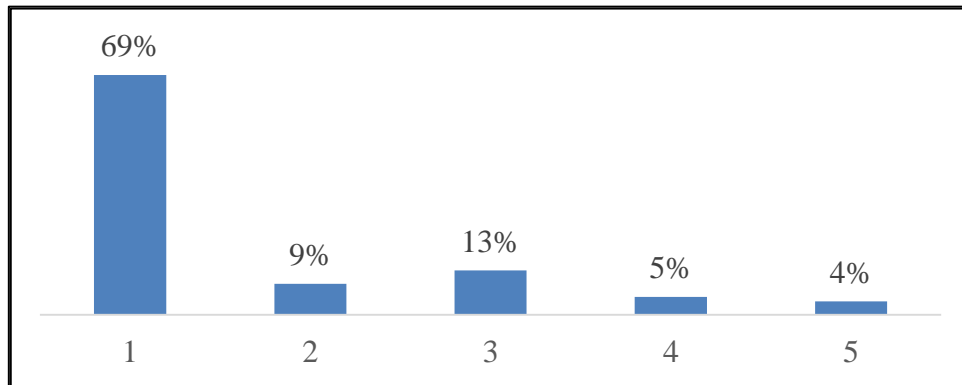


Figure 45: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate the other film-team members had on the on the creation on the cue".

Clearly from these results, the director has the most influence on the creation and nature of the cue. This is a surprising result, for in a connected online world I expected the influence of the other team members to be higher. However, I am not surprised to see that the editor has considerable say in the matter—editors are the under-rated linchpins for many successful movies such as *Star Wars* (1977) and *Koyaanisqatsi* (1982).

5.4 Screen composer satisfaction.

This survey was an opportunity for me to gauge the general job satisfaction of Australian screen composers and to see if this had changed over time. To do this, I asked two questions: first, 'please rate your satisfaction with your musical outcomes when you first started writing music for the screen'; second, 'please rate your satisfaction with your musical outcomes now'. The following results are shown initially as a total; the responses are then broken down into the three instrumentation groups described earlier. It is revealing to see how the instrumentation mix has changed between then and now.

5.4.1 Satisfaction 'then'.

Only 12 per cent of all respondents considered personal satisfaction with their musical outcomes as being five-out-of-five, with 18 per cent rating their response as the lowest. It is important to note here that each respondent's 'then' numerical figure is different and depends on their experience in the industry. For some screen composers, 'then' may have been thirty years ago, for others it may have been just ten years ago.

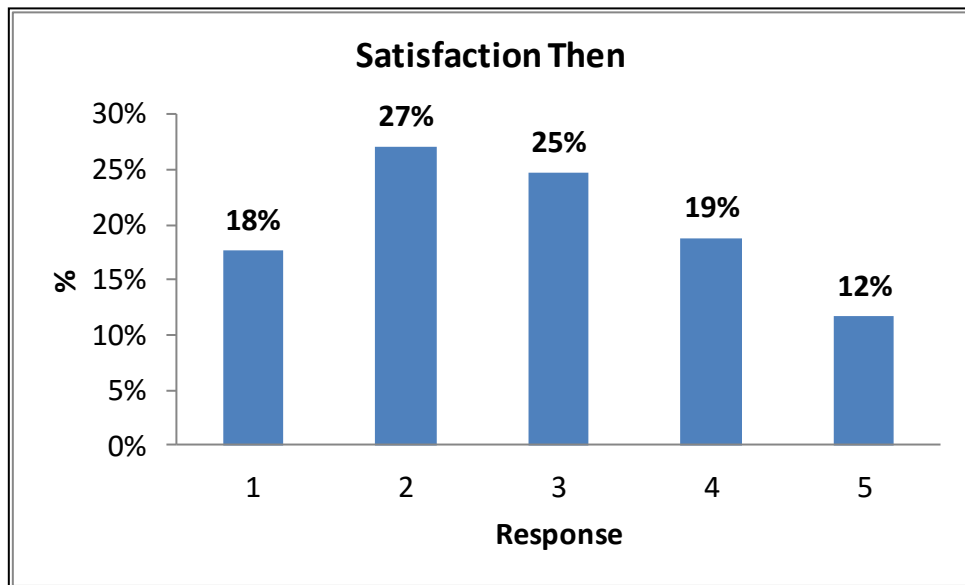


Figure 46: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate your satisfaction with your musical outcomes when you first started writing music for the screen" ($n=85$).

Looking closely at the data, Figure 47 shows a greater concentration of virtual instrument-only cues towards the bottom end of the scale (ones and twos out of five).

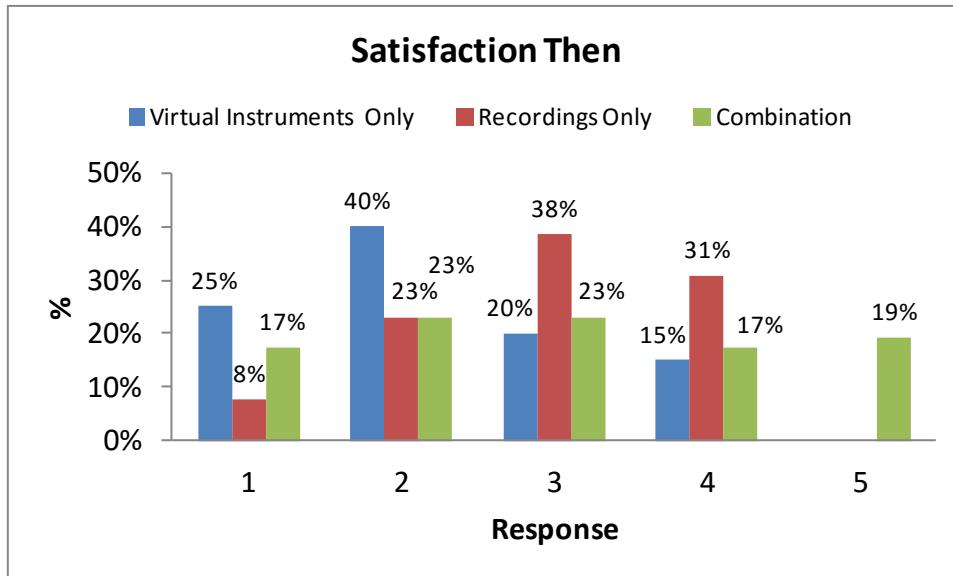


Figure 47: Instrumental breakdown showing virtual instrument cues were less than satisfactory in the past compared to recordings only and a combination of the two ($n=85$).

5.4.2 Satisfaction 'now'.

When comparing the differences between 'then' and 'now', the change is remarkable.

Only one per cent of respondents rated themselves at the lowest possible score, while fifty-five per cent of respondents considered personal satisfaction with their musical outcomes as being four-out-of-five.

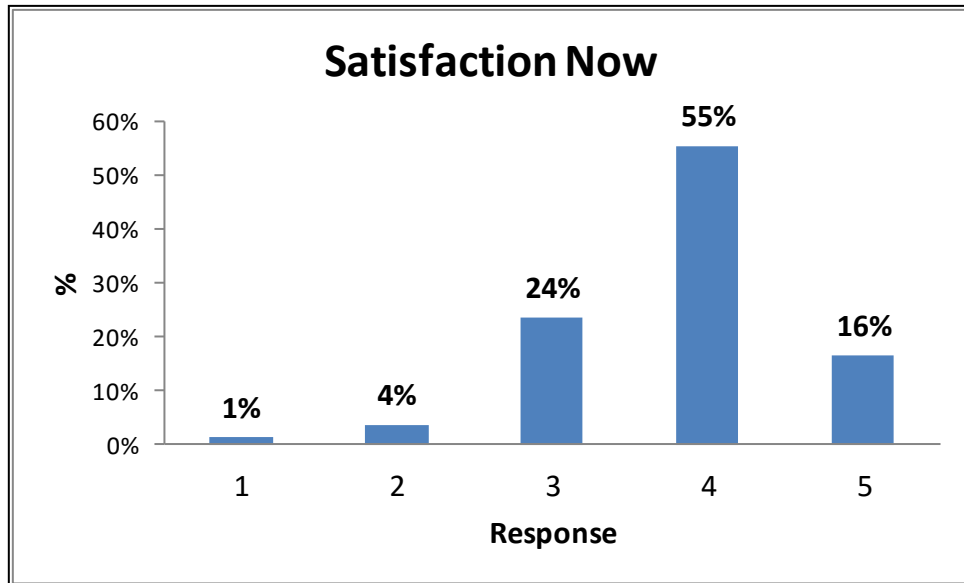


Figure 48: In answer to the survey question "On an equal scale with 1 being the lowest and 5 being the highest, please rate your satisfaction with your musical outcomes now" (n=85).

Looking closely at the data, Figure 49 shows a greater concentration of virtual instrument-only cues towards the top end of the scale (3s and 4s out of 5). From these data, it is reasonable to suggest that virtual only cues may have a considerable effect on the current ('now') satisfaction of Australian screen composers.⁴⁹

⁴⁹ Granted that virtual instruments are only one part of the lives of screen composers, there could be many other elements that count toward the higher score of 'satisfaction now'. Investigating those other elements is a topic for another thesis.

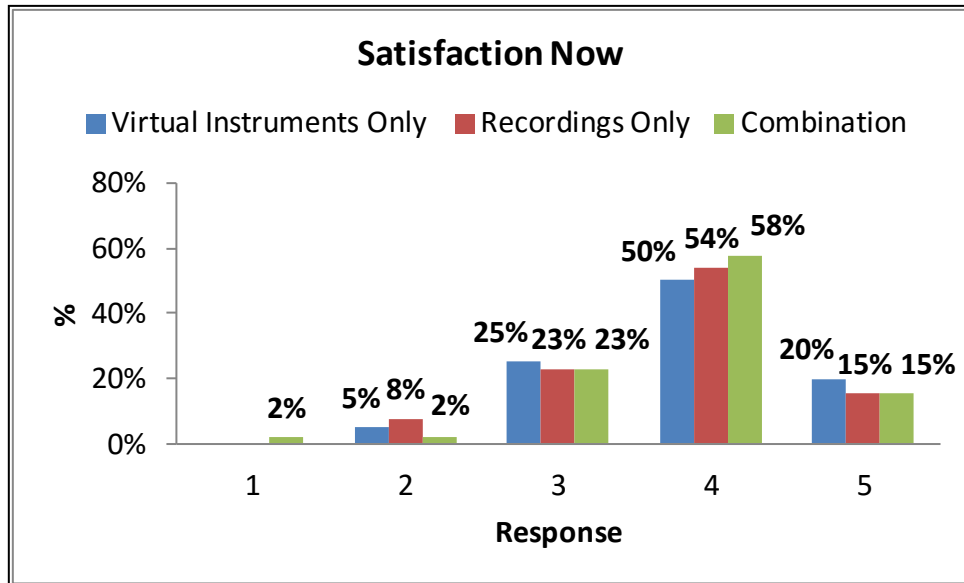


Figure 49: Instrumental breakdown showing the movement of virtual instrument-only cues from a maximum of two to a maximum of four-out-of-five ($n=85$).

5.5 Inferential statistics.

Inferential statistics enable deeper investigation into the elements of relationships between measured data. This is a step further than summary statistics and takes a more involved look at the relationships between measured parameters; it is made possible with the assistance of SPSS, a statistical package from IBM.

5.5.1 Pearson's correlation and Spearman's rank correlations.

I will begin the discussion of inferential statistics by referring to Pearson's and Spearman's rank correlations. These are defined as follows:

If each observation consists of a pair of measurements (x_i, y_i) , then the main objective is to investigate the relationship between x and y . Consider, for example, the case where both variables are quantitative. The data can then be displayed in a scatter-plot (y verses x) (Beran, 2004, pp. 37–40).

Other useful statistics include Pearson's sample correlation:

$$r = \frac{1}{n} \sum_{i=1}^n \left(\frac{x_i - \bar{x}}{s_x} \right) \left(\frac{y_i - \bar{y}}{s_y} \right) = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Where $s_x^2 = n^{-1} \sum_{i=1}^n (x_i - \bar{x})^2$ and $s_y^2 = n^{-1} \sum_{i=1}^n (y_i - \bar{y})^2$, and Spearman's rank correlation:

$$r_{sp} = \frac{1}{n} \sum_{i=1}^n \left(\frac{u_i - \bar{u}}{s_u} \right) \left(\frac{v_i - \bar{v}}{s_v} \right) = \frac{\sum_{i=1}^n (u_i - \bar{u})(v_i - \bar{v})}{\sqrt{\sum_{i=1}^n (u_i - \bar{u})^2 \sum_{i=1}^n (v_i - \bar{v})^2}}$$

In both of the above equations, it is assumed that s_x , s_y , s_u and s_v are not zero.

Where u_i denotes the rank of x_i among the x-values and v_i is the rank of the y_i among the y-values.

Spearman's rho correlation coefficient in this scenario is exceptionally practical and will be the statistical process/method for investigating relationships between non-parametric parameters like these in this study.

Known as ρ (rho) or r_s , this is a non-parametric measure of statistical dependence between two variables—in this case those variables are taken direct from the survey. No alteration or transformation of the data has been performed in a statistical sense; this means that no normalisation or alteration of the data has taken place in any way.

Applying Spearman's rho correlation coefficient to the survey variables reveals significant relationships between ten of the questions asked in the survey. This is a satisfying result in one way; however, in another it reveals the true essence of empirical research, as many other relationships that I expected (via my own bias) to show a significant relationship did not correlate. This has informed the direction of the research and holds the researcher true, as the numbers 'tell the story' for themselves. Significant relationships between the answers to the question '*as a screen composer, please*

describe your satisfaction now?⁵⁰ and the following questions generated statistically significant results:

- 'How do you rate your satisfaction of your Digital Notation Software?'
- 'How well do the digital resources reflect your musical vision?'
- 'How do you rate your satisfaction with your virtual instruments?'

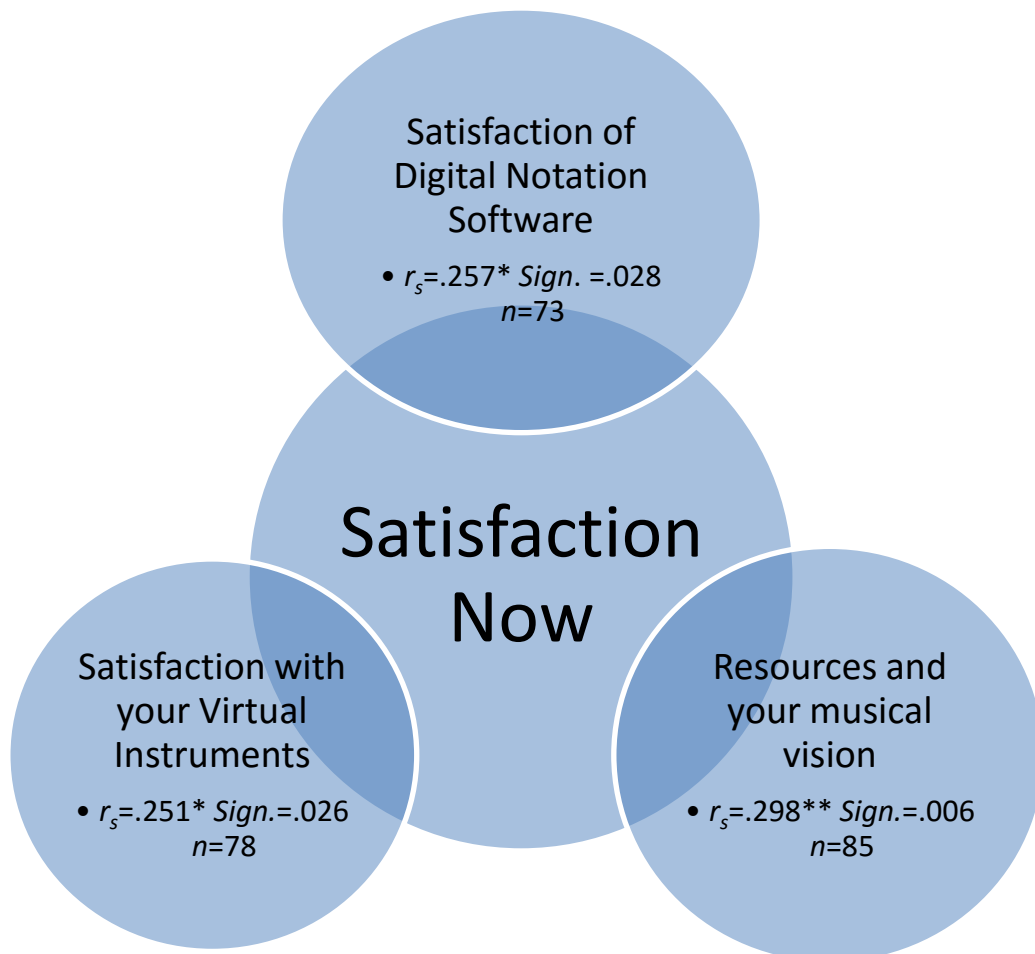


Figure 50: The significant relationships that influence 'satisfaction now'⁵¹.

This means that strong statistical correlations exist between the above parameters.

Explained in another way, a change in one parameter (one answer) means a

⁵⁰ Via the consistently used equal spaced Likert scale.

⁵¹ Sign = Sig. (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

corresponding change in the other (another answer), and that change can be explained by the statistical model.

Having statistically significant results does not mean much if they cannot be explained in 'real-life' terms. As such, using the above example, greater satisfaction with a screen composer's digital notation software (like Sibelius or Finale) leads to a greater overall screen composer satisfaction. I can be confident in this result due to the statistical significance level of 0.05.⁵² Generally, these statistical results are not high; however, they are significant.

Displaying an even greater correlation is the highlighted parameter of a screen composer's resources and her or his musical vision; greater satisfaction for 'now' is achieved when the screen composer has the resources to realise her or his musical vision. With a statistical significance level of 0.01, this can be stated confidently—in other words, such a relationship would not otherwise happen 1 in 100 times in situations where there is no relationship at all. Referring back to this thesis's hypothesis—that virtual instruments are in some way influencing the characteristics of written scores—I suggest this is the correct course of investigation, given such relevant and statistically significant results.

Looking at all the correlations with statistically significant results (ten in total), and then focusing on the results that help answer my research questions and the aims of this thesis, six correlations have emerged. These are shown in Table 3. Here, I elaborate on each of these parameters and why they are important.

a) Satisfaction of digital sequencing software.

⁵² 0.05 level means that this correlation is only likely to occur naturally five times in 100, in situations where there is no real relationship at all: 0.01 means that the correlation is only likely to occur once in a 100 times in situations where there is no real relationship at all.

- *Satisfaction with your virtual instruments.* This result is unsurprising and the variances accord with each other. Being satisfied with your virtual instruments complements the utility of the Digital Audio Workstation (DAW), helping to realise the screen composer's vision.

- *Is the intention for the music to be played by human performers?* If you are satisfied with your DAW, then the likelihood that a cue is intended for human performance is significantly reduced, due to the strong negative correlation.

- *Resources and your musical vision.* Satisfaction with a screen composer's DAW lends itself to being used to its fullest capacity—so much so that the composer's vision is realised.⁵³ This is shown by the significant correlation data.

- *Self-rating of digital tool functionality.* Satisfaction with a screen composer's DAW is correlated significantly with their own self-rating of the tool. Screen composers are convinced they are getting the best from their tools.

b) Satisfaction now.

- *Resources and your musical vision.* Seeing a screen composer's musical vision being fulfilled correlates with a screen composer's satisfaction now.

- *Satisfaction of digital notation software.* Greater satisfaction with notation software leads to a better self-rating by screen composers in the 'satisfaction now' parameter.

- *Satisfaction with your virtual instruments.* Being a satisfied screen composer is significantly correlated with your satisfaction with your virtual instruments.

c) Experience.

⁵³ I assume here that full realisation of a screen composer's work requires full capacity with the DAW.

- *Music budget?* Experience correlates significantly with music budget. This makes sense, since more experienced composers get paid for their work. This is reflected and strengthened by the results shown in Figure 28.

d) Music budget?

- *Days equivalent.*⁵⁴ Budget and the number of days given to complete a cue correlate significantly—this makes sense, as deadlines and experience accompany cues that have budgets attached to them.

e) Self-rating of digital tool functionality.

- *Virtual instrument customisation.* These parameters go hand-in-hand. The more that you know about customisation of virtual instruments, the greater your own self-rating of your digital tool functionality is.

- *Intention for the music to be played by human performers.* If you know how to make the best use your digital tools, then the chance of the cue being played by humans is significantly reduced. This is supported by the negative correlation coefficient. This is important because it is a significantly negatively correlated pair of parameters providing us with the insight that this music was not intended to be played by humans.

f) Virtual instrument customisation.

- *Did you work from a group of favourites?* If you customise your virtual instruments then you are less likely to work form a group of favourites. This too is an important result as its negatively correlated, providing us with the insight that those that customise do not work from a group of favourites.

⁵⁴ This parameter is defined as the answer to the question "Approximately, how many days were you given to complete the cue?" The answer to this question was turned into a number and renamed 'days equivalent'.

For a full and comprehensive list of the correlation coefficients and the parameters of the survey, please see the details in Appendix D. I have deliberately focused on these parameters as I believe they have the most bearing on answering the research questions. Table 3 shows all the significant relationships and the strength of that relationship between the parameters of the survey. In Table 3, some areas are coloured red and some are coloured green. The red colour indicates that the correlation coefficient is significant at the 0.01 level. The green colour indicates that the correlation coefficient is significant at the 0.05 level.

Table 3: Statistically significant non-parametric correlations that help answer the research questions of this thesis.

a) Satisfaction of Digital Sequencing Software			
	Correlation Coefficient	Sig. (2-tailed)	N
Satisfaction with your Virtual Instruments	.547**	.000	78
Intend for the music to be played by human performers ?	-.325**	.003	84
Resources and your musical vision	.273*	.012	84
Self Rating of digital tool functionality	.278*	.011	83
b) Satisfaction now			
	Correlation Coefficient	Sig. (2-tailed)	N
Resources and your musical vision	.298**	.006	85
Satisfaction of Digital Notation Software	.257*	.028	73
Satisfaction with your Virtual Instruments	.251*	.026	78
c) Experience			
	Correlation Coefficient	Sig. (2-tailed)	N
Music budget ?	.280**	.007	93
d) Music budget ?			
	Correlation Coefficient	Sig. (2-tailed)	N
Days Equiv	.222*	.038	88
e) Self Rating of digital tool functionality			
	Correlation Coefficient	Sig. (2-tailed)	N
Virtual Instrument Customisation	.466**	.000	82
Intend for the music to be played by human performers ?	-.214*	.045	88
f) Virtual Instrument Customisation			
	Correlation Coefficient	Sig. (2-tailed)	N
Did you work from a group of favorites	-.257*	.027	74

5.5.2 Regression.

When I started this investigation, I thought there would be many opportunities to present my abilities with statistical regression. Unfortunately, there was only one pair of parameters that I could use in a regression situation: age and experience. This section will include an in-depth look at the statistical framework supporting statistical regression, followed by a 'plain English version' for easy comprehension.

In addition to measuring the strength of dependence between two variables, explicit functional relationships are sought in statistical regression:

From the simplest linear regression equation:

$$y = \beta_0 + \beta_1 x + \varepsilon$$

Where ε is assumed to be a random variable with $E(\varepsilon) = 0$.

Defining the measure of the total variability of y , $SST = \|\hat{\mathbf{y}} - \mathbf{y}\mathbf{1}\|^2$ (total sum of squares), and the quantities $SSR = \|\hat{\mathbf{y}} - \mathbf{y}\mathbf{1}\|^2$ (regression sum of squares = variability, as the fitted line is not horizontal) and $SSE = \|\mathbf{y} - \hat{\mathbf{y}}\|^2$ (error sum of squares, variability unexplained by regression line), we have this from Pythagoras:

$$SST = SSR + SSE$$

The proportion of variability is 'explained' by the regression line:

$$\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x$$

Therefore, this is:

$$R^2 = \frac{\sum_{i=1}^n (\hat{y}_i - \bar{y})^2}{\sum_{i=1}^n (y_i - \bar{y})^2} = \frac{\|\hat{\mathbf{y}} - \bar{y}\mathbf{1}\|^2}{\|\mathbf{y} - \bar{y}\mathbf{1}\|^2} = \frac{SSR}{SST} = 1 - \frac{SSE}{SST}$$

By definition, $0 \leq R^2 \leq 1$, and $R^2 = 1$ and only if $\hat{y}_i = y_i$ (that is, all points on the regression line). Moreover, for simple regressions we also have $R^2 = r^2$. The advantage of defining R^2 as above (instead of via r^2) is that the definition remains valid for the multiple regression model; that is, when several explanatory variables are available. Finally, note that an estimate of σ^2 is obtained by $\hat{\sigma}^2 = (n - 2)^{-1} \sum r_i^2(\hat{\beta}_0, \hat{\beta}_1)$ (Beran, 2004, pp. 37–40).

As has been mentioned already, the survey did not supply as many viable data sets as I would have liked. One of the main aims of this thesis was to examine, by regression,

patterns between factors surrounding screen-music composition. However, this was the only pair of 'scale' data that correlated with anything else. Initially, I thought that 'days given to compose a cue' would provide many fruitful regressions. It has been useful in describing other parameters; however, it is not the key factor that I thought it would be. This is the true essence of the scientific method and of research in general—you never know the results until the process has run its course. In addition, it has exposed my biases, forcing me to take a critical look at the sample results and proceed in a structured and rigorous way.

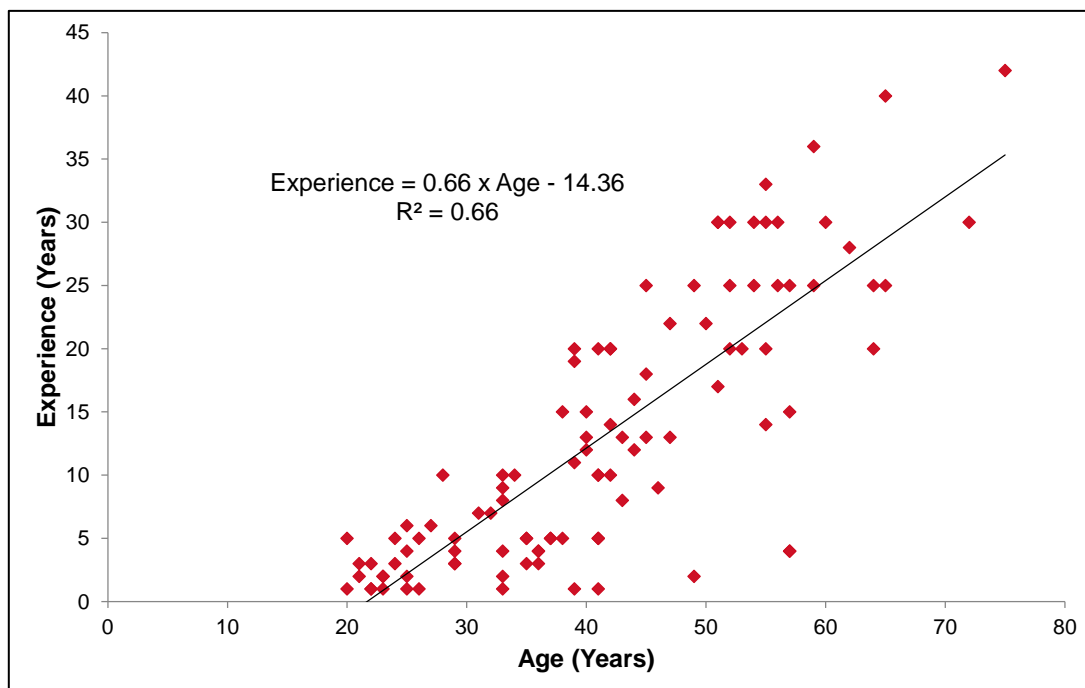


Figure 51: Age and experience regression.⁵⁵ This regression shows a strong correlation coefficient spanning an impressive range of ages and years of experience in the industry. The equation explains 66% of the variation in 'experience (years)'.

Although this is an expected and somewhat obvious result, the statistical significance and the range of data points on both axes have provided me with a great deal of comfort. It also allows estimation of a screen composer's experience, given his or her age, with sixty-six per cent confidence. The below R Squared and F-stat also provide reassurance that this is a comprehensive and robust data set. The range of ages and years of experience has also convinced me that it is a representative data set of the Australian screen composer community.

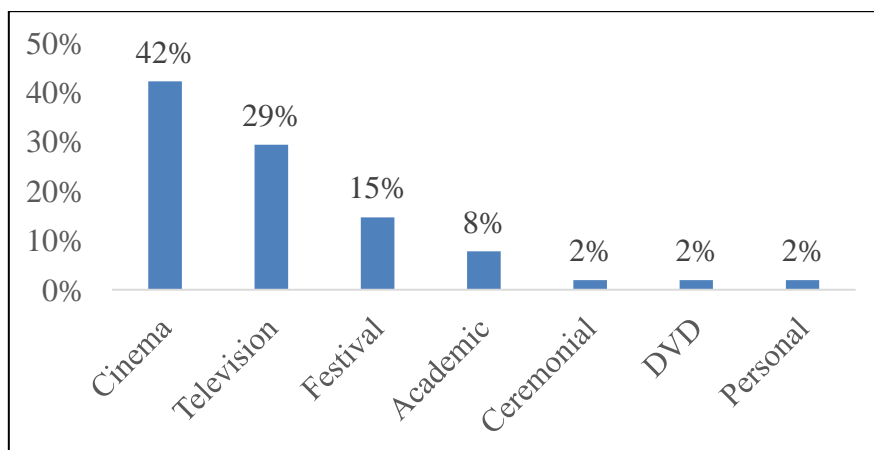
⁵⁵ Zeros and missing values have been removed.

Table 4: Results from the SPSS regression analysis between the age of the respondent and the respondents' years of experience.

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.817 ^a	.667	.664	6.131	.667	200.396	1	100	.000

5.5.3 Destination of the cue.

The cue destination was an important parameter to measure. It revealed much information about the instrumentation, age and experience of the composers writing for certain genres. It also revealed what we should expect regarding the amount of time given to compose, in terms of answering the thesis research questions; in particular, 'what is the nature of screen music composition in 2015?' and 'does the use of virtual instruments affect the nature of the music in the final cut of the film?' As seen in Figure 52,⁵⁶ the majority of cues in this sample were intended for the cinema, followed by television.



⁵⁶ Missing entries and zeros were removed.

Figure 52: This figure shows that most cues in this investigation were heading for cinema or television.

Looking closer at the most important destinations—cinema and television—I focus on how long screen composers were given to write the cue, based on the cue's destination. Regarding cinema (see Figure 53), there are two clear spikes of twenty-one per cent: one at one to two days and another at 25 to 30 days. There is another lesser spike of 12 per cent at 55 to 60 days. I believe all of these can be explained: I propose that the bulk of cinematic productions have an average normal time for composing cinematic music of 25 to 30 days. This allows enough time for the screen composer to organise a recording with a real performer, master the recordings and perfect the final product for delivery.

Similarly, the spike at one to two days is unsurprising given the digital environment I have discussed in this thesis. Having such a short deadline for a cue of cinematic release is not unheard of (even from this screen composer). However, to think that 21 per cent of all cues surveyed had a cinematic deadline of one to two days is astounding and shows the great power and versatility of virtual instruments to deliver in short timeframes, in addition to showing us the working habits of screen composers. Cramming in many hours of work to deliver musical outcomes for a cinematic release in one to two days (on average) shows us that Australian screen composers will work night and day for the chance to have their music featured in a film.⁵⁷

Having 55 to 60 days to compose music suggests the existence of different traits in a screen composer, implying that the screen composer was engaged with the cinematic

⁵⁷ This idea is further strengthened by Table 9 in the appendix. It shows the breakdown of 'days given to compose' by instrumentation. Here, 15 out of the 20 cues created in 1-2 days were by virtual instruments.

release earlier on in the process. This is an ideal situation, as the screen composer would then be able to collaborate on ideas with other members of the film team.

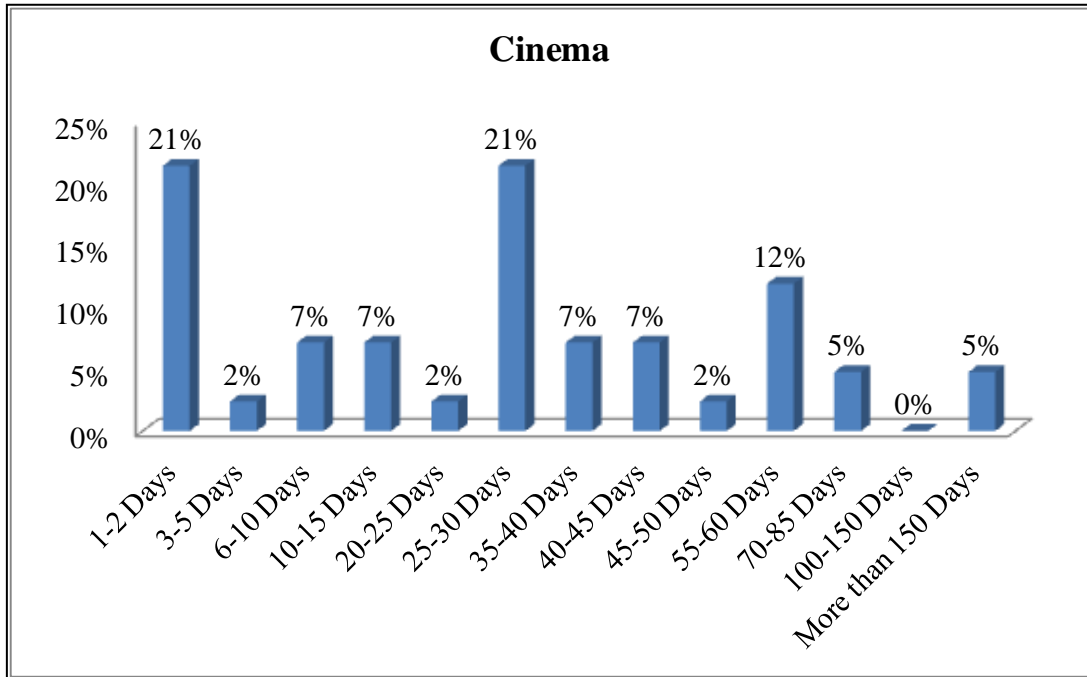


Figure 53: In the cinema, we have two peaks giving us an idea of how long screen composers have to write a cue.

Looking below at the results for television (see Figure 54) the results are clearly towards the left, with cues destined for television requiring only days to be completed. I am not surprised at these results: turnaround times for television screen music are notoriously short. The data reveal that 66 per cent of cues written for television were expected to be composed within 15 days or less. Again, the utility of virtual instruments is evident—meaning, virtual instruments play an important role in the ability of an Australian screen composer to work to and complete musical cues.

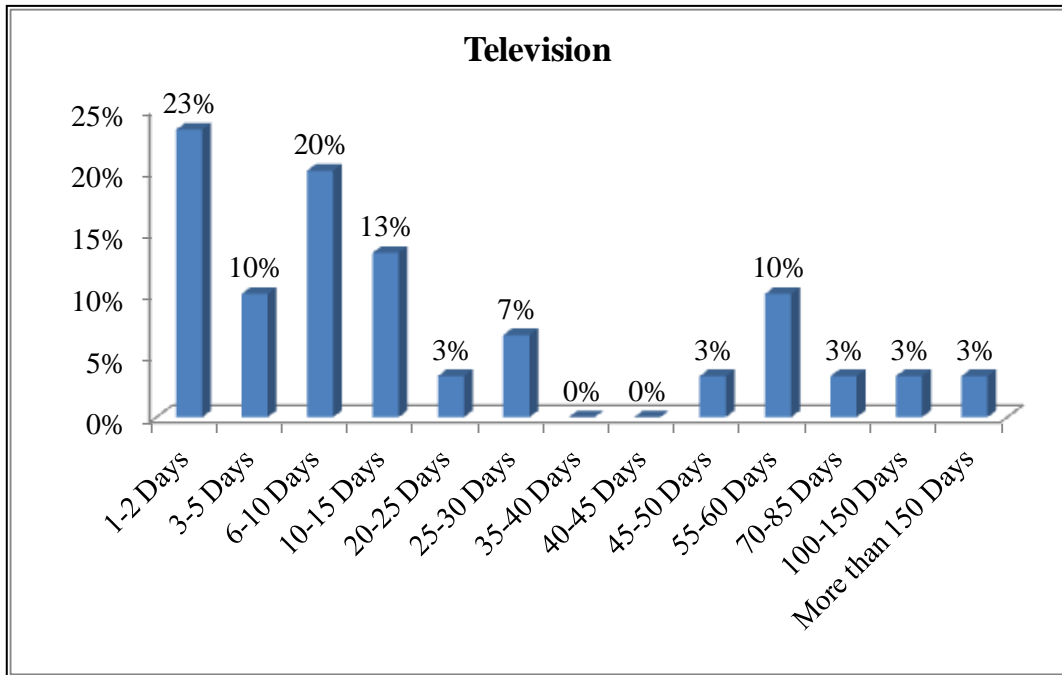


Figure 54: Here we see much more consistency with the shorter deadlines for cues written for television.

These results help focus the nature and direction of the next phase of this enquiry: the interviews.

Many facts must be reviewed when summarising this study's quantitative findings. First, there is a strong and satisfying regression correlation between age and experience, showing that the data are sound. Second, most of the data referred to working Australian screen composers who answered the online survey in the first few days of its launch.⁵⁸ This indicates that this cohort had strong opinions about this topic. Third, regarding the cues composers were asked about, most cues were non-diegetic ('off screen') for the drama genre. Fourth, 57 per cent of cues were never intended to be played by humans. Fifth, three instrumentation categories emerged: virtual instruments only, performers only and a combination of both; this was the most popular instrumentation choice at 55 per cent and most cues (42 per cent) were destined for the

⁵⁸ All survey data was treated equally regardless as to what week it was collected.

cinema. We learned that budget played an important role, with 39 per cent of cues written without a budget. Those cues had more chance of containing instrumentation using virtual instruments and a combination approach. We also learned that cues with a budget had more chance of using the combination approach by a large margin.

Regarding digital tools, Logic is by far the leading DAW and Sibelius is the leading digital notation software. Most screen composers rated themselves five-out-of-five regarding their competency with digital tools. Regarding templates, most screen composers worked from a group of favourites, with 63 per cent indicating they avoided certain instruments because of their sound. The director had the most influence on composers regarding the creation of their cue. Twelve survey questions had significant statistical correlations with other questions in the survey—the result placing an acute focus on virtual instrument use, budget, resources and customisation.

5.6 Qualitative results.

The second and arguably most useful part of this mixed-methods thesis concerns the results that emanated from the qualitative stage. As seen above, there are many fascinating and compelling results; however, while these results remain un-contextualised they are unsophisticated and in places ineffective.

Standards have been set for all inferences and integrative frameworks for inference quality: 'these inferences are credible and defensible based on two considerations—quality of design and of interpretations: "design quality" and "interpretive rigor"' (Teddlie and Tashakkori, 2009, p. 287).

Design quality refers to the degree to which the investigator has selected and implemented the most appropriate procedures for answering the research questions. It incorporates design suitability/appropriateness, design fidelity/adequacy, within-design

consistency and analytic adequacy. I am confident that all of these areas have been satisfied.

Interpretive rigour refers to the degree to which credible interpretations have been made on the basis of obtained results. Certain criteria must be met to assess such rigour and improve the quality of inferences, including interpretive consistency, theoretical consistency and interpretive agreement. Interpretive distinctiveness, integrative efficacy and ultimately interpretive correspondence are also essential.

5.6.1 Overview of the interviewees.

By the end of October 2013, I had received 46 requests to be interviewed from Australian-based screen composers. As mentioned previously, I randomly selected the participants and scheduled time with 30 of these enthusiastic individuals. When working my way through them, I reached what other researchers call 'saturation' at 23 (Creswell, 2007; Teddlie and Tashakkori, 2009). Saturation occurs when you ask the same question in exactly the same way and all the answers begin to sound alike. Additionally, one respondent declined inclusion in the study after one interview, so this portion of the data was expunged.

I would now like to share some data about these volunteers. Figure 55 reveals a regression (of those who participated) in the interviewees' ages and experience. Clearly, this study has included a wide range of participants. In addition, as this is a sub-set of the entire sample, the gradient of this screen composer sub-set is not very different to the entire sample. Specifically, 83 per cent of the variance in experience can be explained by the equation in the chart. This negates the need for any further t-tests looking for significant differences between the two groups. That is, if you look back at Figure 51 and look at this Figure 55 they are very similar.

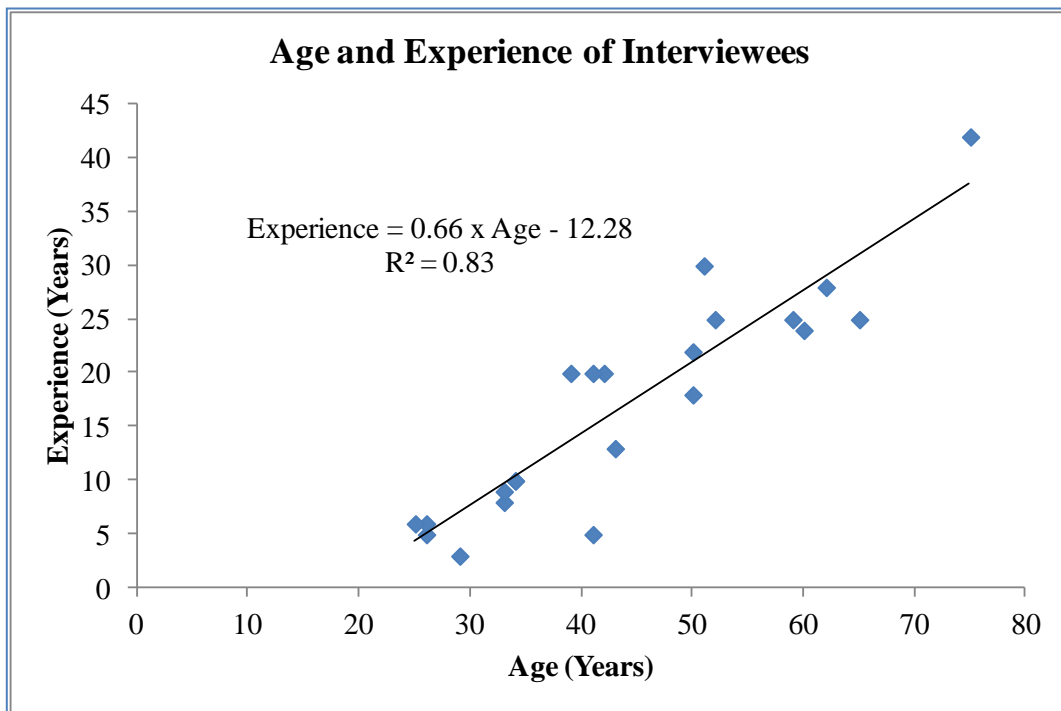


Figure 55: This regression shows the ages and experience of the 22 interviewees.

5.7 Frequently used words from the interviews.

After transcribing and uploading all 22 interviews into the NVivo software, I ran a 'most frequently used word count' query. The Table 15 in Appendix D reveals these results visually and it groups similar words together; however, Figure 56 shows the results in another way—as a word cloud. The larger the word, the more frequently it was used by respondents. What I have ascertained from this query is a sense of positive optimism. All of these words have apparently positive associations⁵⁹: 'choice', 'going', 'good', 'better', 'able', 'changing', 'times'. They are all positive-sounding words and indicate a watershed moment for the screen composers. Playing the devil's advocate and looking at

⁵⁹ Positive words are affirmative words that have a constructive quality or attribute.

this from another perspective, the word cloud is not filled with negative-sounding words like 'hate', 'dysfunctional', 'unhelpful', 'restricted', 'closed' or 'never'.

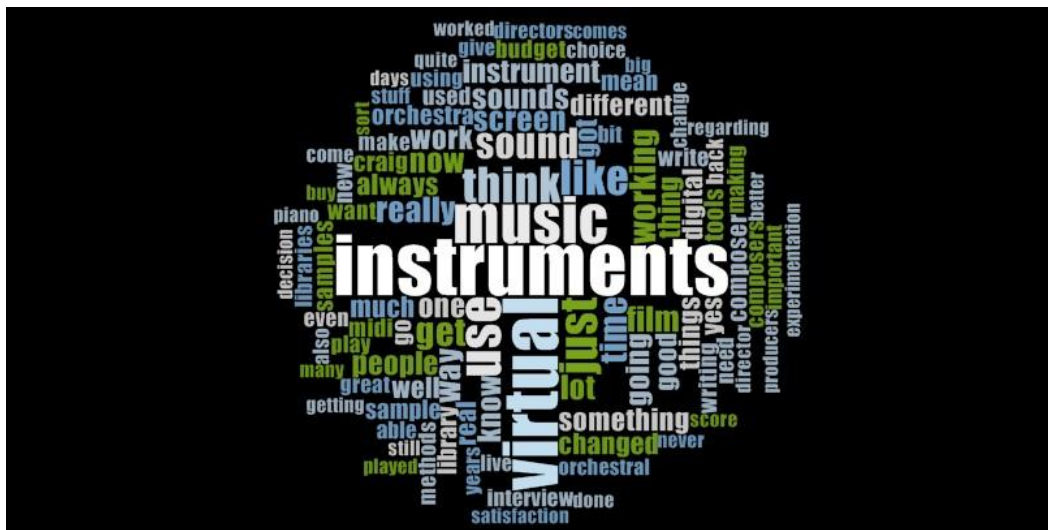


Figure 56: Word cloud of frequently used words. The larger the word, the more times it was used.

5.8 Interview questions and top themes.

To understand the semi-structured questionnaire, the script that I designed and worked through during each interview is presented below.

[Craig] You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded?

Secondly, do you wish to be identified or quoted?

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen.

[Help me understand your use of virtual instruments].

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them—what are your thoughts on that?
3. To what extent do you modify or customise your virtual instruments to enhance your musical identity?
4. How important is it for you to have the latest 'cutting edge' virtual instrument library?

Working Methods.

1. Have digital tools changed your working relationships with other members of the film team?
2. How do deadlines influence your decision making regarding virtual instrument choice?
3. How does budget influence your decision making regarding virtual instrument choice?
4. Have you always worked in the same way? Have your working methods changed because of virtual instruments?
5. Have directors/producers' expectations changed? [Have virtual instruments/digital tools played a role in this change]?
6. Do you write music for the concert hall/orchestral music? Are your working methods the same?
7. How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble (optional)?
8. Do you use any non-conventional MIDI-interface devices when creating music for the screen? [What I mean here is do you use an iPhone or a MIDI sax?]
—what instrument(s) do you use?

Satisfaction.

1. Have virtual instruments changed your satisfaction as a screen composer in any way?
 2. What role do virtual instruments have in the future of screen music?
-

I will now summarise the broader topic areas (themes) that arose from the interviews, rather than go through each of the questions one-by-one. These themes were identified with the NVivo software tool, which allows the identification and creation of 'nodes'. Each of these nodes was later identified as a theme due to the similar nature of the text section that could be contained within that node. When reading through the transcripts, the NVivo tool allowed me to highlight and combine similar themes from different interviews, thus creating the node. This is a powerful tool, as it facilitates the identification and collection of nodes that were previously unknown to the researcher, steering the research into new and unforeseen areas.

Twenty-seven themes were identified using this method. They range from the nature of being a screen composer in Australia to working alone, through to the influence of computer upgrades on composers' work.

Looking at the topics and the way they are presented, there did not seem to be a clear or elegant way of grouping these themes together. As such, I employed a thematic analysis of each salient issue raised by establishing a cut-off point using descriptive statistics.

The figure of 9.41 responses per theme is the 50th percentile result; this is shown graphically in Figure 57. I have used this methodology as the top 50 per cent account for more than 70 per cent of the total themes. When I inspected the bottom 50 per cent (those marked in blue in Figure 57), I saw a number of interesting and worthy themes

for expansion and future research. However, they simply did not receive the quantity of responses to push them into the top 50 per cent. In fact during the discussion, I may reference these themes. However, for this thesis I will focus on the top 12 responses. Most screen composers interviewed were happy to be named in this thesis. The few that did not agree have been given three-letter codes and remain unidentifiable.

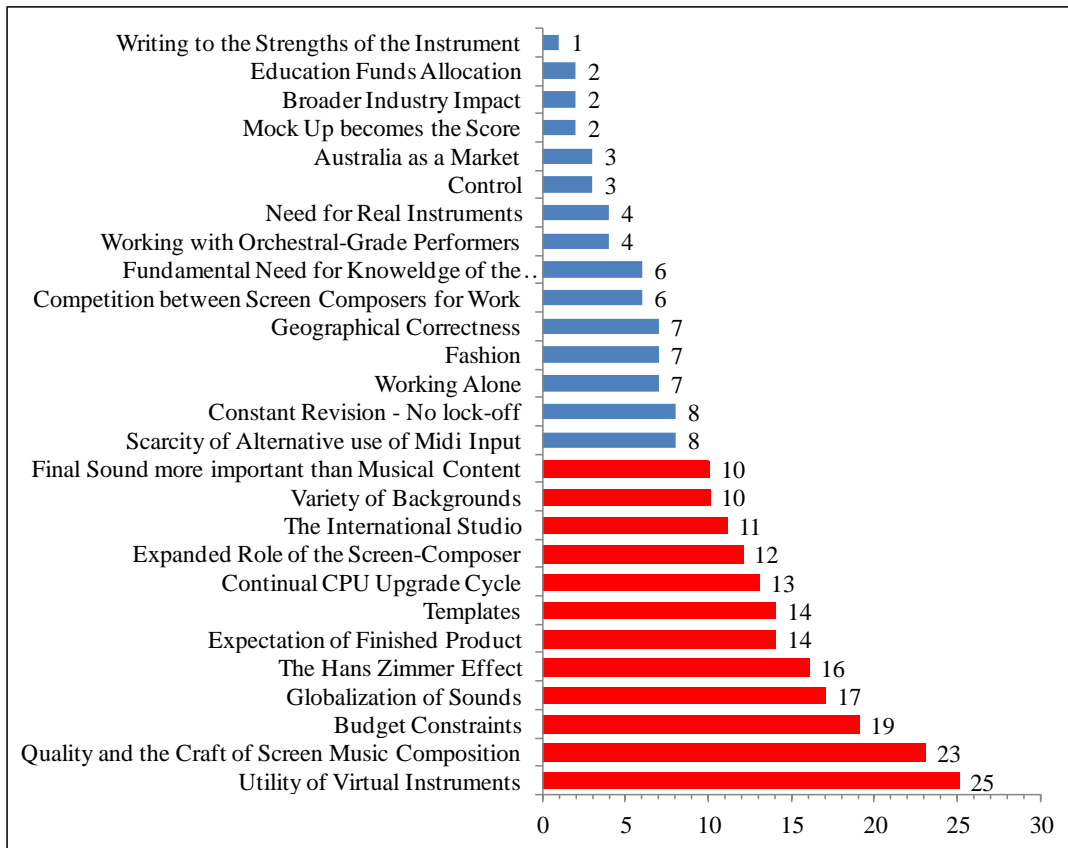


Figure 57: Number of times the themes were identified during the interview process. The top 50% percentile representing 72% of total themes is coloured red.

5.8.1 Thematic analysis of the top 12 themes.

5.8.1.1 Astounding utility of virtual instruments.

General widespread praise and gratitude that virtual instruments assist with their job.

During the discussion with each composer the topic of the screen composer's use of virtual instruments was crucial. In each and every interview, there is some type of statement about the utility that virtual instruments afford. Time after time, screen composers eulogised the staggering efficiency and industriousness that digital samples provide.

From screen composer Cam Rossiter:

so I think it's a joy to be able to move something from an idea to a rich and high-quality sound[s], I think it's brilliant.

Rossiter raises a strong fundamental point. The screen composer is able to manifest his or her ideas instantly with the assistance of virtual instruments; this was impossible for many just a few years ago.

From renowned screen composer Edward Primrose, a whole new world of sound combinations awaits:

It's fantastic now the sounds of libraries that have been generated! Because people are finding new ways of doing things, especially in the synthesised world so sounds and textures are being produced which didn't exist before and at a much higher quality than ever before. And it's always hard to imagine how it can be improved and then somebody goes along and improves it [the quality of virtual instruments, that is].

From screen composer Sean Peter:

The dream for me growing up as an eight-year-old, the first instrument I played with was called an 'Alpha-Centuri' synthesiser. It was on an Apple II plus and the promise of that is that you could emulate a real orchestra at home, and that's been the promise of technology and music for 30 years now, and it's got there in the last 10!! You can do it now.

Here is the realisation of a childhood dream: to emulate an orchestra at home. To hear this from a working screen composer is inspirational and moving.

The utility and affordance that using virtual instruments brings to the working screen composer is clearly explained here by RTH:

I'm doing an animation series at the moment, I'm turning around about 22 minutes [of music] a week there is no time to record that without virtual instruments! In essence you're simulating 50 people play[ing] for you all on your own!!

And again from RTH:

I live in [a regional centre] and I think the virtual instruments complement that because in the past I would have had to have been located in the city and that's just simply not the case any longer—and that goes with the base of musicians and engineers that would help you produce that work. Having a virtual set-up allows me to mix it up on the beach. And therein lies the paradox, it might make your creativity change the opposite of that is that you can pretty well work anywhere and send files off and with the right ear and an understanding of how to do it you can get some pretty amazing results out of it.

For example I have a woodwind sample where you just touch middle C and it will produce a seven tuplet-run across two octaves. It's pre-programmed in there and all you have to do is touch button and it assists your creativity but by the same token you still need to know what to do with it. There's no point having a run just pop up out of the blue, it's got to be able to assist in a musical function and in the dramatic function of the story!

RTH raises an important point: eliminating the tyranny of distance between various members of the film team. RTH clearly states that digital technology assists in them being part of the Australian screen composer community. RTH is able to work at his or her convenience to meet deadlines.

Screen composer Peter Dasent adds that the internet is a fruitful place to search if you are looking for a particular instrument. The fact that Peter can search, buy and download exactly what he is looking for is significant: if you had hired a marimba player and recorded him playing, only to find that the sound was not quite right, then that exercise would have been ineffective. With virtual instruments you basically get what you pay for and you can audition various candidates before investing:

Yes, well just in the last few days I've been trying to find a marimba sample [8:26] but all [the] ones [I've] heard have too much reverb and it doesn't suit my needs so I am currently downloading one that has a close mike so after we've finished this interview I'll be working on that. I did a search on marimba samples and I found the one I wanted it was \$100 or so—it is so cheap compared to the Hammond B4; it was \$400 years ago; it wasn't cheap, the price of everything has come down. The latest version of ProTools and the latest version of Logic are absurdly cheap for what they can do its incredible.

The portability and accessibility of the modern screen composer's studio is laid bare here by Robert Upward, who had this to add (keep in mind that Robert Upward is discussing a full score for a film fitting into his carry-on luggage on an aircraft):

And for convenience, I travelled to LA this year and I had my whole studio in a carry-on bag. You know I could carry my hard drives and my Little Mac Mini in there and it had everything—incredibly powerful! [Craig] It's the stuff of science fiction 20 years ago! [Robert] Yes, it is and I've worked in big studios as an engineer and I know what I can do now would have required a million-dollar desk and that's without any outboard gear and now what you can do for under 10 grand is the equivalent! It's great.

Lastly, busy screen composer Kirke Godfrey elucidates the powerful ability of modern DAWs to stretch recorded audio and how he feels about directors knowing this. He also comments on why this is important to target hit-points accurately within the film:

The other revolution which has been incredibly helpful is the ability to stretch audio without any pitch changes. This allows you to stretch or compress some audio that has already been recorded so that it actually meets a new edited mark. This allows you to accurately hit hit-points in the film. Give [sic] this technology had been kept secret from the directorial people so they didn't understand that that was possible and us musicians could just quietly do it that would have been fantastic. Someone gave a secret away!! It would have been great because we would have been able to make the changes and then we wouldn't have been told to re-re-remake them.

Stretching audio over time so that the recorded audio remains at the same pitch is a major feature of ProTools and LogicPro. 'Elastic Audio' not only facilitates an accurate down-beat for a known hit-point, it also guides the composer to select suitable time signatures so that multiple hit-points may be achieved without having to change time signatures every few bars.

5.8.1.2 Budget constraints.

Almost unanimous agreement regarding the shrinking budgets and timeframes afforded to screen composers to do their jobs.

Intertwined with the use of virtual instruments is the reality of diminishing budgets available to screen composers to create film scores. Virtual instruments allow them to remain active members of this community.

From screen composer Victor Spiegel:

They [virtual instruments] are pretty much absolutely mandatory. Because of budget constraints and lack of support in all of the other communities associated with filmmaking and music making it is absolutely necessary that one person be able to do everything!! Because of a lack [funding] of the arts and of education and general ignorance!

What producers do now, they hear orchestral music in film and they say 'can you put that in here?' And you say 'do you have any idea how long that's got to take?' How difficult that is? They're basing their example on something that had a 20 or \$30,000 budget, and they're asking you to do the same thing in something that [sic] that paying new \$500 for—are you crazy? do you have any idea what you're asking me to do?! Oh, yes, there is a disjunction between expectations and reality!!

Spiegel touches on a theme here: screen composers are expected to do absolutely everything regarding the creation and production of the music. This is a theme in itself, on which I shall elaborate below.

Vicki Hanson, a composer well known for her cultural sensitivity when pairing music with film, said:

If I had the choice I would work with real musicians but budgetary restraints, which is [what] I'm sure it is in most cases it's just not practical to have so many different ethnic genres of musicians coming in.

In terms of working with producers several years back I had a meeting where I got to talk about the music with all of the journalists, because they're not used to using music some of them don't even like using music, and their stories that [they] think it's too emotional, they just want hard and factual. One of them stood up and said 'I just hate MIDI, I don't

want any MIDI' is [it's] a funny statement to me ... But I had to explain to them that the budget would not extend that far, I do the best with what I have and make it as 'MIDI-less' as possible !! And now several years later we are very much in sync with our work and he has become a big fan of my work which is lovely. So things have turned around!

Preeminent composer Christopher Gordon, of *Master and Commander* (2003) and *Mao's Last Dancer* (2009) fame, comments on the connection between lower budgets and shorter timeframes:

There's a budget expectation we don't have to pay you as much. And the overall music budget won't be as much because you already own those samples and you can do that really quickly. So I think there are quite negative aspects to it. Shorter timeframes and lower budget!

Screen composer Damian del Borello explains the appetite for some screen composers to update their virtual instrument libraries whenever they can:

I think only really the big television shows and films get a real recording and when I say big I mean big budget! These big budget productions have the capacity to employ real musicians and the other ones don't. Absolutely the conductor, the orchestrator, the copyist, the facility, the recording studio and all ... the other infrastructure that goes with that—that's a lot of people that's a lot of money—especially in Australia I don't think there are many movies or television shows that can afford that.

Most films that I have been doing recently [spend a] couple of thousand dollars per score, \$5,000 on one and you could blow that in five minutes online on sample libraries if that was what you are going to do. You certainly couldn't record an orchestra on that budget so, so budget is a key factor, I get a fee and there always is an expectation from producers or directors that they want it as cheaply as possible.

Additionally, Glenn Humphries's interview highlights the importance of budget:

Has it become a tool of procrastination? No I think it's become a tool of productivity!! Because, if there is no longer the budget to have orchestras it's no longer the [sic] budget to have instrumentalists and musicians, it's all pretty much self-contained unless it's a large film, then you have the luxury of being able to go somewhere like "Trackdown"⁶⁰ and record a proper score. Virtual instruments and samplers are the basis of that. And that is why I believe I would start from a pre-set for scoring film and television and also

⁶⁰ 'Trackdown' is the name of a Sydney recording studio. It is often used to record the scores for all types of films, ranging from student short films bound for festivals to the multi-million dollar budget films that are occasionally recorded in Sydney.

making my own music.

From screen composer Paul Doust:

Especially when it comes to budgets it's ludicrous to be able to afford a full 60+ orchestra for films—if you can do it exponentially cheaper then why wouldn't you?!

Paul Doust raises another important point. With virtual instruments approaching the point of being indistinguishable from the real thing, why wouldn't you choose them over a 60-piece orchestra if you were an emerging composer?⁶¹ I would suggest that the biggest decision for this group of screen composers is which platform and virtual instrument packages they were going to invest in. Or more specifically, 'do I invest in ProTools or Logic Pro?' 'Do I invest in 8Dio Virtual Instruments, Kontakt or the Vienna Symphony Library?' These are the real decisions facing screen composers at all levels today as functionality, compatibility and stability each play an important role in the trust a screen composer has regarding virtual products and their merchants.

5.8.1.3 Quality and the craft of screen music composition.

Concern about the future quality and specific 'craft' of screen music composition.

The craft of screen music composition is one that must be taught, either by a mentor or at a film school. The marriage of music and video is easy to achieve today with the democratisation of DAWs and virtual instruments; however, it is easy to get wrong. Many directors who have a tendency to 'control' the entire production often pen their own scores to films with disastrous results. This is especially prevalent with emerging filmmakers who have not learned the benefits of collaboration or what a 'film team' really means. This is not to say that screen composers do not come from a variety of

⁶¹ Or even a well-known and established screen composer.

backgrounds, section 5.8.1.11 demonstrates that interviewees come from a wide variety of backgrounds.

Christopher Gordon expands on the quality of modern screen compositions:

So that the actual quality of the writing may not be that great but the sounds ... they sounds [sic] almost like the real thing, is the very same sample libraries that 'Hans Zimmer' may have used. Or whoever, so the performance sounds pretty close but the composition is not very good, and the trouble with that is, particularly if you use it with 'Garage Band' or more simple types of software there is and was a danger of within film that producers or directors will actually like that or think that they can do it themselves! And to a degree they can. It's done there it is. I just find that there is a level of composition quality that is lowered with all of this!

Christopher Gordon talks about the lowering of composition quality. This is exactly what I mean when defining this theme. It is the opinion of the screen composers interviewed that the craft of screen music composition is being circumvented by the availability of technology that can produce sub-standard film and television scores.

Glenn Humphries deepens this idea:

And by lowering the price, a lot of people who don't have an ear for music are creating music!!

In addition, Glenn Humphries doubles as an experienced and respected sound designer, adding what these changes mean from a sound designer's point of view:

By customising them and altering them that's where I believe they come into their own. Because when you're composing for film and television you always have to consider dialogue. The great thing about virtual instruments is, depending what the material is like and what the show is having to sit under dialogue you are able to customise and tweak those sounds so that they don't get in the way of dialogue so you can then re-automate them and customise them to create that sound that you want when you've got space to feature the music! And that's one thing that's really bad about library music. Library music that's made by acoustic instruments or virtual instruments is that it's a generic vanilla thing that you can download or buy from an online vendor ... and that's a real bonus for virtual instruments ... you can tweak the frequencies and sounds and it's no longer analogue, tweak or [sic] customisation. It's digital and it can be saved very quickly and efficiently. What I'm talking about here is [sic] the settings around such customisation.

The ability to tweak and manage the spectrum of frequencies so that the dialogue is clear is a real windfall for sound designers (and ultimately for audiences). Clarity is the real beneficiary here with Humphries able to drop out virtual instrument frequencies if they clash with dialogue. This is achieved by using a high or low pass filter, depending on the nature of the music that needs to be 'dropped out'. I am reminded of a lecture from film school: 'even if a little mouse in the corner of the screen squeaks a few words, it has sonic precedence over all other sound in your film, including your beautiful score' (AFTRS, 2010). Here we are reminded of the hierarchy of sound in the cinema, where dialogue is always at the top and other sounds are subservient to the story.⁶²

Glenn Humphries also comments on creativity:

People who are confident in their craft especially as filmmakers know what it takes to get the best out of their team, and that is to give them a solid foundation to work from and that is a lock off. Because, the more you change the less time there is for creativity and the more you change the less time there is for true crafting of the piece as opposed to just getting it done.

Here, Humphries indicates that 'true crafting' of musical cues is sacrificed to just get the job done. This is influenced by there being less time to create a cue, something that I shall focus on below.

Peter Dasent comments on the sudden ubiquity of screen composers and the technological affordance given to those associated with the digital arts:

Computers have made what was once the area of specialists, [sic] have made those things available to everyone! But not only in music, I mean everyone is designer these days, everyone is a writer but that's not quite the same really everyone's a filmmaker everyone's an editor everyone's a composer so I mean that's a good thing in a one way. I think it affects what people who hire you expect if the bloke in the office next door is fiddling around with some beats or something, well he is a composer and he can do the music for an ad or a doco [documentary] or a television program or something like that. So that's what I mean everyone's a composer!! But they're not!!

⁶² Including: atmospheres, foley, sound design and music.

RTH comments on the changes in complexities of screen music:

If your writing is very complex it doesn't translate very well, in fact it's harder to make it translate well in the box, and that's why I think sometimes music becomes maybe compositionally for want of a better term 'dumbed down'! As opposed to writing very good accompanying counter melodies—now people will just hold a D minor chord. So you'll have your string palette playing a D minor chord, you'll have a violin patch playing the melody, and maybe some brass over the top.

Sean Peter comments on the quality of future composers:

I think there will be very few composers like a John Williams or Thomas Newman in the next generation of film guys who can just play it on piano, turn up on orchestral recording day and just do it. There won't be anyone like that anymore, I don't think!! I say there wouldn't be anyone, but of course there will be just like this [sic] one or half a dozen. You don't need the chops to do it and there is still nothing like a real orchestra.

Sean Peter and RTH have touched on current practices and the future of screen music composition. This situation is further amplified by film schools offering weekend courses in screen-music composition for a substantial fee. This is no doubt a formidable revenue raiser for film schools; however, it floods the market with individuals calling themselves screen composers when they have little experience or tuition in the field.

Victor Spiegel adds, insightfully:

Oh dear, now we have to go to the freelancers' protocols. Which is good, cheap, fast, pick two. It's that famous triangle where you can have two but you can't have the other. You can have good and cheap but it won't be fast. You can have fast and cheap, but it won't be good.

5.8.1.4 Templates.

Use of templates that are preloaded with dependable and reliable instruments.

Anthony Jones, a screen composer, comments on the use of templates and how it accelerates his working methods:

They do make a difference, sometimes you just have to work with what you come to first rather than hunting around. Say for example you've got sample libraries that are not very well categorised, drum loops and the like, you wind up falling back onto things that you know rather than exploring new things just to get it done in a faster time.

Anthony Jones is not alone here. I too reuse samples and virtual instruments that I know and trust to get the job done. I assert here that once screen composers create their templates (whether it be formalised by the creation of an actual file with the favourite virtual instruments preloaded or by just remembering the names of those instruments that feature in your 'remembered template'), they create their own style or 'sound'. This may shape the screen composer's work until new virtual instruments are incorporated into their template.⁶³

Screen composer Thomas Rouch takes comfort in the tools that he knows will work for the job at hand:

Well, you need stuff that television will use! Not too complex—you need to get sounds going straight away. Under a deadline I tend to have templates set up on the screen; it's important to have templates set up!! So everything is there ready to go and you go with stuff that you know is going to work!

RTH make the connection between templates and deadlines:

Yes, I know those virtual instruments will give me a desired result. Especially if I have to work fast and then I don't have to do ... I mean I know the sounds I can rely on!

Deadlines will make a definite difference to how I'll approach something and I will just pull up those virtual instruments that I know will work and it will stop me from probably experimenting more with sounds! Knowing that I have to work quickly so I'll just pull those favourite standard virtual instruments up straightaway!

Kirke Godfrey has a strong opinion here:

A lot of professionals that I speak with have basically nailed their palette to a high degree!! They've got their basic go-to everything already set up and running !! ... every now and then they'll add something new to spice it up a bit just for their own interest they will generally already have their full palette set and running!! When Hans Zimmer kicked that in millions of years ago ... I worked a long time ago, I did a whole bunch of stuff

⁶³ Or the addition of real instruments.

with Hans Zimmer and my brain just completely melted when I saw the way he worked because even then he had even more tools than God!!

Glenn Humphries, who is also a sound designer, adds:

That's a really good question and I think it comes back to what we were talking about before about pre-sets and starting from a good colour palette or good sound palette; it's great to be up and tweak away and do all that sort of thing but if you need to pull together a good sounding little score—or something like that quickly, pre-sets are a great place to start!!

There is much agreement here that template and pre-set virtual instruments assist in the working lives of screen composers. However, they have unknowingly created a bank of familiar instrument combinations that are instantly recognisable and affect the way the final cue actually sounds.

5.8.1.5 Continual Central Processing Unit (CPU) upgrade cycle.

The majority of practitioners commented on the never-ending cycle of upgrades to enable use of the latest virtual instrument technology.

Edward Primrose comments on the pace of change:

I wrote a piano concerto and for that I did a synthesiser version of it so people could hear it—potential players and so on. Five years later when I listened to it again, it's just a horrible sound. So things have moved a lot in quite a short time from something that was intended to be a simulation, to give you an idea of the harmonic and melodic contour on the structure; I'm now hearing this horrible ... yuck, it's embarrassing and nothing like it should be. Obviously things are moving along in ways that we are not detecting.

GMA comments on the computer power needed these days to compete as an Australian screen composer:

Yes, so what I found out is, I used to work at one computer and now I have four networked computers and their only function is to load sample libraries. That is a bit frustrating as well because you have to upkeep four or five computers rather than just one but sample library [sic] started off just being moderate size things that you could load but

now they are just out of control, like one instrument maybe one Gig or more it's out of control. It's good the sound but you can't load that sort of thing for all orchestra [sic] into one computer because it just comes to a grinding halt.

[Craig] You need a supercomputer!

[GMA] Don't get me started, no matter how much you max it out with RAM or new software or process or whatever the next software update, it means that your computer is already out of date or too slow. My 50 [sic] computer in my process runs video only. All of my computers are linked digitally so the frame sync rate can never fall out of sync—just to keep the main slave computer free to keep up with the processing. Too much CPU power is never enough! I have four MacBook Pros and two laptops all dedicated for this purpose.

Michael Darren suggests that stability has a lot to do with instrumentation choice:

So there's two aspects to that: there is the technical requirements of the computer to be stable enough to be able to play the samples and that's kind of important to keep your samples and patches up-to-date because it was really unstable because all this stuff when it first came out you needed mountains of computers to run them and they were crashing or the time and they still do, they still do crash. I have noticed in the last couple of years that it is more stable, which is good. And that instability kind of sways your decision-making process to which ones you use!

Screen composer Paul Doust suggests technology has changed his working methods:

Absolutely, I'm not that technologically savvy. I'm certainly not remotely one of the forefront guru wizards at using virtual instruments to their full potential. It's something that I'm learning is a skill—I'm getting better every day, but every day I have technological troubles that impede my workflow and it's not always the virtual instruments themselves. It's often to do with if it takes [sic] up too much RAM, or they load too slowly or they don't have the flexibility that you want them to have—I can't alter them in some ways.

RTH laments the computer space taken up by virtual instruments:

This has come down to computers getting faster. As soon as Apple or whoever says 'we can now provide this much RAM in our machines', software developers say 'you beauty' and they start putting in bigger samples! Which means for us poor guys who are working on five-year-old machines, upgrade to a new sample library [sic]. No word of a lie, I've got a bass patch that takes up a gig of memory.

Anthony Jones comments on the direct link between product and money.

They are becoming more and more sophisticated and if you pay more money then you get access to more articulation, different numbers of instruments, I've got a basic level of Vienna Symphonic Library for example and it only has a certain number of fixed

articulations and instruments; you pay more money and you will get more.

Rory Chenoweth clarifies the dramatic price reduction of these products:

I'm always getting emails, the new products and sounds I have about five or six string libraries. Regarding cutting edge, I'm very fussy, the newer ones that are coming out sound more realistic than the older ones so I'll use those more—and getting really good and really cheap [sic] so I'm constantly upgrading!! I still use the old ones though. Even though they're five or six years old. I remember when the VSL libraries were \$15,000—and now you buy a full orchestral library that sounds just as good [for] about \$1,000.

As a screen composer I too am bombarded with emails, special offers, bundles and other marketing incentives from virtual instrument merchants. Their aim is to either retain your loyalty by tempting you with an upgrade (usually with additional functionalities), or convert you from a competing virtual instrument merchant. In the end, the consumer wins as these products are digital and can often be used by all DAW platforms.

5.8.1.6 Expectation of a finished product.

General agreement that producers/directors want the final product, not a draft.

As mentioned previously there is a trend at the moment for composers to deliver a finished product that sounds impressive and just like current film releases. This situation lends itself to a miscommunication between the composer and the director, as these products are still drafts and can be changed.

Christopher Gordon elaborates:

Rather than seeing it as a building process, like this is a draft it's only so good at the moment it will sound better, you can't risk that any more. You have to get it as a finished product before anyone hears it!

DCA concurs:

You have to show them, clients expect that these days is [sic] a lot more expectation on

the composer to achieve a level of realism even within a demo!!

GMA describes the leaps made in the screen-music composition process:

or [when] better samplers first came out, these libraries were used for mock up—they sounded good but [were] obviously not a real orchestra. And now we've skipped that step now we don't get a mock up at all—we go straight from nothing to Hollywood blockbuster. Temp score is the [final] score.

Glenn Humphries talks about control:

Previously it was different: 'write the music, demo it up for us and we'll take it into the studio and record it'. Now it's: 'that's your temp music; can you mix it and get it to the mix?', so it's assumed that you have all of those great sounds to deliver to the mix.

And now they have much greater control they can mute the cellos they can quiet down the timpani, they can virtually pre-dub the music during a temp session!! There is that much power and that much flexibility in those sounds, anything is possible and the possibilities are endless.

Kirke Godfrey expands on the ability to solve problems easily:

So you then load up your 'ginormous' library of stuff, create one that sounds pre-produced crazy good [sic] because these libraries and now so pre-produced in a fabulous way that they sound instant Hollywood anyway, and you've got your gorgeous soaring strings and the director goes 'that's nice, but there's a certain fizz to that string sound' and you go, 'that's okay I will load up my second string choice', and the director says 'that's better'.

Sean Peter explains the changes that virtual instruments have made to his final product:

the main thing that has changed is that I'm tending to provide things that are closer to the finished product earlier!!

5.8.1.7 The 'Hans Zimmer' effect.

Without prompting, 86 per cent of screen composers interviewed mentioned 'Hans Zimmer' in some way.

This is a noteworthy phenomenon and reveals the nature of Hans Zimmer's fame on Australian screen composers.

Bruce Smearden, a respected and senior Australian screen composer suggests fashion has a role to play here:

Yes. I very much so, part of that is fashion because I think the method of putting music together—say with Hans Zimmer as the film is being made I think that's a particularly extreme example—as it seems to my ear that most of that is based on that movement of the planets by Holst named 'Mars'. The other thing I've noticed is that the filmmakers become so addicted to the early versions that they actually prefer it—and when it comes to mixing they will often mix what was originally only designed as a substitute for the orchestra and push it forward [in the mix].

DCA acknowledges the power of Hans Zimmer's success:

More and more I'd say it's pretty amazing looking at a company at the moment you may know what it's called 'Spitfire' in the UK in answer to your question, I recommend that you visit their website and view their latest products that have brought Hans Zimmer over from America to air studios in London with three of his favourite engineers/composers; there've sat there and recorded the first of what will be a series sample libraries based on his percussion ... I appreciate his work, [it's] not really my cup of tea nonetheless you can't deny his success and power in a lot of the material he produces.

Kirke Godfrey insists:

Please quote me there!! I think the democratisation of this type of stuff is fantastic. I mean I can't play piano properly, I can't read and write dots and nor does Hans Zimmer and that's okay; it comes down to what your ideas are and if you got enough technical chops, to be able to get those ideas out then you're going to be great so bring it on and produce lots of lovely sounds of people to listen to!

When Hans Zimmer kicked that in millions of years ago ... I worked long time ago I did a whole bunch of stuff with Hans Zimmer and my brain just completely melted when I saw the way he worked because even then he had even more tools than God!!

RTH comments on the differences in expectation among screen composers:

For example, Hans Zimmer's style of music. His style of music has become accessible to so many, and I mean this politely, you don't have to be the [sic] John Williams to write film music!

There are so many examples here. I think it is important to recognise that the global industry leaders can be counted on one hand and they clearly have an enormous influence on what Australian screen composers think is outstanding or significant work.

5.8.1.8 Globalisation of sounds.

Recognition that there are a finite number of virtual instrument merchants and you may hear familiar instruments in other screen composer's work.

This is a very real circumstance, one that I have experienced as a screen composer.

There are certain sounds that appeal to the aesthetics of directors and producers placing an expectation on screen composers to add various sounds into their work.

Edward Primrose laments the loss of a specific geographical sound when using virtual instruments:

...a downside to this, which is the globalisation of sounds, where we're very radically losing identities which used to be geographically based, geographically and culturally so now it's very easy to emulate, imitate, borrow, become the same as a West Coast Hollywood sound, London sound, a Prague sound, just on the virtue of these instruments!!

Edward Primrose elaborates on movie theatre trailers:

But there's almost like there is a code there, this is the code theatre trailers, and you have these big booming sounds which echo through the theatre and they're so dramatic like someone is getting a gun through the head or someone drops a glass on the floor someone slaps someone something happens a car accident [sic], any of these big booming sounds that is that's a sample of the sound that's an idea of the sound that is gone global!! And people use it willy-nilly, and [I] am sure now that the people who make these things are under pressure from various directors and producers—'I want that sound!'

And then again, after saying all that positiveness, I come back to the negative side—if you purchased that sound and use it in your composition, what are you doing exactly? All of the extraordinary synthesiser patches that got created when we had analogue synthesisers, that you could bring up to memorise and they would appear in lots of films. There used to be a sound of a kind of flute it was sampled on an Akai or one of those sampling keyboards, and it was just a riff of a flute and it was so popular, that it kept popping up in all sorts of films and documentaries, not just the sound of the actual melody and the rhythm at the same pitch as well—it is extraordinary!! And it comes back

to this globalisation thing, on the downside if nobody has composed that, [they've] virtually taken somebody else's music and put it in their own film. That it is also like a key a global sense producer's ears will prick up and [they will] say 'oh, I know that sound, that's familiar, let's use it in ours as well; they may notice its familiarity and see that as a positive'!!

GMA expands on the humorous side of this phenomenon:

Every time I hear Action Strings on *Masterchef* I say to myself 'I know that sample that's "Action Strings", I use that sample'. And it's the same with 'Voxos Choir' on an epic soundtrack, that's 'VOXOS!' ha ha ha.

Michael Darren clarifies the difference in approach when scoring a feature film:

And I've just finished a feature film and that was very different; I had literally months and months and months to work on it, so it's a very different approach. For that one I actually tried to make sure that no one could know where my samples were coming from! And there are tricks to doing that sort of thing. And I played lots of different instruments on top.

Neil Parifitt summarises:

I think it's great that these tools are available, but you start to hear the same sounds everywhere because most composers don't have access to the real equivalent. Which waters down what we're hearing out there. The same loops, the same patches.

Paul Doust makes an important point about customisation:

Because everyone has the same instruments they do tend to sound the same! If you listen to things you can pick up and recognise old [samples] ... that's *that* sample, for that reason and for personalising it I like to fiddle around a little bit just to get something a little unique and unusual!

5.8.1.9 Expanded role of the screen composer.

Universal agreement that the role of the screen composer includes more duties.

Tools have changed and with that change comes an alteration in the expected duties a screen composer does.

Anthony Jones explains:

Because the projects that I do have little or no budget and that's why I end up playing all of the instruments because I can't afford to bring in other people. But there have been instances where I have brought in a pianist or vocalists or whatever is required, but for the most part I do it all myself.

Christopher Gordon remarks on the affordances of technology:

It's also now assumed, because of computing in all facets of life, [this] makes it possible to do something with less people assisting you so now, even with the big orchestral things, there are much fewer people working on a project!

Michael Darren is very clear:

It's almost like a false economy in a way! But the fact is: you can do it! To a point that most people can't tell the difference, especially for television work. I mean, writing for film is a different kind of thing than writing for television; it's in 5.1 and you know you generally have to spend a lot more time on it. So, yes, I think it has changed because we are expected to do more!

Screen composer Paul Doust gets straight to the point:

I would say that more is expected for less! So basically deadlines and quick turnarounds; moneywise you're expected to come up with epic orchestral sounds in under \$300. Those kind of things [sic]—so in general, more for less.

Peter Dasent is enthusiastic on this theme:

Absolutely yes, yes, totally—it's amazing what they expect you to do! They'll say some acoustic guitar; well, okay, I have some virtual instruments that don't sound like harpsichords, and I play some guitar myself, so I know little about the voicings; so I can put acoustic guitar on a track—what are they expecting me to do? Are they expecting me to hire a guitar player with the budget they give me? And the deadline given me? Of course not. They just think a guitar is something that you pluck out of the air—that's [what] one composer does—he supplies guitar—an orchestra or an Armenian cymbal.

5.8.1.10 The international studio.

Location becomes irrelevant as long as you are connected to the internet.

The unifying quality that the internet brings is evident here. The rise in the use of the internet has changed deadline expectations and where screen composers can work from.

DCA describes the situation:

In my own work the internet has opened up some amazing workflow capabilities. There's a studio in London that I'm working with—or send them over a demo of what I'm working on and every sample of a cello line and I ask them to record that. So the nature of the sample and the virtual instrument has allowed me to describe to them exactly what it is that I want them to play!! I mean I'll never meet these people but I have a very strong working relationship with them. I've had some interesting experiences, and I can strongly say that I've never had any bad experiences! They got paid, they were happy, they wanted to make the best product from me that they could in fact a lot better experiences than I would with City Symphony Orchestra players!!⁶⁴ In some ways the remoteness is making the world a nicer place!

Michael Darren expands on the ease of transporting files:

But having said that, the internet has made a massive change and it really helped my career! I work a lot in the United States (US) and I send files back and forth a lot. The television shows I work on, although he is based in Adelaide, I never actually saw him for composing or post production at all. I'd write cue, I do it quick export, I send it via email or file transfer protocol (FTP) or dropbox or whatever and he check it and say yes—and that's the way we worked!

Even the use of international orchestras is possible:

I've quoted on Hungarian Orchestras and they're quite a lot cheaper; they are being used quite a lot.

Neil Parifitt is keen to elaborate on the situation:

Oh—yes. I work from my home studio. Can I elaborate for a sec [sic] on the work from home? [Craig: of course] I had my studio at a dedicated office for a long time; however, with communication via internet literally exploding over the last 10 years, I found that even though I'd interact with my clients the same amount. The METHOD of communications has changed big time. Before, it was mostly face-to-face. Now, it's email, phone, cinecync, yousendit /dropbox etc. Basically, having and paying for a separate ... all of sudden didn't make any sense [to have a] separate 'office'—it's amazing how fast that changed. Well—you do have to be very disciplined as it can be very easy to get distracted—whereas the outside studio—you GO there to get work done—but people do get confused about the 'home' studio. It's still a ton of money, just a room in your own place versus paying rent for somewhere else.

RTH comments on the traditional composer's studio:

⁶⁴ This is not the real name of the Orchestra. City Symphony or CSO refer to the same orchestra.

The project [I'm] working on at the moment, the only time I ever seen the client is when I took the original brief. All the contact has been by email and by phone! I'm also going to start working on a [computer] game out of Greece.

Anthony Jones supports this phenomenon:

Now, I've done quite a lot of projects for people that I have never met—with these quick time files sent through the internet so the synchronisation aspect of it are much simpler because any file will work within ProTools, Cubase, Logic or whatever, even 'Garage Band'.

Sean Peter elaborates on the changes in interpersonal relationships that come with a deconstructed studio:

Regarding interpersonal relationships, I'm still picking up the phone and talking to people, I mean you get notes via email but the phone call is the most important thing to me. I know that I annoy people like that but that's just how it goes. It's important to be clear in a phone call ... gives you get that clarity and you don't get that in emails, they can be very ambiguous, you don't get tone, I think all of this is about tone and if all of this is about managing a relationship, quick notes are fine like turn it down at 26 seconds, but managing a relationship with a producer or an editor—whoever you are working with—you just can't do that with just email; it has to come down to at least a phone call.

Sean Peter also comments on the practice of hiring an orchestra on the other side of the world:

You don't need the chops to do it and there is still nothing like a real orchestra—some of them are cheap now. Like the Budapest scoring orchestra for \$2,500AUD, that's actually accessible and affordable for anybody now, you can get a 'B' orchestra to record your stuff now at a reasonably accessible budget.

Edward Primrose comments on the positives and negatives of human interaction:

It's like the force of technology has its own rewards and downsides, it makes things faster. You can transport stuff across the world now, but it also means that you have less and less of this human interaction!!

5.8.1.11 Variety of backgrounds.

Australian screen composers come from a variety of backgrounds.

There is no hard and fast rule about where Australian screen composers come from—they come from many different walks of life.

Glenn Humphries, a well-known sound designer, describes his background regarding screen music composition:

I started using sequences when I was in year 10 at school and it was something that I became interested in because of, because [sic] I used to go to a music shop for drum lessons and I always saw computers and samplers being used. I asked questions and they explained it to me. And then when I started composing, it was pretty much all I composed on! It was only later on in life that I ever that I started to use things like Finale to write music to be played by real people and I've used them in the home studio when I was first learning, in a commercial studios and also live for events like via gigs in Melbourne right up to the 'The Big Day Out'.

Kirke Godfrey states:

I'm not a piano player—I don't have a sophisticated recording studio at my disposal. The reality is I don't have a sophisticated piano [or] a sophisticated piano space. And also because I'm not a piano player I'm unlikely to play it with as much finesse as I would like, and I can finesse my MIDI data!! So I can get the performance exactly as I want it.

He adds:

Regarding sample libraries themselves I find some of them inspiring. I come at life from, rather than being a classically trained musician, I come at life from a more 'soundie' end of it. I was interested in it from the get-go when it was basically racks of modular stuff that required patch cords to plug into each other because I'm that old. I'm a guitarist, technically.

Paul Doust describes his background:

Yes, I'm a stickler for organisation, so for me it's part pragmatic because I'm from a classical background. If it is for traditional orchestral instruments it'll be woodwinds at the top, brass and percussion, and strings, so I tend to order my virtual instruments in that way as well just for ease of workflow!

Thomas Rouch advises:

Not much, no. I've never read, I've never written for a symphony orchestra. I studied at the Conservatorium and wrote stuff there and that was purely art music.

Sean Peter had a similar experience:

I had a vocal major [at] uni the first two years and moved to composition for the third year. As I said, I write a lot of songs and vocal based music for a lot of what I do, a lot of underscore. I think vocals are the most important instrument that I use and produce and I guess that's not a virtual instrument at all; it's the oldest instrument there is!!

Rory Chenoweth comes from the other extreme:

I used to be in a heavy metal band so I'm used to being loud and big so my mixes tend to also be louder harsh and it works and works!

The author of this study (Craig Morgan) has a background in creating music on piano (for himself); however, earlier in my career I was the bass player in a hard rock band for six years. As we can see, there is no clear template for Australian screen composers.

5.8.1.12 Final sound more important than musical content.

Impact and quality of the final cue is more important than the musical content inherent.

Here we find testimonials supporting the concept that the final sound of a cue is more important than the musical content or musical complexity of the cue.

GMA describes the scale of radio and blockbuster tropes:

These days, you hear it all the time on radio and ads in particular, this full-on blockbuster music, you know where it's come from, I've got that sample sound. That choir or string sound and you think—wow, that's over the top ... which is fine for an ad or something like that, not some emotional type heartfelt film that needs minimal instrumentation, it doesn't really fit.

And importantly:

And that's another point that [I'd] like to make, that film scores have gone from being more melodic based to a mix of sound design and mix of musical elements. It's not music in the true sense of the word; it's kind of using music like sound effects. They don't really care about the emotional impact of the music or the storytelling part of the music that you're trying to write for them; they just want to have a sort of sound design. 'I just need some glass sounds or some wind sounds'.

Kirke Godfrey explains his thought processes as a screen composer:

And they don't say this is this set of first violins and second violins from this sample library; that's not how they're thinking, but most people who are working with software synths and software instruments and things, are often thinking very much about 'I'm dealing with the final sound immediately!! I'm not just dealing with the abstract set of notes that will be ... when we get around to the final mix and recording later.' They're just purely thinking of melodies, chords and timing, whereas probably most of us who are working with software are thinking about the production and the final production from the get go!

He adds:

I believe now that composition is indelibly linked to production and it's how the production sounds like [sic] what I was talking about when I was talking about being a sonicist!

Rory Chenoweth is very clear here:

I think my mix is more to do with my identity rather than the instruments I use!

Thomas Rouch explains the differences between film and television work:

Some of the work I do is for reality television, and it has a particular type of sound to it, a tone; there's also production music and trailer music and that's very competitive, so the quality of your sound is very important!

He specifies:

I think all audiences are acutely sensitive to the sounds no matter whether it's television or cinema. You can shut your eyes but you can't change your ears!! It has such a visceral effect on us and that's what made me work in the field. I think the producers and the people who work in television always wanted sounding fresh and new and up-to-date so there are commercial pressures to be fresh and sound new. Whereas film again is more esoteric. Every film is unique—you try and find a sound world for that story. There are genre films and my work is more on the genre side, but even within the constraints of the genre there is a lot more freedom in film to create something unique!! Whereas in television wants [sic] to sound like a specific thing and you need to be able to deliver that sound!

5.8.2 Additional themes.

In addition to the top themes, a few other significant themes have assisted in answering the research questions. These are outlined through participant quotations in the following sections.

5.8.2.1 *Geographical correctness.*

Sounds and music true to the time and place of the cue.

Time and place become very important when creating a musical cue—it has to be faithful to the country and to the people who make local music.

Screen composer Vicki Hanson makes an important point here:

I've spent my life studying various music from around the world and I try to be as ethnically proper as I can ... but there is always that trade-off between ethnic sensitivity and dramatic appropriateness!! For example if you're doing a story from South Africa where the instruments may be the Kalimba or something like that ... it's not going to give you a lot of emotional expressiveness, whereas something like a Kora, which comes from West Africa, will give you a much more emotive feel!! So sometimes when I see a story from South Africa and this instrument doesn't come from this region, do I use it or not ?

An example: I had to do a cooking series not so long ago and it was about islands: it was going to Indonesia, the Philippines, the Cook Islands, Vanuatu, and they all have very different musical styles and to me if someone is exploring Indonesia in a travel sense and absorbing the cultures and the food from that region, to me, the music has to reflect where they are!! It strengthens the connection between sound and the vision—and you feel it.

I had a bit of a conflict with the producers of that program because I said I need to do music which reflects each different area and that's going to be a lot of music, and they said just do generic islands music, and [those] was their exact words! And that was sacrilege for me and when I came to do another job they didn't hire me—could have been the reason, but I don't know. So I sometimes wonder: was my stippling for ethnic correctness too much in that case? But I couldn't live with myself just doing ... so-called bland island music—could be Hawaii, that's just ridiculous.

It's interesting in India if there is a musician living in a certain area you have to use a real musician or you can get fined. And an Indian friend told me about that it's a geographically sort of defined rule—they try and encourage the use of real musicians rather than sample [sic] instruments.

5.8.2.2 *Working with orchestral-grade performers.*

The benefits and challenges with working with highly trained professionals.

Working with highly trained musicians comes with certain responsibilities.

DCA is very clear with his experience:

I mean I've sat in a room with half the City Symphony Orchestra and none of them want to be there!! They all make it very plain that they think that the last 'take' that they did was absolutely fine and I should fuck off and I'm fighting them. And I'm thinking—why? When I'm paying all of you people all this money and I've got EMI [recording studios] booked for a day and giving me the shits! And they just want to go home. I'd rather be sitting at my keyboard with virtual orchestra than working with you guys.

And this is a common complaint; this is not just me. Any conductor that I've worked with will say 'this is what they're [like], they just want their tea breaks, they just want their three hours over and done with, they don't like your piece, they don't like you!' And I'm thinking do you know what? they can go home and I just won't employ them again. I will just stick with guys that I'm using in the States or in England and use virtual instruments!!

You discover, go back to the Beatles and when they recorded Sgt Pepper's with the LSO [London Symphony Orchestra]—most of these guys just hated them and they made it plain they would not play in a take or they refused to take part [sic]. Or they'd say that's my [sic] hours and just walk out—so it's sort of an on-going abrasiveness between modern composers and classical players and of course you can understand it. I mean these people have spent a great deal of their lives working to achieve the level that they've achieved, and working with the material written by some of the best composers of all time—and then they've got to deal with some kid from [the suburbs].⁶⁵ Do you know what I mean? It must be annoying?!! So I can see their position but, nonetheless, when you're getting paid to do a job—and I've worked on jingles for shitty advertising agencies—you know, you just suck it up; if you don't want to do it, don't do it at all. But if you [are] getting paid for it, do the job!! You have my permission to do what you like with it.

Sean Peter had a similar experience:

If you're interested in that kind of music, that score has been the thing to aspire to for that instant feedback creating what you want, trying things out without looking like an idiot in front of an ... overly trained conservatorium geeks, quite often! I worked at the Opera house for a long time; I've worked with the City Symphony Orchestra; I've been a CD [sic] player and performed on stage with them. You look at the way that the instrumentalists are treating composers who come into concert music with them, there is a level of arrogance and disdain against players like that, [sic] would make the process as a

⁶⁵ I have replaced the name of the suburb mentioned.

new concert composer probably really a negative thing to be part of. No one's going to be Beethoven again, and all those dudes, all they want to do is play Beethoven—you can't compete with that!

Edward Primrose discusses the problems with rhythm:

So there's quite a lot of discrepancy between the oboe and bassoon even though they're both principal players in the [City Symphony Orchestra]. They both come in at different times and interpret quite differently what the rhythms are, because they're not in the same place at the same time. And it's a little bit like that issue of all orchestras interpreting a conductor's beat, the down-beat—when we play, depending on whether we're in a film orchestra or we're in the Vienna Symphony—where the note is miles after [sic].

Rory Chenoweth states openly:

That's one of the main reasons I use the sample libraries and synths, because most professional musicians that I know aren't willing to put any time in if there is no budget!!

I have had a similar experience in a recording session where I had employed a twenty-two-piece orchestra to record the score for a film. I printed out the parts for the musicians (many of whom were from the City Symphony Orchestra), and we were about to start playing/recording a particular cue named 12M6. Just before we started, one of the cellists raised his/her hand in the air, clutching the score, saying 'there's a mistake here, I don't understand'. With that there was a chorus of concern about the 'great mistake'.

Horrified and slightly angry that the session-time was going to waste, I rushed into the studio and asked what was wrong. It turned out that there was a rest missing in one of the bars in the cello part: one single rest. Having identified the error, I manually placed the rest on the page (with my pencil) and attempted to get the session back on-track. Unfortunately, the damage was done; it was only five minutes until their tea break and the opinion among the musicians was unanimous—they should all go to tea early. I had

lost recording time, the respect of the musicians in the room and ultimately the recorded music.

When I tell this story, it is not to criticise the cellists, it is to emphasise the high standard that these session musicians are used to. As mentioned, I noticed that many were from the CSO and they would be used to perfectly printed copies of all scores and parts for the symphonies they regularly play. Noticing an imperfection in an emerging composer's work would not be difficult; however, making a scene about it was unprofessional and clearly linked to the imminent tea break. Dealing with real people is a world away from sitting at a desktop working with obedient virtual instruments, a world usually managed by conductors and orchestra managers.

5.8.2.3 Need for real instruments.

Real performers and real instruments are desired and used when possible.

The use of real instruments is evident in the results section of this thesis and elaborated upon here.

Edward Primrose makes his views clear:

Another example is [when] drum machines became available, drummers started to think that they were going to be replaced but then they found out that drummers actually make good programmers of drum machines. Also, drum machines have become a another sound world in itself that drummers use, and they're able to play musically [on] something ... quite mechanical; it's [an] interesting sub-set. And I think maybe this coexistence sits comfortably.

Neil Parifitt explains:

I still feel that nothing replaces an outside 'human' factor. I routinely record vocals, guitars, real percussion, just so there's something organic in the track. Yes, obviously, you can't do the real orchestra in your house, so those libraries have to be leaned on, but if I need bass, I'll try and get someone in versus using a generic Native Instruments patch. If I have the time and budget virtual instruments are the most important tool in this age of composing, but the human factor must not be forgotten.

Robert Upward helps us understand his working methods:

I can still mock the MIDI files up and I can still hear what's still going on. Even if I don't use them in a final—but usually I do use them in a final [mix] and often I will just use a soloist recorded over the top of them. I often add a violinist or a clarinet—that touch of 'humanity'. I find that one solo instrument will help bring the rest alive.

Given their ubiquity and the general acceptance that virtual instruments are here to stay, there is still an acute need for musicians and real instruments. Not only do real instruments add a layer of humanity; they add verisimilitude to the digital creations of screen composers. As Edward Primrose describes above, the creation of a machine that effectively 'does your job' does not mean that you are out of a job. There will still be a need for a human with specialised experience to program, update and improve any machine that may have usurped a human performer.

6 Chapter Six: Discussion and meta-inferences.

In this section, I will reconcile the observed meta-results with the aims and hypothesis of this thesis. I will compare and contrast, infuse and link parameters and themes, one on the basis of another. As seen from the quantitative results of the survey, a vast amount of data exists. The significant results speak volumes about the nature of screen-music composition for Australian-based composers at the moment. This is quite remarkable as such a survey has never been accomplished before: now we have some sense of what the screen-composer community looks like from a quantitative perspective. By the same token, the qualitative interview data are a goldmine of rich real-life experiences that give substance and informative context to the statistical data. However, it would be remiss of me to overlook some of the other important information gained from this survey—keeping in mind I need to restrict myself to the research questions of this thesis. I was impressed by the enthusiastic nature of the respondents. I was also impressed at the marked result in answer to the question 'who has most control over your work?' With the answer being a resounding '[the] director', I was fascinated by the instrumental evasion, the grouping of favourites and also the creation of templates. I think this is an important point and it is one that will be discussed in this section.

The comprehensive results from the qualitative interviews really bring depth, human experience and personality to this investigation. First, I was overwhelmed by the number of volunteers who wanted to participate. Second, I was overjoyed at the rich and diverse nature of their responses. Third, I am intrigued by the unexpected results that were uncovered as part of the interview process.

My role now is to ensure completeness, as Begley (2004) has noted:

Completeness is important to qualitative inquirers, as it allows for recognition of multiple realities. Inquiries are thus not using triangulation as a means of confirming existing data, but as a means of enlarging the landscape of enquiry, offering a deeper and more comprehensive picture (p. 393).

6.1 Conditions.

This discussion speaks to the majority of cues that have been created by a screen composer who is writing cues for a simulated orchestra; that is, for simulated orchestral instruments. Different rules apply to non-orchestral sounds, like those generated from a synthesiser. The screen composer has a much more liberal hand when synthesised sounds are used, as they are not trying to sound like any known instrument; they sound like their description. More clearly, I have used the example previously of the 'Fuzzy Alien Bass'. Now, this sound is clearly not meant to sound like a double bass or a contrabassoon, it sounds something 'like' the description.⁶⁶ The results of this thesis do not apply to famous screen composers or screen composers who have a team of 'ghost writers' working on the finer details of the composition process for them. This thesis speaks to the greater majority of Australian screen composers who are engaged in the creation, modification and refinement of their own work for synchronisation with video images.

6.2 Meta-inferences.

Upon reflection and analysis of both sets of data, I have listed the following meta-inferences of this thesis.

⁶⁶ As described in Gall and Breeze (2005).

6.2.1 Virtual instruments.

It is clear from both methods of investigation that virtual instruments are vital to Australian screen composers, especially now that their tools are democratised. They help realise the screen composer's vision to the director and have a much greater purpose than just providing demos—they provide the product that is featured in the final cut of the film. This is in addition to the general praise for virtual instruments from the many interview participants who all use virtual instruments at some stage of their composition process. Without these devices, creating musical cues for the screen would revert to playing the best rendition of the score on a piano or other instrument that a composer was familiar with. This is less attractive to prospective employers (directors), as often they cannot fully grasp the musical vision of the screen composer and can only hear what is being played. Together with the level of realism that virtual instruments now possess, screen composers can manifest instantly what a cue will sound like and how it will work in synchronisation with the film. Finally, I am still overwhelmed with the response to both the survey and the volunteers for the interviews. This response emphasises that working screen composers are insistent on expressing their opinions and are engaged in this subject. In terms of the aims of this thesis—'to gather data surrounding screen-music composition'—no single element features as universally as virtual instruments.

6.2.2 The intended performer.

Screen composers are not writing for humans; they are writing for their virtual instruments. The results show that, with increases in virtual instrument use, the reverse is true for the cue played by a human. More clearly, the data have revealed that if a screen composer uses virtual instruments to compose a cue, the intention is not to have

a human play and record the music. This data gives us insight into what screen composers were not saying before this investigation: they were writing for their own virtual instruments and not for human performers. This result also supports the evidence regarding budget and time given to compose cues. This is especially clear when looking at the results from the creation of templates and the creation of groups of favourite virtual instruments. The results of this are clearly evident on Australian television, for example, where ostinato strings underpinning bold brass⁶⁷ and percussion (and the exclusion of woodwinds) are ubiquitous.⁶⁸ Figure 58 shows a typical string ostinato pattern that can be selected from a list of predefined blueprints.



Figure 58: Typical 'Action Strings' ostinato pattern.

6.2.3 Resource connections.

Budget allocations, the time given to compose a cue and the use of virtual instruments are inextricably linked. From both methodologies employed in this thesis, it is clear that budget is the key factor in the business of screen-music composition. If you have a large budget then you can invest your time and money into creating scores that humans will play and record—this process usually takes longer. Unfortunately, if you are without a substantial budget, for whatever reason, then you are left to rely on your own resources. Those resources are virtual instruments and whatever instrument(s) you can play

⁶⁷ Especially multiple layers of French Horns.

⁶⁸ I shall expand on this topic below.

yourself—and the evidence suggests there is little time for a composer to create the cue. The budget and time given to compose a cue are inextricably linked with the use of virtual instruments. This assertion rings true from both sides of the investigation. It is evident from the data seen in Figures 23 and 17, where time given to compose and destination of cue are shown. This situation is also evident from the compelling interviews, in which multiple accounts of the same story are documented.

6.2.4 Experience connections.

As with budget and the time given for composition, experience and budget are also connected. A more experienced composer is more likely to have a greater budget for the cue. This makes complete sense: if you are a well-known, experienced screen composer in the industry then you are going to end up with greater budgets for your work. Armiger (2010) said 'the busy screen composers get the work'⁶⁹ and this rings true here. It also segues into this notion of famous screen composers. Most of the interview participants mentioned a famous screen composer, whether this was Hans Zimmer, John Williams or someone else preeminent in the field. These individuals seem to be on a different 'level' to other composers, through their experience, outstanding work or influence. Due to their international reputation, extreme budget allowances can be made for these composers. Of course John Williams will use a large symphony orchestra for the score to the next *Star Wars* movie. Why? Because he is John Williams—such a standard and instrumentation is expected from him.⁷⁰ That is not to say that somewhere, someone in his team uses virtual instruments in some way, perhaps as a precursor to digital notation printing. However, by the same token, as we have learned from the

⁶⁹ From a screen music lecture, (AFTRS, 2010).

⁷⁰ And Lucasfilm.

previous section regarding working with orchestral-grade musicians, they expect perfectly printed faultless manuscripts to read from as they are used to this. In addition, clarity in the recording studio also allows for experimentation time with the orchestra, something that I suggest is rare these days and only really afforded to these famous screen composers. Different rules apply to these famous screen composers, where budget is not an issue.

6.2.5 Virtual instrument selection.

Evidence-based data combined with individual accounts from the interviews support the notion that screen composers play to the strengths of their favourite virtual instruments because they sound good. The creation of templates and the customisation of individual instruments included in these templates reinforce the statements given by screen composers about their choice of instruments. The instruments chosen at the demo stage of production are purely on the quality and functionality of the virtual instrument. As a screen composer, I choose the best sounding virtual instruments that I have to include in my arsenal of musical forces. I would also choose virtual instruments that have the functionality to make my job easier, with extra features like extended techniques and functions within the software that assist in iteration and repetition. As mentioned previously, 'Action Strings' from Native Instruments has these exact functionalities. This popular virtual instrument has a catalogue of ostinato rhythms that have been recorded expertly by a string orchestra. The screen composer merely needs to select one of these ostinato patterns and copy and paste it to as many bars as needed. I mentioned that this virtual instrument was popular; it certainly is on Australian television. Large shows with massive followings like *Masterchef* (a popular cooking program) and *The Block* (a popular home renovation program) both use 'Action Strings' in their scores. As

mentioned earlier, the result is undeniably effective as the ostinato effect drives the action forward, ramping up the tension throughout these programs where needed. This virtual instrument is highly useful.

The ostinato is more often than not combined with larger-than-life sounding horn and brass, bass drums and other percussion.⁷¹ The audience and director are used to the style of sound that this combination of virtual instruments delivers; as mentioned previously, the scale and magnitude of these sounds originates from the cinema and from movies scored by famous and influential screen composers (like Hans Zimmer). Emerging directors have picked up on the effectiveness of this sound combination and they request it for their television shows. The sound of the cinema has been directly translated to television through the use of virtual instruments by the sonic expectations of directors.

Further, virtual instruments used in addition to DAWs reward the stacking of instrument-track upon instrument-track, until the CPU limit is reached. This promotes a melodic framework that is based on a vertical layering of instruments rather than a horizontal phrasing of melody lines. This is an important distinction between the screen music written twenty years ago compared to the screen music scored more recently. Melody that was structured horizontally is now realised vertically.

Whether the larger-than-life score is suitable for a particular television program is another question altogether, as there is often a mismatch between what is happening on screen and the magnitude of the supporting score.

⁷¹ See Figure 57 for an example.

6.2.6 Satisfaction.

Screen composer satisfaction at the moment has increased from when the participant composers first began their work. These data on their own are open to many areas of interpretation; however, once combined with the actual words and stories from the interviews, this increase in satisfaction can be in part attributed to the stunning utility and effectiveness of virtual instruments and DAWs. I propose that this increase in role satisfaction is linked to increased productivity, greater control over musical outcomes and a sense of autonomy that was lacking before virtual instruments attained their current standard of sophistication. Virtual instruments allow screen composers to express themselves with ease, lowering the 'I don't have an orchestra, so I can't understand what my score is going to sound like' factor. I assert there is a lowering of creative anxiety, as you do not have to wait for the orchestral recording session to understand what your composition actually sounds like. Screen composers can realise their musical visions via virtual instruments and this is very satisfying on a professional level.

7 Chapter Seven: Conclusions.

7.1 Fresh data.

For the first time, this study indicates what screen composers based in Australia do and how they feel. This thesis is original in its approach, methodology and scope and reveals new data on a specific group of professional Australians about which little is known. We now know from this snapshot (of October 2013 and the interviews of early 2014) what cues these screen composers write, which technologies they use and how they feel. We know that virtual instruments are vital for Australian screen composers to do their job, especially now that their digital tools are democratised. The very fact that these tools have become democratised was a primary concern for most of the respondents as they were concerned about the loss of skills needed to successfully engage in the craft of screen-music composition. We know now that many screen composers write music for projects with little or no budget as it is not viable to hire real musicians to record for the cue. On average, according to this investigation, screen composers write musical cues for screen dramas using a combination of real and virtual instruments. The real instruments were probably played by the screen composers in their home studios themselves to save costs.

7.2 Democratisation.

Today every new Apple Macbook Pro laptop has the DAW 'Garage Band' preinstalled, providing an avenue for anyone interested in creating cinema-grade music to compose and subsequently bestow the title 'screen composer' upon themselves. This situation is further amplified by the cheaper price of larger more powerful DAWs like LogicPro and

ProTools. This is clearly very frustrating for the hundreds of *bona fide* screen composers in Australia, as suddenly there is much greater competition without official accreditation, training or years of experience. Additionally, more often than not these new 'screen composers' are younger and better at operating the most recent technology and computer applications—they are digital natives (Wang, Myers and Sundaram, 2013). They can readily adapt to changing technologies faster (like upgrades and new versions) than their older, often more habitual counterparts, allowing them to learn and master new digital tools quickly (Richtel, 2011).

Taking a step back and looking at other artistic digital practices that have been democratised recently, digital photography comes to mind. This is an analogy that many of the interviewees touched on. The availability of digital cameras and their associated processing programs (Photoshop, for example) is expanding and has given many people the ability to take high-resolution pictures. That this technology is accessible and the digital pictures feature professional-grade resolution does not guarantee that the actual photograph taken will be a masterpiece. It simply means that the photograph will have professional-grade resolution. Quality is not implied by digital democratisation. This is further exemplified by the disposability of digital products, as there is nothing stopping a budding photographer from taking a photograph of the same scene twenty times.⁷² It may not be a photograph of any particular merit; nonetheless, the disposable 'easy-come, easy-go' nature (facilitated by the close proximity/functionality of the delete button) does not grant the title of 'professional photographer' to everyone who takes digital photographs. By the same token, this broad accessibility must mean there are some truly wonderful and meritorious photographs being revealed to the world because

⁷² Except the storage capacity of the camera.

of this democratisation, if only according to the sheer numbers of photographers and the statistical chance that some photographs will be great. This topic is full of contradictions and caveats.

Due to collapsing timelines, screen composers work from their templates of ready-made favourites. This results in many cues sharing similar instrumentation, thus creating the unique cinematic sound we hear in film today. Given the circumstances of working from a set of favourite instruments from a template, it is not surprising that we hear similarities between different movies and different television scores. It is possible to recognise the actual virtual instruments used to create the cue as they are popular, sound good and provide a reliable 'sound' for the composer and for the director. When I discuss the 'unique cinema sound' we hear today in cinemas and on Australian television, I mean the over use of horns and brass in general, combined with an ostinato string part carrying the rhythm. These are usually mixed with large sounding drums like those used by famous screen composer Hans Zimmer in the movie scores for *Inception* (2009) and *Batman, The Dark Knight Rises* (2012). The success of music in these films and their popularity with editors has influenced the orchestration of film and television programs for years—this is achieved first by the virtual instrument merchant who sells the samples emulating the 'Hans Zimmer' style. Second, it is achieved by actual screen composers, adding these popular and reliable virtual instruments to their templates and using them whenever they can—whether they are needed for the scene or not.

This saturation of style and methodology privileges the creators of virtual instrument hardware who market and sell keyboards and mixing-interfaces, and other MIDI operators who lock the screen composer into their brand. They are effectively capturing the screen composer and preventing them from using other platforms and interfaces;

however, I know from the results of the qualitative research that many screen composers use multiple platforms to create a single cue. There was one instance where a single screen composer used eleven different virtual tools to produce the sounds required for one particular cue. This is contrary to the aims of virtual instrument merchants who aim for 'brand adherence'; however, the digital nature of the product allows for transferability. It is common for some processes to be used in one DAW (ProTools) and then the elements of the cue are fully or partially exported to LogicPro to perform another function: iteration, transformation or manipulation. The data are then imported back into the preferred DAW (such as ProTools) and exported to a digital notation program if needed for orchestral recording.

The last step described here has become increasingly rare due to the budgetary and time constraints already mentioned. The use of virtual instruments by Australian screen composers is a relationship vital to its core. Without virtual instruments, Australian screen composers would not be able to demonstrate their musical visions to insistent directors; these have to be as close to the finished product as possible. There is also an opportunity for directors to move away from the yes/no attitude many currently employ. Rather than just rejecting a musical cue, there is an opportunity for them to work with the screen composer, have a constructive dialogue and perfect the cue together as a team. This dismissive yes/no attitude may actually be a result of a 'glut' of Australian screen composers at the moment: if a director does not instantly like a cue or musical approach, they can easily find another screen composer. The focus here is on interpersonal relationships and how to make them work in a film-team setting. These challenges are not confined to directors and screen composers.

Performers who regularly enjoy employment from screen composers may find less and less employment in this field as virtual instruments continue to become indistinguishable from the real thing. This is a very real consequence of the democratisation of virtual instruments. It represents a conundrum for screen composers and musicians alike as live performances are always preferred. Performers and musicians are not the only ones to face this conundrum: orchestrators, audio-technicians and recording studio personnel professionals will undoubtedly be influenced by the decline in demand for their services.

What does this mean for Australia economically? According to Bowen (2015, p.3), the broader entertainment sector employs over 43,000 people in Australia and is valued at three billion Australian dollars. Despite being Australia's fourth biggest industry sector, recent growth in the copyright industries has been negligible between 2002 and 2014. Their gross domestic product (GDP) contribution has decreased from 8.2 per cent in 2008 to 7.1 per cent in 2014. Attendances at live music performances have dropped from 41 per cent in 2009 to 39 per cent in 2013 (ibid). This is important as live music performance is the primary source of income for 70 per cent of Australian musicians. Conversely, within the software-dominated creative industries, music and performing arts have been standout performers, with a seven-year average growth rate of 4 per cent. This growth may be due to the democratisation of film-related digital technology, including the proliferation of DAWs and virtual instruments. While this data is not specifically targeted at Australian screen composers, I think it is important to contextualise the broader Australian economic situation so this thesis may be as comprehensive and relevant as possible.

Not all is lost for musicians and performers. Granted, their employment prospects in the screen-music industry may diminish in the short term; however, this is a limited view. I expect there will always be a demand for humans who can play musical instruments as knowledge about the real instruments, their abilities and nuances, still need to be understood and taught. These nuances include extended techniques, the sonic range of the instrument and the role they play in the creation of traditional chords and phrases. Moreover, the use of virtual instruments may just be a 'passing fashion' that audiences and decision makers reject in future years, in preference for the 'real thing' once again. With the interests of their shareholders in mind, virtual instrument merchants are aware of the subtle nuances that real performers bring to recording sessions; they are seeking to release virtual instruments that cover this 'gap'. Products that include extended techniques and other instrument-specific sounds are already on the market. They are formidable virtual-instrument packages, eminently useful to the budget-strapped, time-poor screen composer. For example, the 'Cage: Custom Aleatoric Group Effects, String Edition' product from 8Dio contains aggressive chopping bow phrases, bends, glissandos, ascending and descending tremolo samples and more.⁷³ Corresponding products with similar impressive features for the woodwind and brass orchestral families also exist.

Even the human voice is in reach of the virtual instrument merchants. Again, using 8Dio as the example, they released the 'Jenifer' product mid-2014. 'Jenifer' is a soprano whose voice has been sampled with expert precision. The 'Jenifer' product can be added just like any other virtual instrument to your DAW, set to perform soaring notes over the top of an 'epic battle scene' or delicate sensitive notes to enhance the 'emotional

⁷³www.8Dio.com

impact' of a sincere 'tear-jerking' cue—the effect is remarkable. I mention 'Jenifer' as this product adds an additional level of realism and verisimilitude that lay audiences may not think is yet possible, hence elevating the impact of virtual instruments to a new high, to a new place of effectiveness and utility.

It is here that I am reminded of a quotation from Sherry Turkle (1995) in her outstanding book *Life on the Screen*. Turkle (1995) reminds us that 'we construct our technologies, and our technologies construct us and our times, our times make us, we make our machines, our machines make our times' (p. 46).

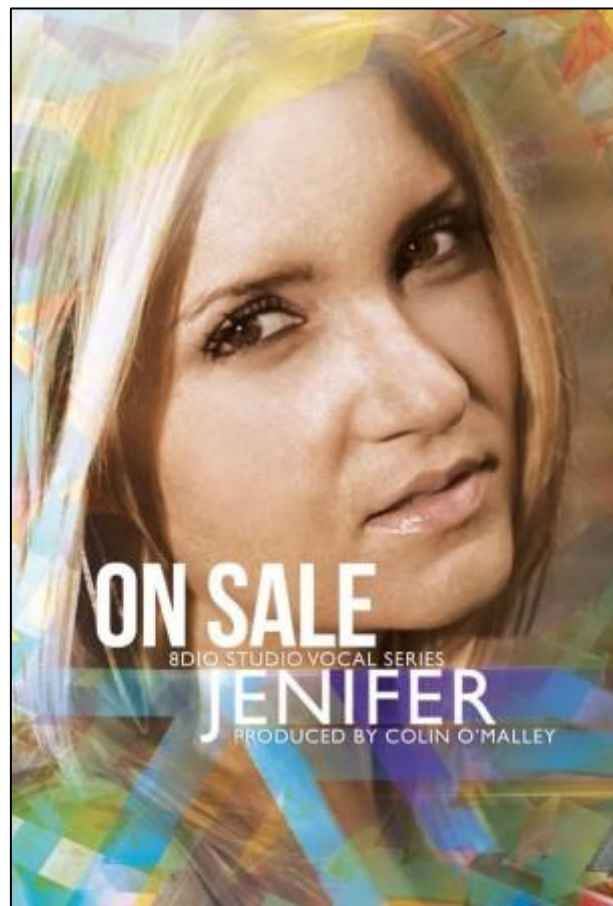


Figure 59: Advertisement for the 'Jenifer' virtual instrument distributed by social media and email.

7.3 Pressure on screen composers.

Competitive pressure is upon screen composers to produce not just a demo of their work but a cue that is as close to the final score as possible, so it can be used in the film. This expectation is driven by directors and music supervisors who have come to expect finished material because it is possible. The only way for the bulk of screen composers surveyed to achieve this is to use virtual instruments to create that final-cut sound.

Compounding this is the very real element of working on a film that is not locked off and continues to change right up until the weeks prior to release. This forces the screen composer to update, alter, chop and change according to the changes made by the director and editor. Virtual instruments are well suited to this particular situation as they can be instantly deployed to cover gaps where the scene has been extended and the recorded music runs out. Conversely, they can be used where a scene is shortened, requiring the recorded music to stop in a different place than previously agreed.

There are further forces at work here, including competition from other screen composers who can produce similar or better results using basically the same virtual instrument base in shorter time or a cheaper way. Competition from other screen composers is not the only issue facing this industry at the moment. There is no obligation for a director or film team to actually engage a screen composer at all; the ever-growing use of pre-existing music in film is a great source of concern from the screen composers that I interviewed. The use of pre-existing music is not a new concept, the practice ranges from well-known symphonic pieces (like Beethoven's Symphony No. 7 used in *The King's Speech* [2010]),⁷⁴ to popular dance releases (the 'Move it!'

⁷⁴ Or Mahler *Symphony No. 5* used in the film *Death in Venice* (1971), or the use of Wagner in *Melancholia* (2011).

ubiquitous in the animated *Madagascar*⁷⁵ movies). This practice was made famous by the replacement of Alex North's music for *2001: A Space Odyssey* (1969) with various classical music pieces placed throughout the film (McQuiston, 2013; Wierzbicki et al., 2012, p. 224).

Presently, cinema and television productions may also engage singer/songwriters to pen the score rather than using a screen composer. Artists including Daft Punk are scoring major international film releases,⁷⁶ and major Screen Australia-endorsed feature films are being scored by local Australian folk artists, including: Sarah Blasko (*Tomorrow, When the War Began* [2010] and *Ruben Guthrie* [2015]) and Missy Higgins (*Bran Nue Dae* [2009]). Their songs are simply placed over the action on screen and are often faded out at the end of their 'cue'. There is no doubt that this technique works well in many situations, providing a visceral musical background with the aim of eliciting an emotional response from the audience; however, it is at the expense of music a screen composer could have written.

7.4 Job satisfaction.

Despite the pressures described above, screen-composer job satisfaction has increased from when Australian screen composers first started their careers compared to now.⁷⁷ I suggest this is due to the greater autonomy afforded by the enhanced quality and sophistication of digital tools. Digital tools have played a very real part in the job satisfaction of screen composers, as evidenced by the interview responses. That is not to say that performers are not desired in the creation of musical cues; it is just that budget

⁷⁵ 2005, 2008 and 2012 respectively.

⁷⁶ *Tron: Legacy* (2010).

⁷⁷ Date of survey, October 2013.

and deadlines often make it impossible to arrange this. It is not the intention of this thesis to represent performers as annoyances or impediments to successful music cues—again I assert that it is the dream of most Australian screen composers to work either with an ensemble or an orchestra. As sophisticated and impressive as virtual instruments have become, I suggest there is nothing quite like recording with a symphony orchestra given the opportunity. This is the very heart of my thesis. The opportunities for engaging real performers are diminishing due to the democratisation of virtual instruments and the reduction in budgets by producers of films and television programs. The democratisation of virtual instruments has certainly changed our relationship with real instruments and their performers. There will always be a place for real performers playing real instruments for screen productions, as knowledge about the capabilities of the musical instruments, their strengths and limitations will always need to be understood. This is in addition to information regarding practical data about the instrument such as its range, any extended techniques it may have and any other effects the instrument can and cannot enable. In addition, performers with real instruments will need to play in orchestral sessions where there is a budget for the screen production, however rare that may be.

7.5 The end product.

Given this, screen composers are able to create cues quickly, cues that are finished products for their director. They are refined, mixed and impressive sounding cues that appeal to the modern sensibilities of directors and producers, who themselves have been influenced by the impressive sounds of virtual instruments. Consequently, the shift in orchestration and instrumentation has real implications for the employment opportunities of session musicians, audio-technicians, copyists and recording engineers.

These are professionals who are highly trained in their crafts and are touched by the reduction in the number of real performances, including Australian screen-music cues. Less professionally recorded music means fewer professional recording events, requiring fewer personnel to operate state-of-the-art mixing boards, specialised microphones and purpose-built recording spaces. This research is an admonition to the professional recording industry that future business may not be as fruitful as business in the past.

The greater autonomy granted to screen composers means that their cues (either containing or completely composed of virtual instruments) actually feature in the final cut of the film. This would not have been possible just a few years ago. Virtual instruments have been promoted to a position of importance and sonic significance rather than just being a tool to create a demo. I foresee a fertile area of scholarly activity in this field.

The democratisation of virtual instruments and their broad use by Australian screen composers have shaped the new paradigm of film and television directors. These new directors expect final and completed versions of cues and not working drafts. Virtual instruments are able to satisfy this expectation by delivering sophisticated and convincing renderings of the screen composer's musical vision.

When combined, these factors allow insight to the real hidden results of this investigation. Australian screen composers are writing music that plays to the strengths of their virtual instruments, avoiding large or complex musical gestures as these, more than anything, reveal that virtual instruments are being used.⁷⁸ What I mean here is that screen composers do not want to show their hands. They do not want the audience to

⁷⁸ The music does not sound convincing.

know that the musical score was assembled using virtual instruments, they aspire for their film music to 'pass' as orchestral/acoustic music—which helps to show that the goal of an orchestral sound persists. Australian screen composers are truly adept at this skill: they could even be renamed virtual instrument composers. This previously unseen insight is revealed by this investigation.

7.6 Suggestions for future research.

Future research in this area should initially investigate all of the themes uncovered in the interviews from this project while they are still relevant. Additionally, I am certain there are many publications possible from these data that will benefit the Australian screen-composer community. One in particular is the theme of 'working alone' in a studio that is often darkened. I believe there may be links to the health and wellbeing of screen composers who work every day (and night) in these circumstances. Such research could be poignant because of the increased pressures placed upon Australian screen composers from the nature of the job itself. This is supported by the results published in the Australia Council's (2014) 'Arts in Daily Life: Australian Participation in the Arts', which indicates that 73 per cent of those who write songs, mix or compose music do so alone.⁷⁹ While this data is not specifically targeted at screen composers, they are included in the 73 per cent figure.

Another suggestion for future research is to explore how widespread the connection between screen composers and virtual instruments is around the world. Such research could support or dismiss some of my initial suspicions that the changes described in this thesis are universal and are not limited to Australian shores. Finally, further

⁷⁹ Music here could mean: pop, rock, theatre, classical and screen music.

investigation into the impact of virtual instruments and DAWs on concert composers is due.⁸⁰ This is in addition to the data supplied by Throsby and Zednik (2010). I understand anecdotally that many concert composers use the same digital tools as screen composers; however, a proper evidence-based investigation is needed to support my speculations. Once completed, a comparison between the two sets of composers could then be performed to understand their similarities and differences.

7.7 The future of the industry.

This is a rapidly evolving industry: it has moved quickly even throughout the duration of the time taken to write this thesis. Speculating on where the industry will be in ten years is informed by the responses to the final interview question: 'what do you think is the future of virtual instruments in screen music composition?' Everyone gave a positive response: virtual instruments have a bright future. Additionally, virtual-instrument merchants will customise products for clients according to their needs, aesthetic desires and computational requirements. This is already occurring in the United Kingdom with the virtual instrument company 'Spitfire Audio', with whom Hans Zimmer spent time with in late 2014 early 2015. From the interviews it was speculated that screen composers would be able to 'pick and choose' the musical instruments of the package they purchased, therefore customising the transaction for that screen composer. The impact of this 'build your own sample package' approach will bring an element of unpredictability to the sonic manifestations created, potentially undoing some of the 'sameness' that is often currently produced by screen composers who use virtual

⁸⁰ Composers who write music for the concert hall.

instruments. There will be a greater variety of sounds synchronised with film, and this is not an industry that will go away.

The investigation into the use of virtual instruments by Australian screen composers has yielded meaningful data about the parameters that surround and support this group of working professional Australians. We now know the specific diegetic details of the cues they write, what type of films they feature in and we have data about the instrumentation. We also know the specifics of virtual instrument use and how intrinsically ingrained they are in the working habits of Australian screen composers, due to such influential factors as experience, budget and deadlines. This study also confirms the powerful influence of the director over the nature of musical cues and directorial expectations of a finished product and not a demo or draft, resulting in the cue featuring in the final cut of the film. The screen composers' satisfaction with their musical outcomes was also unearthed, with a distinct and measurable improvement on average over time. The comprehensive first-hand interviews revealed the astounding utility of virtual instruments, the concerns about democratisation on the craft and quality of screen-music composition and how the final sound of the cue is more important than the musical content. Knowing this we are able to prepare for the future by managing the expectations of session musicians, recording studios and all those associated with the recording of real performers for screen music. We are also able to provide informed choices for those working in the Australian recording industry so they are prepared for the continued existence and proliferation of virtual instruments as a key commodity in the Australian screen-music landscape.

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APPENDIX A. Survey questions

1. Demographics.

1.1 What is your age? [numerical entry]

1.2 In which country are you based? [List of countries]

1.3 How long have you been composing for the screen? [numerical entry] years.

2. Destination and Genre.

In your mind, please select any musical cue from any recent project. With this cue in mind, please answer these questions:

2.1 What was the intended destination of your project?

Please select one: [Cinema / Television / DVD / Corporate / Academic / Festival / Ceremonial] Other please list [text entry]

2.2 What type of project was it?

Please select one: [Short film / Documentary film / Feature film / Advertisement / Art film / Series / Ceremonial] Other please list [text entry]

2.3 Into which genre does your project fit best ?

Please select one: [Action / Drama / Romance / Sport / Thriller / Family / Sci-Fi / War / Adventure / Fantasy / Serial / Sit-Com/ Animation / Film-Noir / Short / Horror / Silent / Comedy / Crime / Musical / Western / Documentary / Mystery / X-Rated / Religious]
Other please list [text entry]

3. Music Purpose.

With that musical cue still in mind :

3.1 What was the function of your music ?

Please select one: [Title/Underscore/Diegetic/Non-Diegetic/Credits/Referential] Other
please list [text entry]

3.2 Please describe the instrumentation.

Please select one: [Sampled (MIDI/ virtual instruments) / recording of a performance /
Both] Other please list [text entry]

4. **Tools.**

With that musical cue still in mind :

4.1 Do you use any computer-based tools to compose it ? [yes/no]

4.2 What digital Sequencing Software do you use? Please select from the list [Please
see appendix Two] Other, please list [text entry]

4.3 What Notation Software do you use? [Please see appendix Three] Other, please list
[text entry]

4.4 Do you use any other software tools to create screen music ? Please list them. [text
entry]

4.5 How would you rate your knowledge of the functionalities of your tools? [Likert
rating scale 1–5]

4.6 At any stage during the creation of this cue, did you use pencil and paper? [yes/no]

4.7 Do you have a team or an assistant who inputs your music into a computer-based
program? If so, which program does your team or assistant use? [yes/no] [then select
from list appendix Three]

5. **Instrumentation.**

5.1 When using virtual instruments to compose, do you intend for the music eventually
to be played by human performers ? [yes/no]

5.2 How satisfied are you with the virtual instruments you have on your system? [Likert rating scale 1–5]

5.3 Do you work from a ready-made group of virtual instruments that you prefer, that is, a group of favourites? [yes/no]

5.4 To what extent do you customise your virtual instrument samples? [Likert rating scale 1–5]

5.5 Are there virtual instruments that you avoid on your system? [yes/no] [other please list, text entry]

6. Working Methods.

Thinking about the entire score from the same film as the aforementioned cue:

6.1 Did the project have a music budget? [yes/no]

6.2 How much time were you given to score the film? [numerical entry]
days/weeks/months

6.3 Apart from yourself, how many people directly worked on the creation of your score? [numerical entry]

6.4 Did you utilise the portability of the technology when composing this cue ? Was it composed in more than one place ? [yes/no]

6.5 Please rate the influence of time (deadlines) on your choice of instrumentation?
[Likert rating scale 1–5]

7. Satisfaction.

7.1 Please rate your satisfaction with the functionality of your digital sequencing programme. [Likert rating scale 1–5]

7.2 Please rate your satisfaction with the functionality of your notation software.
[Likert rating scale 1–5]

7.3 Please rate your satisfaction with your current hardware? [Likert rating scale 1–5]

7.4 How well do your resources reproduce your initial musical vision for the project?

[Likert rating scale 1–5]

7.5 Please rate the influence of other film-team members (director, editor, mix, producer, music supervisor) on your musical vision. [Likert rating scale 1–5]

7.6 Thinking back to your first project as a screen composer, please rate your satisfaction with your musical outcomes then [Likert rating scale 1–5] and now [Likert rating scale 1–5].

8. Thank you.

Thank you for your time.

8.1 If you would like to take part in the second phase of this research (a short interview), please provide your name and email address. [text entry]

APPENDIX B. Interview questions.

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Secondly, Do you wish to be identified or quoted ?

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them—what are your thoughts on that ?

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Working Methods.

1. Have digital tools changed your working relationships with other members of the film-team ?
2. How do deadlines influence your decision making regarding virtual instruments choice ?
3. How does budget influence your decision making regarding virtual instruments choice ?
4. Have you always worked in the same way ? Have your working methods changed because of virtual instruments?
5. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?
6. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?
7. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?
8. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] What instrument/s do you use ?

Satisfaction.

1. Have virtual instruments changed your satisfaction as a screen composer in any way ?
2. What role do virtual instruments have in the future of screen music ?

APPENDIX C. Interview transcripts.

Interview transcript Anthony Jones (5 Feb 2014).

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

I do indeed.

Secondly, Do you wish to be identified or quoted ?

That's fine.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

The very first film project that I worked on was for a project at the film school and the director wanted the sound to be like Bernard Herrmann and there was no budget of course, so I used to string quartets and I just doubled them up. Ever since then, I've hardly used any live instruments because there's been no budget for anything, so all of the music that I have written has either used internal instruments, in the box by using various sample libraries or by using the odd instrument that I play myself. I combine

virtual instruments with instruments that I play myself and that helps to mask the fact that a lot of it is synthesised!!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them—what are your thoughts on that ?

Well, the first six years that I was writing sounds in synthesiser modules that were external to the computer, and it's always a challenge for getting these boxes to talk together, and I have taught this in TAFE as well trying to get simple systems and getting students to work out how to select between different patches on external devices, whereas once you go into the box it's just a matter of clicking on the pull down menu and you get the sound that you want. The challenge is if you want to write idiomatically for an instrument just because you can write something doesn't mean that the instrument itself would do normally that kind of thing. In other words, you can do things you can't do in the real world on these virtual instruments you don't have the same limitations, but also you miss out on perhaps different fingerings for the same notes, the different sounds that you get on with things like trills, different kinds of trills between registers you miss all that kind of stuff with virtual instruments!! They are becoming more and more sophisticated and if you pay more money then you get access to more articulation, different numbers of instruments, I've got a basic level of Vienna Symphonic Library for example and it only has a certain number of fixed articulations and instruments you pay more money and you will get more. Vienna has a system that allows you to place instruments spatially, and it synthesises the effect of different auditoria, with these

instruments in different places within the auditoria and I haven't shelled out for that. I just work with the basic reverb that's in the box.

That's always been a big thing even with external modules, they might have particular sounds that sound good and sounds that sound dreadful so you might imagine a queue to be wonderful with the French horn, but when you go to use the French horn sound that's available to you it just doesn't work so you wind up replacing it with an instrument that does!! Because of the sound rather than thinking in terms of the instrument itself!![5:15]

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Not nearly enough only because I don't work consistently enough to do it so. The sample libraries you could effectively think of as your performance instrument and like any performance instrument, there are things that you can do things that you can't do and you get to learn that very quickly. Every time I use the thing it's a learning experience because I haven't done it nearly enough. Basically, I use things just as they come, with a slight amount of customisation just because I haven't done enough yet.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

I don't see myself as being in competition with directly anybody else so it hasn't been a big thing for me. Money is more of a criteria then having the latest and greatest.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Yes definitely![7:01] Before films were distributed on videotape with SMPTE time code on one channel of the audio, so there was at least some human interaction there, now I've done quite a lot of projects for people that I have never met - with these quick time files sent through the Internet so the synchronisation aspect of it are much simpler because any file will work within ProTools Cubase Logic or whatever even Garage Band. Whereas, say one project that I did for the film school, they did a dub from film onto video at 24 frames per second, and when I synced everything up I realised that the piano that I was seeing on screen was playing out of tune because of the difference between 24 and 25 frames per second, so I then had to go back and get them to run off another dub[7:58] so there was more aspect of human interaction there with the older system than is necessary now.

I don't have as many spotting sessions with directors as I used to they pretty much just leave me to it now!! Whereas, I would have a meeting with the director and they would say; I want music here I don't want music here, I want the music to do this, I don't want it to do that. It was much more specific before that it is now!!

6. How do deadlines influence your decision making regarding virtual instruments choice ?

They do make a difference, sometimes you just have to work with what you come to first rather than hunting around. Say, for example, you've got sample libraries that are not very well categorised, drum loops and the like, you wind up falling back onto things that you know rather than exploring new things just to get it done in a faster time. That's more with commercial projects and I haven't tendered to do, too many of those. So the deadlines for the projects that I have done have generally been less strict so I have been able to explore. More money would be nice though.

7. How does budget influence your decision making regarding virtual instruments choice ?

Absolutely! Because the projects that I do have little or no budget and that's why I end up playing all of the instruments because I can't afford to bring in other people—but there have been instances where I have brought in a pianist or vocalists or whatever it is required but for the most part, I do it all myself.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments?

As I've described, for the first half my experience it was using sounds out-of-the-box. Now looking back, because everything is unlimited now - I had a synth module for

example, Roland orchestral module which only had 10 voices at a time and within those 10 voices you could only have a certain number of notes playing at the same time, so you have to be very careful at the way you do chords, and sustains, it would affect your choice of articulations, so it really had quite a profound impact. Now with computers it all goes inside the box and computers have much less limitations there is much more choice so in that way it's changed.[11:42] !!

[12:29] the other day I saved a Roland XP 50-50 because it's got 20 drum kits, and 1500 sounds and a digital out, and that was the other limitation with external devices, they all had to go through a mixer and then all go back into the computer so there was noise problems. Whereas now inside the box there is none of that.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Through my history of my experience virtual instruments have always been there either inside external boxes or inside the box and the directors know that. There was one film that I did at AFTRS I had used a MIDI piano which sounded okay, they really wanted to use a real piano, in fact the real piano that features in the film itself in retrospect that was the right thing to do, so I had to write it out and get a player to play it. And the result is much different than it would have been if it had been just a MIDI piano. So in summary, that I've written, all directors have known that this stuff exists and they kind of expected, and whether they expect real instruments to be in there, they are aware of the budgetary restrictions, [14:23] so they just say do it!

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Yes I do.

No, my working methods are not the same, because the first few films that I did everything was scored whether or not it was played by instruments it was always scored. [Craig-when you say scored, you mean on paper?] Using a manuscript program like Finale you could print out the scores and instruments could play it. But I quickly found that if you want something to be atmospheric it's much easier to flow with the film so rather than using time or time changes. I do put in some time changes but really not so many[15:21] and I use a lot of pad sounds to fill things out and in sections where there has to be a regular beat, I'll work out start and stop points and then manipulate time to make it line-up.

This is completely different from concert music, because in concert music everything is scored. So that's the primary difference

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

The big difference is that in film your writing to something, so that has its own inherent structure. And that's been really interesting in terms of repeated phrases all the way that things get developed, because you might have an idea that goes for say a minute and 30 seconds but you've got another 20 seconds to fill in the in the closing credits. So how do you fill that out? - What kind of shape do you do to the music to fill out that time. So

the restrictions of the film itself have dictated the shapes of the music! And usually the results have been quite interesting—things that I wouldn't have done if I hadn't had those restrictions!!

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No, I only use a MIDI controller. I do have a friend who is a bit of an inventor he has created a whole range of weird and wonderful MIDI controllers including. He calls it a whammy bar which is a pressure sensitive bar on front of the keyboard that you can roll move side to side and pressure downwards together with a MIDI shoe where he can rock his foot to achieve different MIDI controller changes on his keyboard. I know they exist but I don't do it.[18:25]

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I have to say they have. I've been really happy with the music that I have written for virtual instruments, but I'm happiest when writing for real instruments and I wish I had more opportunity to write for real instruments in films!

14. What role do virtual instruments have in the future of screen music ?

Well, I can't see that real instruments will ever be completely eliminated. It all comes down to budgets! A friend of mine had written a promo music Channel 7 for one year he studied at the Con, he was a composer lots of experience with instruments and he wanted to use real instruments so he hired an orchestra, a full orchestra he wrote this massive queue and different cues of different lengths to suit the requirements of the client. The very next year, Channel 7, went to do this again and they went and hired wrote the music in their bedroom and they were quite happy with the results!! And the guy who wrote the music in his bedroom got exactly the same money as my friend who worked with the orchestra hiring ABC to record all. Out of the two guess who took home the most profit? !! It was a very informative thing for me to see Guy Gross working on music for "Water Rats" lots of years ago at Track Down. What they do is they gets a sax player to play a multitude of cues and they just put them on the computer, and throughout the series of water rats they would pull out use different parts of the recording. Economics wins in commercial environments.[21:55]

*Interview transcript **Victor Spiegel** recorded (24 January 2014)*

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

Yes, as long as I can get some work, [laughs]

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

They are pretty much absolutely mandatory. Because of budget constraints and lack of support in all of the other communities associated with filmmaking and music making it is absolutely necessary that one person be able to do everything!!

Because of a lack of the arts, and of education and general ignorance!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

They are considerably poorly used because nobody teaches them how to do orchestration! And they think they can get away with it by using Garage Band, Ableton live, Logic and all these other software without in music education. Sorry, I'm very

opinionated about this. My experience is that people with a limited music education are now able to do things as I was telling one kid who sent me an example of what they were doing, it's like you have the most amazing colour palette in the universe and you're using it like a blunt instrument!! So it doesn't change the ability to learn the art and craft however, people do that for the quick copying of other composers have been working on the centuries.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Not in that way no. But what's tricky is getting a clear type of articulations if you want them[4:15] and being able to move through different tracks using different articulations to get as close to human phrasing as possible. Of course, I'd use humans if I had the budget! Even if I had the budget, using virtual instruments is a great way to prepare the score, to test out your ideas. My experience of the orchestral palette is that it is so immense, and so delicate that just preparing a score through simple scene you really got you really got know what you're doing!! You could overwhelm it, you going to get in the way of dialogue your going to screw something up. It's nice to have something to test out your ideas even before you use humans.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Old it's really important, really important!! I teach music at JMC and my last class was teaching for writing for large ensembles and they were using ProTools and the Kontakt library - and most of the Kontakt stuff that is there is cheesy. And the kids might make really great arrangements but the sounds are always cheesy. And they never get the feeling for what it beautiful string ensemble or a flute might sound like - so its really important. And in your head because you don't know the difference, you think well this is all I've got to work with. But when you hear the really good samples, and you compare them to the cheesy samples you go, oh man! What a big difference!! So what you have to do is pick and choose from the different libraries the best instruments personally, I layer different instruments from different libraries to get the best sound I can!! [7:10]

The customer wants the product to sound authentic and move the project forward without thinking well that sounds kind of cheesy, because that takes away from the momentum of the project.

Working Methods.

1. Have digital tools changed your working relationships with other members of the film-team ?

I'm not sure how to answer that because I've always used the tools since I began. So the idea of being able to speed up and slow down changed texture and reverb and

instruments has always been part of my *modus operandi* it's always been part of my toolkit.

Regarding relations with my directors, it makes it easier! [10:20] They may change the timing of the section and I say, that's not a problem! I can speed up or I can cut this section off, or I can make this repeat. You would do that with regular humans also, it's all the same.

2. How do deadlines influence your decision making regarding virtual instruments choice ?

Oh dear, now we have to go to the freelancers protocols. Which is good, cheap, fast pick two. It's that famous triangle where you can have two but you can't have the other. You can have good and cheap but it won't be fast. You can have fast and cheap, but it won't be good.

3. How does budget influence your decision making regarding virtual instruments choice ?

4. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

5. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Yes. What producers do now, they hear orchestral music in film and they say, can you put that in that in here? And you say "do you have any idea how long that's got it take?" How difficult that is? They're basing their example on something that had a 20 or \$30,000 budget, and they're asking you to do the same thing in something that that paying new \$500 for - are you crazy, do you have any idea what you're asking me to do?!

So yes there is a disjunction between expectations and reality!!

6. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Yes I have written for concerts, but I'm in Australia where nobody knows how to play music, or if they do they just do it for themselves. There's no venues it's too small there is not enough competition, and Sydney thinks it's so important, and it's got its up its ass!! These are just opinions!! Yes, but I've given up because it takes too much time away from making music.

7. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

Sure, I'm going back to a piece where I work concerts in 1978 many aeons ago where there was no computer to do what I wanted to do, so I had to write all my parts, on onions skin, with a "Ozmaroid" in ink, and everything had to be calligraphy, and I had humans – that was back then. Now, I don't expect people to do concerts because nobody goes to concerts!!

8. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

No not really, if I want special sounds, I'll go and record them and bring them in as live audio.

Satisfaction.

1. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I'll yes! I remember in 1967 when I was going to Santa Monica College I was walking around thinking, be great as a composer if you could actually play a virtual orchestra!!

And then finally in 2012, I was able to get the library I was wanting to get with all the different pieces the East West Gold orchestra and to be able to get all of the articulations and I was overwhelmed!! I thought to myself "This is awesome". It's exactly what I wanted and I'd been studying all my life and preparing for it and I realised this is really hard, it's hard to get the different qualities that I'm hearing in my head and to be able to ... So basically, virtual libraries gave me the palette that I've been looking for but because I didn't have much experience as necessary working with a live orchestra, it's taken me a lot of study and a lot of experimentation to get it to a kind of manageable palette. There was never any mastering of it there was always more to learn. So, it's exciting it's been really exciting just teaching me how much I don't know!! [18:16]

2. What role do virtual instruments have in the future of screen music ?

I think Danny Elfman, Howard Shore, Alfred Newman, what they do is they use virtual instruments as a preparatory for the final score, so they can show the director is how it works with the pictures! I think that's wonderful and a great thing to do, just like storyboarding, I think it's really helpful. I also think that it's going to make it easier for directors to perhaps hone in on the kind of qualities and textures that most serves the story!

[Craig-what role do you see virtual instruments playing in the education of music?(Opportunistic spontaneous question)]

They have the possibility of inspiring young people to learn instruments again for one thing. My dark opinion of this period of time is the loss of music education - what I call music literacy. We are losing that as we go into all of this technology, and the loss of an entire, not just generation, but an entire strata of culture of music culture is being lost. And it may not be for several generations until it is rekindled and re-found when people have all of these different orchestral instruments available and realise that they really like the sound of the French horn, what would it take to learn the French horn? !! That's too hard..... It had displayed on the keyboard, that's the dark side. The light side is, and is going to learn to play the French horn because that's the sound I really like and I'm going to do that for the rest of my life!

Most of the kids that I teach had never seen any instrument! And I think that's sad and depressing to know that part of our culture is dying, because of this. Virtual instruments are away to disguise.....[23:26] there are so many different ways to approach teaching music I'm at the JMC Academy teaching, and those kids have never seen a trombone or a French horn or a Saxophone - all they know is bass guitars, drums and guitars. Very few can play the keyboard and very few have ever seen an orchestra, I mean how many people have gone to see a string quartet or a chamber ensemble or an opera this is our culture and were losing it!! And the reason why were losing it is because of technology and because it's easier and faster did my headphones into an MP3. Something of low quality and low ability that's my dark view. And I think it's going to go that way for a number of generations until somebody goes, what's this stuff on the page? It's music why are there five lines? And what's this thing at the beginning and I had to go to my

students no one knew what a treble clef or a bass clef was. The craft has been lost.

[26:30]

Interview Transcription Vicki Hansen (21 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes.

Secondly, Do you wish to be identified or quoted ?

I don't mind yes.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

From day one in this particular work that I do, I use virtual instruments! This is supported by the occasional playing of myself playing. Pretty much from day one virtual instrument's have been the cornerstone of my work. Over the years I've sought to

build up an extremely large library of virtual instruments mainly because the work that I do is creating music that comes from a what wide variety of ethnic genres!! And it covers a very wide range of situations and scenarios - I continue to keep expanding it because they are very effective, though there are sounds that are particularly effective that I gravitate towards for similar scenarios.

I create albums and I use real musicians for our albums - I guess over the years as my library has increased and the quality of the sounds have improved. I do believe that you cannot replace a real musician, however there are times where I prefer to use the samples because it just gives me more control!! And I can create a sound that I want.

If I had the choice, I would work with real musicians but budgetary restraints, which is which I'm sure it is in most cases it's just not practical to have so many different ethnic genres of musicians coming in.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Scarily so, sometimes you think you've hit on something and then you realise so many other people are using exactly the same thing, and that it becomes an "in" sound!! Like a trendy sound it puts me off a little bit - so I try and develop it in different ways so not to sound like everybody else. But this one that I've noticed in particular called the "hang drum" has come into vogue, and so has the "DoDook" - and it lends itself beautifully... are the samples have been beautifully done it can be very evocative!! I've worked with

real "DoDook" players and that's amazing but in the absence of that the samples of those work really well. But then again, it's showing up everywhere everyone's using it and then it starts to use it lose its impact of little bit!! And instantly recognisable sound especially with this instrument you don't have to do very much you can just hold down one note, and that note can mean a lot, so you can get very lazy in that regard!

I've spent my life studying various music's from around the world and I try to be as ethnically proper as I can ... but there is always that trade-off between ethnic sensitivity and dramatic appropriateness!! For example, if you're doing a story from South Africa where the instruments may be the Kalimna or something like that is not going to give you a lot of emotional expressiveness whereas something like a Kora, which comes from West Africa will give you a much more emotive feel!! So sometimes when I see a story from South Africa and this instrument doesn't come from this region, do I use it or not ?

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

[Craig-do you think this defines your aesthetic in a way?]

It certainly plays a big part in it because.. And sometimes a little bit too much it gets in my way sometimes, for me it's a conscience thing. An example, I had to do a cooking series not so long ago and it was about islands: it was going to Indonesia, Philippines the Cook Islands, Vanuatu, and they all have very different musical styles and to me if

someone is exploring Indonesia in a travel sense and absorbing the cultures and the food from that region to me, the music has to reflect where they are!!

It strengthens the connection between sound and the vision and you feel it.[9:15]

I had a bit of a conflict with the producers of that program because I said I need to do music which reflects each different area and that's going to be a lot of music, and they said just do generic islands music, and that was their exact words ! And that was sacrilege for me and when I came to do another job they didn't hire me, could have been the reason but on I don't know - so I sometimes wonder was my stippling for ethnic correctness too much in that case. But I couldn't live with myself just doing a so-called bland island music - could be Hawaii that's just ridiculous.

The programs that I work for now are more journalistic, based been knowledge information and fact - I always like to create a scene that makes you feel like you're in that place. Most people, they won't even notice that –it really jars. And this goes for audiences directors and producers.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

[19:22] I'm constantly on the lookout for new packages so its always time to upgrade, it is depends if you have the money available!! I figure that I should put a lot of the money I earn into the developing new sounds - I guess when I feel a bit tired of what

I've got especially when you're doing two or 3, 4 stories a week you do start to burn through your sounds a fair bit - if I wasn't doing so much, I wouldn't bother but I'm a bit of a junkie and I love new sounds. Keeping it as cutting edge as possible!!

Purchasing new sounds and playing and modifying existing sounds.

[Craig-Prewritten music?] No I don't tend to go into the past with music, I always start from where I am now. I create something new.

[Limitations]I'd love to have a searching system for sounds. I do waste a lot of time searching over and over going through sounds that I've rejected and auditioned before. A better cataloguing system is needed for sounds.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Logic these days has access to Apple loops - the limitations are in my mind rather than in the technology. Sometimes if I'm stuck in for inspiration, Apple loops have been a godsend and you can put in phrases where you can make it your own there such as large range of Apple loops and certainly in the ethnic genres too especially in the first 10 seconds - where you want to create a sense of place and a feel of that culture.[15:29] I was able to modify a pre-existing Apple loop to my needs, it was a very earthy scene, so

I use the loop that opening scene and then the voice-over starts and then you're able to back off.

In terms of working with producers several years back, I had a meeting where I got to talk about the music with all of the journalists because they're not used to using music, some of them don't even like using music and their stories that think it's too emotional, they just want hard and factual one of them stood up and said " I just hate MIDI, I don't want any MIDI" is a funny statement to me... But I had to explain to them that the budget would not extend that far, I do the best with what I have and make it as "MIDI-less" as possible !! And now several years later we are very much in sync with our work and he has become a big fan of my work which is lovely. So things have turned around!

6. How do deadlines influence your decision making regarding virtual instruments choice ?
7. How does budget influence your decision making regarding virtual instruments choice ?
8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

Sometimes you'll see the image and hear the music and go straight for it, and you know exactly what they want here and you know what is needed. But there are other times were you think... Sometimes produces give you a brief of what they can.. Sometimes

they give you an open slate and you can just create something and you can let your mind roam free, I can explore some different sounds and feels and I work from a more emotive feel here. And other times it's at a more intellectual level where you know what needs to be done you've done something similar before and you go straight to what you know is going to work and it's just a matter of putting it altogether - where it somehow pre-exists somewhere in your mind where other times it feels more open and you start from the bottom from nothing and explore.

[Craig-have virtual instruments allowed you to explore better?]

Absolutely yes, because when you get some really cool great sounds the sound itself inspires something and then you work from that. Some virtual instruments like Mark 5R take up a lot of computational speed and time and slow down the rest of my system so I have to be very careful.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?
10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?
11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?
14. What role do virtual instruments have in the future of screen music ?

Well obviously I don't see budgets increasing and I just see sample libraries getting better and better. So it just seems logical that that they'll keep growing, you might like to say that there will be a backlash against it, but each time they upgrade they become more and more realistic and more like a real musicians so I can't see how that's going to reverse!!

It's interesting in India, if there is a musician living in a certain area you have to use a real musician or you can get fined. And an Indian friend told me about that it's a geographically sort of defined rule - they try and encourage the use of real musicians rather than sample instruments.

*Interview transcript **Thomas(Tom) Rouch** (interviewed 24 January 2014).*

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes

Secondly, Do you wish to be identified or quoted ?

I'm happy to be identified.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

The mainstay of my work in many ways! Our productions here in Australia often don't have the budgets for live musicians so we tend to use virtual libraries to do most of the music production while still getting a few key solo instruments here and there!! Even if you do use an orchestra or an ensemble, you usually will use virtual instruments to mock up the score for the director before you go ahead with the recording anyway - so there are an integral part of the process!!

I have many thousands of dollars worth of virtual instruments at my disposal, they are getting better over the years, you tend to sort of upgrade new models, and have a few instruments that are the backbone of the library will always getting new sounds just to improve the quality of your work.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think they have come down in price on some levels however, I think it stabilised some instruments like the Vienna was very expensive I think, it still is however, the big string libraries like LA Scoring Strings, Hollywood strings, Berlin strings, they are still reasonably expensive around the \$1500 mark and the price has stabilised!! I mean these are really good libraries there's a reasonable cost barrier for some people - though I suppose for a professional is not a huge amount of money- it probably stops getting cheaper and people are doing bigger libraries instead rather than lowering the cost of them!!

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Yes and no, I mean when I think about my orchestral libraries it's how you use them to create realistic sounds. Obviously the aim there is to be as realistic as possible usually

it's more about the technique that you use and what they provide you - in terms of EQ's reverbs and compressions and all that to mix the sounds, however the more synthetic types of sounds I certainly do manually manipulate the sounds to get what's in my head I do try and create sounds in my own - a lot of the work that I do is a hybrid - a blend of orchestral and traditional with more synthetic stuff, that's where you get the chance to do more manipulation.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

It would be great to buy everything that comes out, it would not be great for my bank balance, as computers have got more powerful, the developers are doing more with them !! I'm always on the lookout for what new, what's coming out for something that really add to what I do or find a way to get it my music evolves, and the taste of the audience evolves!! Some of the work I do is for reality TV and it has a particular type of sound to it, a tone, there's also production music and trailer music and that's very competitive, so the quality of your sound is very important!

Whereas film is more esoteric, so it's more about your vision doesn't really matter if it's an old or a new sound to that how your telling the story! So it depends on the sort of work you do to depend how important it is to stay up-to-date.

I think all audiences are acutely sensitive to the sounds no matter whether it's TV or cinema you can shut your eyes, but you can't charge your ears!! It has such a visceral

effect on us and that's what made me work in the field, I think the producers and the people who work in TV always wanted sounding fresh and new and up-to-date so there are commercial pressures to be fresh and sound new. Whereas, film again is more esoteric every film is unique you try and find a sound world for that story... There are genre films and my work is more on the genre side, but even within this constraints of the genre, there is a lot more freedom in film to create something unique!! Whereas in TV wants to sound like a specific thing and you need to be able to deliver that sound!

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I started doing films five years ago, so I was already on the digital bandwagon so I've always done it digitally.[9:21] I've come from a band background, so I use to record analogue- but film scoring has always been digital for me

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Well you need stuff that TV will use! Not too complex, you need to get sounds going straight away. Under a deadline, I tend to have templates set up on the screen its

important to have templates[10:08] set up !! So everything is there ready to go and you go with stuff that you know is going to work!

7. How does budget influence your decision making regarding virtual instruments choice ?

Budget is a huge factor! If budget is there, I use real performers all the time because it's much better than virtual. But it is a huge consideration!!

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Yes, they expect stuff to sound good from the very early stages. You can't give them a rough thing and get them to imagine it. I think the expectation of directors and producers is to be able to hear what will sound like.[Craig-close to a finished product?]
Yes, sometimes you have to be careful in what you do show them, because they used to having to imagine and give them the bare bones of something that you really one show, them stuff that sounds great because that's what they expect now.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Not much no. I've never read I've never written for a Symphony orchestra I studied at the Conservatorium and wrote stuff there and that was purely art music. Regarding my working methods of still developing them at that stage, liked to use instruments when writing as I like to hear what I'm doing it helps with my orchestration, and things. I started a method that I honed and refined that went into my song composing methods. I tend to write in Logic and then export it to Sibelius after I've got were wanted, now I use Sibelius to make the actual scores for the musicians, but how I've always done it!!

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

No, I just use a MIDI keyboard and for programming it's plug-in by USB to my computer - in fact I have a number of computers - I have video running off one computer a large screen TV all synced via MIDI time code and I have a slave machine

as well - it's all necessary. Last year I built myself a computer server it's a PC server with 64 gig of RAM with dual C- processes it runs my whole template so it's awesome!!

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I think as they get better, I enjoy it more I find that I get better as well the more that I work with these things!! The more crazy sounds I can pull off. I think they're my tools of trade and I enjoy working with them!!

14. What role do virtual instruments have in the future of screen music ?

With the changing business models of film are probably come even more important. The economics of filmmaking are changing apart from the huge blockbusters, budgets are coming down generally, Across-the-board!! I think the ability to come off with high quality music without the cost of a big orchestra. I think where the future of virtual instruments is taking them beyond where the acoustic instrument can do into other spheres!! I think that we will be able to create music that we haven't heard of yet. I see Hans Zimmer pushing the envelope the way you produce film music from long time and he's got his own custom libraries - is got a whole team there running his own custom

sampler - being able to create a sound that you wouldn't be able to do with a real orchestra!!

I think Spitfire in London and their collaboration with Hans Zimmer in the creation of a percussion library is a very important part of the way virtual instruments are going. I think you will find them teaming up with celebrity composers and producers, To deliver and develop new sounds are think that's another part of the future. !![18:39]

Interview Sean Peter transcription (23 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes.

Secondly, Do you wish to be identified or quoted ?

I don't mind being identified or quoted but I may give you stuff off the record as well.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I write a lot of music for the screen, I write mostly the television and the children's television. And I pretty much exclusively use virtual instruments to do so.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

That's fine there's no problem with that but what it comes really down to is the ability to work constantly or not, is your ability to use them. Virtual instruments as they've become more accessible, have usually increased in the complexity and the amount of skill required to use them really well- and stand out from everybody else so that really hasn't changed either.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

No. No, I don't have time.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

It's a very difficult balance between new and exciting and something that you can't already do, versus learning how to exploit what you've got !! I've invested a lot of money in "LASS" and "Adagio" at the same time and I don't know how to use any of those libraries particularly well you do have to spend a lot of time getting to know a library and understanding what its strengths and weaknesses actually are. I probably lean towards buying more libraries than I need and not using them particularly well. I think I was writing good music using VSL first edition and a few other bits of east-west, gold and other quite old libraries now.

It's more important to me in keeping writing interesting for me than it is to my clients. To be perfectly frank, it all the years that I've been doing it writing children's music I think I've only had one complaint about my French horn sound. Its more about keeping as interesting and challenging me and that's what you libraries are all about to me.[11:35]. You are asking me about what my instrument is and I think my second instrument is logic and Kontakt and its libraries - not a very good keyboard player/I'm a really good user of Logic, and that's my actual instrument rather than keyboard if you know what I mean.

As you learn how it works and you learn what the possibilities are hopefully you're still trying to push it and go further and get better with everything that you do and if you're not well, go and do something else because you're in the wrong business.!!

I like libraries that nail one thing really well rather than try to do everything - because I can't learn all of the library! It's just too much

[Craig-are you on the email lists of virtual instrument merchants?]

Yes I am, and I wish I bloody didn't because every time you buy something they get your email address, and I guess it's good to keep an eye on updates and specials when they come up and occasionally, I'll buy things because of that more often than not it's about updates. I keep up-to-date via VI control. Every virtual instrument company has a presence there.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

No, pretty much been working the same way I've been working - I guess I've gone along, the main thing that has changed is that I'm tending to provide things that are closer to the finished product earlier!! And am always providing them online rather than any other method!! There they are the big changes that have gone on in the last few years for me. Regarding inter-personal relationships, I'm still picking up the phone and talking to people, I mean you get notes via email but the phone call is the most important thing to me - I know that I annoy people like that but that's just how it goes. It's important to be clear in a phone call gives you get that clarity and you don't get that

in emails - they can be very ambiguous, you don't get tone, I think all of this is about tone and if all of this is about managing a relationship, quick notes are fine like turn it down at 26 seconds, but managing a relationship with a producer or an editor whoever you ever, your working with you just can't do that just email it has to come down to at least a phone call.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Not at all really. I do a lot of song writing with them in particular and I think people are more interested in hearing the song as best as can possibly be - I mean I work fast anyway, deadlines effect when you stop programming, but they don't really drive decision-making for virtual instruments, are you're asking me the decision to use virtual instruments or not? [Craig-yes] everything I do is virtual instruments, it's extremely rare that I bring in a real player for anything that I haven't programmed myself. I play guitar myself and I do all the singing myself - that a record the actors - but the budget is a much bigger deciding factor to whether I hire instrumentalists or not and more often than not I charge a fee then additional fees to record live instruments and add that to the cost to what ever I have done!!

7. How does budget influence your decision making regarding virtual instruments choice ?

More often than not in children's television it's a question of what sort of project it is - and what sort of instrument it needs, so it is kind of determined by project by project, but I tend to get hired because I'm fast and good and self-contained and my budgets can remain in my fees can remain, well they've been slowly growing over the years, they're reasonably attractive to producers because I'm one guy but I don't sound like it!!

Reliability plays a huge factor your current gig is your next gig, in a career that's getting close to 20 years now, I can put down pretty much every gig that I have done to two or three introductions, cold calls and things just don't work, so you've got it take care of every single client that you've got really well - and deliver. That's getting harder as more people are using me, and getting busier and busier and are doing more and more to keep everyone happy.

I'm getting to a point in my career where people are hiring me then just a dude[07:02] and they usually happy to wait particularly in the niche that I work in. And that is children's television in particular.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

I rarely hear the directors, I work with producers. TV and film are really different on that level. It's producers who are running the show in television, and directors/auteur is much more film than TV. Yes, I do think that producers expectations have changed, I think they're expecting a more polished final product from the first draft!! [11:02] The interfaces are all sort of similar because of course that's where they live and the language that they speak so its not that different I suppose and it doesn't even look that different to a timeline in Final Cut Pro and Logic!! Depending on which DAW you're depending to use - so that's fine.

I never have people with me when I'm writing. And I never had people with me when I'm mixing it pretty much provide the final product myself, by myself!! I never have those other types of creative's here there always busy doing something else - I said that to them and they send me feedback that's kind of how it works. The only people I work with are artists like performers and actors and they come out and record and I produce that and there'll the comments on their performance and how to "cop-it" and that type of thing. ...work more with people they become more aware of the things you can and can't do - and it stumbles along into a good thing I suppose.

What I've found between the difference between TV and film is the tends to be a very artistic driven industry and television are very professional driven thing! And people are usually doing TV for money and people who are doing film, well know one does film money in Australia, may be half a dozen people it's usually a very long, long drawn-out passion project that has more often than not been driven by a director may or may not have the ability to communicate their needs particularly well and am thinking

particularly of short films student films and that sort of thing. I've found that incredibly frustrating working with people like that because they not very articulate about what they want, they don't really know what they want- but they are very clear about what they don't want!! Usually immediately after I deliver it.

You can have a career in TV in Australia as a composer, unless you're a Hirshfielder or a Partos and most of his stuff is TV - apart from Hirshfielder who is working internationally anyway and just happens to live in Australia, I don't think there are any composers who are existing on that level. Maybe in documentary land and there are a few people who are doing that as well. If you would have a look at most of the screen composers that are doing it full-time and actually making a living from it, they are working in TV land!! And it's a different beast.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

I have a woodwind control are now which I really like, it's a little tech USP wind controller, and it's awesome - it's a about 100 Euro - it's like a little mouthpiece connected via a USB key and allows me to breath control some of my wind instruments which is just fricken great. This allows you to blow your phrasing for example if you select a flute as a virtual instrument on a keyboard. Just be clear, it's a breath controller, and essentially it just replaces the MOD wheel - this allows you to blow that rather than move your fingers up and down the MOD wheel. And they're awesome they make such a difference with the wind instruments.

[Craig-what's your native instrument?]

I think I can argue pretty strongly that's my voice, I had a vocal major uni the first two years and moved to composition for the third year. As I said, I write a lot of songs and vocal based music for a lot of what I do I do a lot of underscore, I think vocals are the most important instrument that I use and produce and I guess that's not a virtual instrument at all, it's the oldest instrument there is!!

That's my first instrument I'm not a trained keyboard player. I write a lot of songs and I also coach, [7:17] produce a lot of vocals and I don't think you can do that without being a vocalist yourself.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Getting to a point in my career where I want to get someone to pay for an orchestra soon and am actively towards making that happen, and haven't got it cast iron yet. There is a point where my knowledge and expectations of what is possible, part of which is through listening, and part of which is through more expressive and better virtual instruments are continued there is going to be a point where [sic] keep improving my writing and getting better at it, I'm going to have to have a red-hot go at the real thing!! And am just waiting for someone else to pay for that I suppose.

14. What role do virtual instruments have in the future of screen music ?

A massive one. They are the centre of screen music and will continue to be its not going to change! I think there will be very few composers like a John Williams or Thomas Newman in the next generation of film guys who can just play it on piano, turn up orchestral recording day and just do it. There won't be anyone like that anymore, I don't think!! I say there would be anyone but of course there will be. You don't need the chops to do it and there is still nothing like a real orchestra - some of them are cheap now - like the Budapest scoring orchestra for \$2500, that's actually accessible and affordable for anybody now, you can get a "B" orchestra to record your stuff now at a reasonably accessible budget.

I still think that as much as I'm giving you the pro virtual instrument line, I think all of this doing a good job of recording virtual instruments well, I would aspire to the farm it out to an orchestra when possible! It just never is!!

The dream for me growing up as an eight-year-old, the first instrument I played with was called an "Alpha-Centuri" synthesiser. It was on an Apple II plus and the promise of that is that you could emulate a real orchestra at home, and that's been the promise of technology and music for 30 years now, and it's got there in the last 10!! You can do it now. If you're interested in that kind of music, that score has been the thing to aspire to for that instant feedback creating what you want trying things out without looking like an idiot in front of a whole overly trained Conservatorium geeks quite often!! I worked at the Opera house for a long time I've worked with the City Symphony Orchestra I've been a CD [sic] player and performed on stage with them, you look at the way that the instrumentalists are treating composers who come into concert music with them there is a level of arrogance and disdain against players like that[20;29] would make the process as a new concept composer probably really a negative thing to be part of. No one's going to be Beethoven again, and all those dudes all they want to do is play Beethoven - you can't compete with that !! [26:57]

Interview RTH Questions (interviewed 21st January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

Can I reserve that to the end? [Craig note, NO Identifying DETAILS] yes that's fine.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Yes I use them in the sense that I used them when I play keyboard, in the conventional sense, that if I neither string sound all user strings sound or a brass sound or a percussion sound. I use a variety of orchestral sounds and electronic sounds and percussive sounds everything in between that's required by a brief!

Not so much now but in the earlier days I was a bit of a hoarder and I may be a bit too spoilt for choice in terms of what I own but also what's in the market. I use them in digital performer which is my host sequencer! And Vienna ensemble pro which is my hosting platform for the actual instruments themselves.

I started and digital performer when it was back in version 3 I think my teacher at the time suggested that I get it! I'm a creature of habit, I know there are many other options

out there but the time it would take me to learn it, I just know everything in here so you accept its flaws but at the same time it's a comforting structure to use when your working.

[Craig-3:10] I'm going to follow the line of questioning - people stick to their digital sequencing software?]

In my experience they do they stick with what they know. I think at the end of the day Craig, you sometimes get lost in the sense that you are just using a tool like in the sense of a tradesman picking up a hammer to build something, so there's a hammer is a piece of wood and a nail similarly we have an idea in our head of screen in front of us and tools to create that sound and end product! Now just because you've got the tool I mean I'm not a very good tradesman, I can hit the nail is very well, I can't hit them in straight- I would try as hard as I might but will have exactly the same tools as a professional builder would and he knows how to with one-hit with that nail into that plank of wood. Whereas, in our case here, there is so much choice and variety in what you can use that it is now what to use with the tools that you have and become accustomed to that - I suppose it's like any instrumentalist who gets a particular brand of instrument and they like the way it feels and they don't necessarily steer off that path.

Getting all these tools doesn't mean that you can produce music at the highest level!

You've got the tools to do it!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

There are a lot cheaper now! I started training in this industry when I was 21 or 22 in the early 2000's and at the time when I started looking at buying my setup, I needed a Mac to host digital performer or PC to host "Giga Studio" at the time which I then loaded the Vienna Studio Instruments into - now that setup cost me \$5000 just for the PC - as compared today where say Cine Samples who have just released their string library for \$400 via digital download and you have the next day! The progression I saw in the industry was the Giga studio age where or even before that was the Akai's where you are loading stuff into a host and then accessing it via MIDI - then the industry went towards companies building their own hosting platforms, like East West or Vienna or Kontakt. East-west went to their own player and then went back to Kontakt, because their own player had a lot of issues it wasn't stable and now they've gone back to Kontakt.

I'm a screen composer who generally works by myself I would love to grab people more and more but the particular projects come to me I don't have an assistant ie use my wife who does the books! I don't have a team of people however if I do need to record something I will utilise the engineers in that space.

I'm doing an animation series at the moment, I'm turning around about 22 minutes [of music] a week, there is no time to record that without virtual instruments! In essence your simulating 50 people playing for you and your on your own!! In a way it can get

quite lonely because you're locked away in a dark studio for hours and hours on end and it's hard to communicate what you're doing to other people and not heard other big-name composers talk about this I mean, working in solitude.

The project on working on the moment the only time I ever seen the client is when I took the original brief all the contact has been by email and by phone! I'm also going to start working on a game out of Greece so its not a case of me here whingeing about whole idea of solitude becoming more... But I think it depends on where you are in the Australian film and screen landscape and I don't mean this in any sense of malice, I think some particular projects you would need a team of people with the budget to support that team of people and attracting those projects you definitely seem to attract more of those projects and you'll end up with that sort of team around you - in my experience those five or six composers are right up there and they're the ones who get the majority of the work!! So, because there are up there and they have that name and trying to get their, I think many people at my level are trying to strive for!

I live in [regional centre] and I think the virtual instruments complements that because in the past I would have had to of been located in the city and that's just simply not the case any longer - and that goes with the base of musicians and engineers that would help you produce that work. Having a virtual set up allows me to mixing it up on the beach. And therein lies the paradox, it might make your creativity change, the opposite of that is that you can pretty well work anywhere and send files off and with the right ear [sic] and an understanding of how to do it you can get some pretty amazing results out of it.

3. Assist or hinder?

It depends on what writing I think Craig, I was a classically trained composer with dots and dashes on a page old school, and when writing in DP it's a MIDI data and not crotchets and traditional notation. So sometimes when I'm writing, if I was writing this on the page I would have written this differently - but I needed to sound a particular way right now and the quickest way for me to do that is to go bang bang bang move on. For example, I have a woodwind sample where you just touch middle C and it will produce a seven tuplet-run across two octaves. Its pre-programmed in there and all you have to do is touch button and it assists your creativity, but by the same token you still need to know what to do with it. There's no point having a run just pop up out of the blue, it's got to be able to assist in a musical function and in the dramatic function of the story!

4. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

I think how you set up your palette is your sound and the particular libraries that you use be at one or a multitude of many, define your sound. So yes in terms of creating an identity I think they would. You could probably give my exact same tools to another composer and they would choose their own sonorities, and reverbs to produce their music - I would argue that it would sound differently it may not be a massive difference but it will be different.[16:17] I think that would be a fantastic study if you have your studio set up over the course of a week had 10 composers for half a day and it's all in

the box, give them the score and say programme that for me with the multitude of virtual instruments available pick the ones you want, the notes would be the same but the production would vary considerably!!

If you're getting in at the early stage of your career the whole East West orchestra in a box is only \$600 and you can get an entire orchestra! You're not going to be able to change how that sounds too much there is still a degree of variability when it comes to miking positions. Other libraries like Vienna where you have to apply your own reverb and then LA Scoring Strings where you have to apply your own reverb but they have some of the most immaculate legatos that they were famed for when they came out. I find that some samples like Cine Samples[18:01] just bought out a string library and what they claim to do no one else has done- and it comes down to ...I have to buy five different string libraries, or have all have one for the Legato, I'll have this one for the use of dynamics, all have this one for that. And it seems that every competitor seems to find that thing that who hasn't done before and what is needed in a library!!

5. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

My favourite company would be Spectra Sonics [19:04] they have three flagship programs and that's it. And those virtual instruments are truly second to none for what they do in my opinion! They are so widely used sometimes you can watch TV and identify a patch that you have used yourself. The programs are so well scripted and so well produced as opposed to East-West whose interface is less than perfect. Spectra

Sonics by focusing on their three flagship models they carry more weight. Problem is with a variety of these programs is that you can't try them out before you have bought them and some of them turn out to be buggy. It's like test driving a car and it stalls you wouldn't buy that car but you would have to buy the car in able to test drive it! There are no free demos of these. They often put up demos but those demos are highly sophisticated and mastered, just like a pop release.

This is where word-of-mouth comes into its own because we do have a very small community - not everyone gives all their tricks away. I was talking to one composer who said they had a bassoon sample with a chair squeak in it and I think that's great!

Working Methods.

6. Have digital tools changed your working relationships with other members of the film-team ?

That's a good question. In a previous job I would have a weekly meeting face-to-face but now it just happens by email! It's good in a way because I don't mean to be sounding selfish, but I don't want the client to be sitting behind me, because I think I'd end up with more work. The fact that I can keep them at arm's length gives me a degree of freedom and creativity. On the other side it's nice to see the client's reaction for the first time when you play them something! And gauging from that what is working and what is not working it could be a chuckle or a reaction or a laugh or you know. The first couple of weeks of working with a new client is usually rather intense because you've

won the pitch and now you're refining your working style with them sometimes that may be providing the palette that you're working with as well.!

I think there are positives to it just by giving them the final product from my end doesn't really allow them to grittily going through it.. Because they receive the first pass attached to a movie file with dialogue, so even if I want to I can bury the music a little bit more - or solo the music that is not so easily heard. You can presented in a fashion that would usually be presented to an audience which helps the perspective.

[Craig-the hand of the director is not on your shoulder] - yeah but would be useful sometimes[26:35]

[off topic]... For animation work it's like writing new work for every two bars and I think virtual instruments help a lot because I would not be able to record real performers in this timeframe. If I do a minute in an hour I'm happy!

7. How do deadlines influence your decision making regarding virtual instruments choice ?

8. How does budget influence your decision making regarding virtual instruments choice ?

9. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

10. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Virtual instruments have always been there for me so I don't think I can answer that thoroughly. I had some feedback the other day about a cue that I had written - they said it sounded synthy. There wasn't much I could do about it but I think it comes down to the writing as well, sometimes I just can't compute into the synthesised world if their complex. For example Hans Zimmer's style of music his style of music has become accessible to so many, and I mean this politely, you don't have to be the John Williams to write film music! You could come out of the pop realm and do it, you can come out of whatever realm and do it and then you didn't have to have all these amazing complex orchestral parts is needed to have a sound that needed to be good along with the communication skills. There's also been a precedent that's been set us now we know what a blockbuster sounds like its what people expect. And all these young guys coming through can just grab Hans Zimmer box and use Hans Zimmer chords. The production quality of the TV with shows coming out of the States at the moment have different notes and chords but it all sounds the same! That's because they've all been derived from very similar sources!

If your writing is very complex it doesn't translate very well, in fact it's harder to make it translate well in the box, and that's why I think sometimes music becomes maybe compositionally for want of a better term "dumbed down"! As opposed to writing very good accompanying counter melodies - now people will just hold a D minor chord. So you'll have your string palette playing a D minor chord, you'll have a violin patch

playing the melody, and maybe some brass over the top, interestingly enough the woodwinds have become forgotten in the 90s and the 2000's writing palette. And when you look at their Hans Zimmer palette it's mostly strings, brass and percussion is hardly any use of winds. Many wind instruments just don't sound any good and you could also argue that with some brass like trumpets are difficult to sound good in fact trumpet is the one for me that identifies itself as being "synthy". Like I did a "Ryobi" ad last year and we recorded the trumpet, it was just easier and we had the time of the budget to do it, but he was the only live element part in the entire track.

On the other hand, I was speaking to a composer in America who said that when he did his mock-ups he did it all in MIDI and his director proved it he went and recorded it live, and the director came back and said of the trumpet sounds different and that director actually asked for the sample to go back into the score! And remove the live player!! You can buy a expensive Rowland's keyboard but it's never going to sound like the real thing. I mean you can read a famous chefs recipe and make it exactly as he says on the page, but I bet you that his tastes better!!

11. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Yes I have but they are few and far between in regards to my other work. If I get one of those, I intentionally write into Finale, which allows me to go back to a traditional way of writing. That's because I dislike to be in a different headspace! And again, I fear that

my writing would not be as good if I did it in digital performer because I feel as though sometimes, even when I've done it in performer and taken it to finale, to record it, I want to make changes in finale because I can see what I'm doing so I'm still developing the skill of what would be on the page in my head and putting that into digital performer as MIDI across a keyboard.

I think this is a great discussion because at the end of the day everyone will have their own sonic output, of however they get there, some people will be more rock-oriented avant-garde or classical 'film scoring' whatever, in our industry and I would say if you're going to be interviewing 20 people[44:18]....

12. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

13. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

I have an avid controller which allows me to.... I've enjoyed using. This sped up my workflow.

A friend of mine told me that it sounded like I was mixing with my eyes which is strange because being music you have to listen to it - so I started listening more to my

music! I can get so distracted by what it looks like on the screen rather than what feels and sounds good.!!

14. Prewritten preexisting Ideas?

Generally not within a project for a long series yes. But going from one project to another I try and keep an open mind about it. Because in the past when I've tried to put an idea onto something it feels forced. Or even cheap or cheap to myself. So if I came up with an idea two weeks before I started working on a project and then use it in that project I don't feel as though that I'm being truthful to the project because I was employed as a composer to create new music for that project. Otherwise, you can be putting a square peg in a round hole.

By the same token, I think we have all been in situations where you know that just works and they're the low paying jobs.

Satisfaction.

15. Have virtual instruments changed your satisfaction as a screen composer in any way ?

16. What role do virtual instruments have in the future of screen music ?

Virtual instruments are here to stay! They probably will keep getting better and better I wonder whether within the next five or ten years if companies will offer custom built

libraries. Like Hans Zimmer has a custom built string library, and no one else in the world has his particular library! I also think that libraries will become customisable and they will ask you what you want in your library? And what they put in there depends on the price. Or you could ring them and say I need a cello to do blah blah blah how much you going to charge before it can you create a library for me. I know that Cine Samples do that - if you are going in for an orchestral sound and you don't have a patch and your head is that patch, you can't do it! Unless you get a player into do it and you need time and money for that.

This has come down to computers getting faster-soon as Apple or whoever says we can now provide this much RAM in our machines software developers say you beauty and they start putting in bigger samples! Which means for us poor guys who are working on five-year-old machines, upgrade to a new sample library no word of a lie, I've got a bass patch that takes up a gig of memory.[Craig-there seems to be a vicious circle of computer upgrades better technology and then were all just running to catch up]. Which is quite humbling to hear guys like Goté who just used a laptop and a really good selection of samples of his own and he built his own and made a record in his barn and blow the world away with it - I think that's phenomenal. And what that taught me you don't need the bells and whistles, you just need a bloody good idea and tools to which - I mean going back to the builder and a hammer you don't need a \$200 gold plated hammer! To build a magnificent house!! You can build a house with a shifty five dollar hammer so long as it doesn't fall apart that you can buy Bunnings. My mentor Nigel Westlake said to me when I was getting bogged down in the tool he said, it's just a tool it's there to help you what do you *need* to do, as opposed to what do you *want* to do.

I would argue if you give a very creative composer limited resources they can still give you something pretty dam good. You can give a not as creative composer every single library on the planet and it could turn out sounding like garbage because they had too much choice. I believe now that composition is indelibly linked to production and it's how the production sounds like, this is what I was talking about when I was talking about being a sonicist!

Michael Giochino is one of my favourite composers and he is strictly no samples! He toes the line straight away and said, if I can't do it on stage than no I'm not doing it. And that's how he is created his own niche in the industry because that's his style and the aesthetic where clearly everyone can live together because all of these sort of people are still nominated against each other at awards so... There's obviously a need for both approaches![11:50part Two]

Interview transcription **Rory Chenoweth** (interviewed 21 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes.

Secondly, Do you wish to be identified or quoted ?

Yes.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Basically I only use virtual instruments for screen music, I don't use them for any live shows or for anything like that. I have an orchestral template so I use sample sounds for orchestral music and just some synths for my more atmospheric music.

I do a little bit of both, I do live performance I've got a degree composition so I do a bit of concert music as well, but the sample libraries and the VST instruments is all for the screen! So I only use sampled instruments and VST instruments for my work on the screen. I have used live instruments and live players before - but at my level, it's really hard to get anyone to do anything for free!!

That's one of the main reasons I use the sample libraries and synths - because most professional musicians that I know aren't willing to put any time in if there is no budget!!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think it's really good! That anyone can get their hands on an orchestra and then mess around with it. Whether or not they know what they're doing, they can still play around with some chords, so I think it's good in that aspect however you do get a lot of - amateur sounding scores from people who don't really know how to orchestrate properly or compose properly - people not thinking about what they're doing it's good and it's bad!! For example, orchestral instrument ranges I always make sure that I have them correct. I don't want to make any of those mistakes because one day I might have the chance to write something for a live orchestra and that would be great and I don't want to make any of those mistakes.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

I think my mix is more to do with my identity rather than the instruments I use! I used to be in a heavy metal band, so I'm used to being loud and big so my mixes tend to also be louder harsh and it works and works!.. sometimes I need to make a change, however I heavily influenced by my background in heavy metal so I use distortion to give a more

aggressive edge a lot of loud drums - my sound is not a very crisp sound but that's just the style that I write - that's me.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

That's a hard question because I'm always getting emails the new products and sounds, I have about five or six string libraries. Regarding cutting edge, I'm very fussy, the newer ones that are coming out sound more realistic than the older ones so all use those more - and getting really good and really cheap so I'm constantly upgrading!! I still use the old ones though.. Even though there five or six years old. I remember when the VSL libraries were \$15,000 - and now you buy a full orchestral library that sounds just as good about \$1000.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I can't really compare it to the olden days because ... [I'm new to the industry] it's easier I suppose these days because you can show the director exactly what you're thinking of. I don't know any different because I've always had this technology so well [sic] that I know and I really haven't had to change, I'm a digital native.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

I haven't really worked on any projects with a strict deadline before. A lot of stuff that I do is very Indy, everyone's working in their free time so you can take your time! So the only experience I have with deadlines of the deadlines that I had with uni. I'm a ridiculously hard worker I'm fine with deadlines - [Craig-do you work alone?] Yes, I've got a studio room piano set up with my computer screens and all that sort of stuff to corner desk my favourites MIDI controllers.

7. How does budget influence your decision making regarding virtual instruments choice ?

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

I use Kontakt player as my host and I use jackrabbit or something like that so you run the output Vid to the input of Logic - I watched countless hours of video tutorials on YouTube so I finally worked it out.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

When I write concert music I sit down at the piano and I write sketches, sketch after sketch that develops into larger things that goes up and down and make sense, that when I write film music, I will sit down with the director and talk about what music needs to go where, load up a set orchestral template into my DAW and orchestrate from there! We either communicate face-to-face or by email, like what we need the instrumentation what sort of mood is needed things like that - it's not far from improvisation, my film music kind of they're just watching it feeling on the keys and focusing on the mood not so much on the structure or form. All modes I displayed by my ear and the mood and that's how I been doing it so far! I very rarely get told to revise things, which is good I'm not getting paid for it.

I'd really like to score a film the way that I write for live musicians because I kind of feel like that of like to put more effort [18:13] thought and skill into what I'm doing!!

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

Yes I always start on paper then I use Sibelius once I have all my main ideas set and then I can develop those ideas - there are lots of shortcuts that can make it far more easier. But I always start on paper I get my ideas out I write them out - I've tried

composing straight into Sibelius that doesn't work it me I can't do it - some people can do it but I can't, I have to get straight on to a piano and then write it out.

One of the reasons why the scores I write for film works so easily is because I just improvise, I'm just going through the motions that I see on the screen - I think if I did put too much thought into it, I'd either be too attached and it get too upset if the director told me to scrap it or it would be too complex for what's happening on the screen!![20:56]

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

I use logic and I use a keyboard.

I would really like to compose but that stuff but I don't - I think that will be my next project even if I build my own on the iPad with some of the programs on the iPad are amazing. As another device similar to experiment where you wave your hand above and it changes the dynamics of sound it's a simple plug-in I think Apple sell it, it tracks your hand motion. Those little toys are sort of distracting in a way[23:41] you don't need to buy any more hardware if you have an iPad.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

[Craig-Any negatives about the use of virtual instruments?]

I think there are limitations about what style you can write with virtual instruments. Synthphobia just bought out a new sample library called Lumina, so it's in phobia of three now and it's got a lot of cartoon gestures a lot of Mickey-Mousing that type of orchestration and it's a really cool little library, but the thing is once it's been used by somebody everybody else's music is going to sound the same. It can be very limiting using sample libraries but what else can we do? As composers, we don't get the funds to hire live musicians and for a start getting together a group of live musicians in the same place at the same time it's pretty difficult and having to find money to pay them as well -because they're not cheap that's for sure!!

With live musicians you can achieve a lot of live spontaneity and I miss a lot - if you've got a bit of time in recording studio you can jam and see what comes of it -you can get some amazing stuff out of it. It would be great if you could use live musicians all of the time, but I just can't .[32:34]

14. What role do virtual instruments have in the future of screen music ?

Virtual instruments are going to keep getting better and better! They will probably replace live musicians which is sad - but what I think is happening is that budgets are

getting smaller and smaller so they can't afford to pay live musicians - so I think musicians will be a luxury for the top-level composers - but most of the things you'll see on TV will be virtual instruments.

Using virtual instruments does affect the style in which you write! For example, if you're doing a horror film all you have to do is put "Synthphobia" onto it and press it is on the keyboard pretty much, and everyone's scores will start to sound the same!!

The trailers that we are hearing that are coming out now all sound the same because of the strengths of the sound libraries with big string sounds and big loud low brass big drums the "angry boat noise" I think that started with the film Inception scored by Hans Zimmer with all of those horns and trombones, it sounds a boat coming into a harbour!! I think that his style of writing is very minimal and that works very well with virtual instruments and that resonates with many composers at the moment! It have to be very skilled as a programmer to get a score like John Williams a very sophisticated virtual instrument library plus all the time and effort.

I have heard sample library versions of "The Rite of Spring", I think VSL did a version of the Rite of Spring that sounded really good but you could still tell it wasn't real...

And I wonder how long it took them...?

I think a minimal style works really well with sample libraries!!

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

Yes that's fine.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Well, incredibly important to me especially when we don't have budgets to have real instrumentation! I will always use my "Quantum Leap" "East-West" samples which I go to samples for strings, brass, and percussion. I will always write with those, and they to me, are the samples the quality is... Is fantastic these days through technology, it's pretty amazing! So, I find that will always give me a base for what I'm doing when am arranging ,even when am arranging and I've got (and I know that I'm recording) real instruments afterwards, I can still mock the MIDI files up and I can still hear what's still going on. Even if I don't use them in a final -but usually I do use them in a final [sic]

and often I will just use soloist recorded over the top of them. I often add a violinist or a clarinet that touch of "humanity". I find that one solo instrument will help bring the rest alive. I use the logic it suits my workflow, I get the job done, really!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think lowering the cost is necessary because it makes sense that the costs are coming down a: most composers in the world, even in Hollywood and LA, still don't have the huge budgets anymore to record orchestras! So this is a market that the virtual instruments have obviously tapped into and realized and to make it more accessible to everybody prices need to be lower![Craig-they're providing a service at market price determined by economics] exactly, well said. On the positive side, it's great to have that technology to create scores with a quality of sound and to be able to hear them - and even I think with virtual instruments, the fashion of sound changes where it's fashionable now to - at one time no one could use orchestra strings and brass in this way and now there are a new breed of composers who are combining all of this orchestral sound with electronica this is incredibly fashionable but is also creating a great style!!

So music and technology are moving forward into a new area. So that's the positives and negatives perhaps are unfortunately with the availability of all the virtual instruments it means producers realise that they can get music at a lower cost! So they

know that they don't have to have the old budgets and therefore big studio's suffer real players suffer that's the negative a real negative!

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

I'll always modify things. I'm lucky as a composer I think because I started off in recording studios as well as a musician so I have technical ability. Using virtual instruments in a box is a bonus for me in a way because I still have an understanding of production and engineering - so I will modify sounds, there are certain 'go to' string sounds that I won't modify because I know that there and brass and percussion, but I'll always enhance them with compression EQ's. [6:50]

and other virtual instruments. Synths, I'll definitely modify them.

[Craig -others virtual instruments a group of favourites?]

Yes I know those virtual instruments will give me a desired result. Especially if I have to work fast and then I don't have to do.... I mean, I know the sounds I can rely on!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

You can always collect software and it could become an addiction! I'm pretty happy but I would always like more samples more software but there becomes a time where you have to ask is what I have doing the job and I often ask myself that question! It is doing the job then that stops me buying new stuff - I say okay at the moment happy. I've just

purchased the Native Instruments are Komplete 9 and there is quite a lot of virtual instruments in there. And that's going to add a new palette to what I have, but I always ask myself, am I capable of doing the job with the sounds I have! If the answer is yes, then I won't buy the new software.

Sometimes I will buy a new compressor but how many compressors could you have and the EQ's there's got to be a limit somewhere-if you walk into an old studio they've got their standing gear and their favourite gear and it works so....

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Directors especially, because they expect so much more! And now directors also expect you know they hear big orchestral scores and they expect you to do the same! Because you can show them to some extent a big sound with these virtual instruments and sometimes those expectations can be a little bit unrealistic! -when you're not recording a real orchestra. But then sometimes the positive it's great that you can impress someone straightaway as well! Without just dotting on the paper or using lacklustre MIDI sounds and try to explain - this is what it sounds like.

With editors the new digital domain is great you're just sending files so quickly, you know if your having to change a few notes or a few bars here or trying to squeeze[verbatim] something into sync which happens quite a lot between editors especially now with the digital world, you can actually cheat it a little bit, you don't

have to go back and record the score all the real instruments you can actually put a 3/4 bar in quickly if you need to, or edit something like that at the it's a bonus it makes a workflow quicker!

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Deadlines will make a definite difference to how I'll approach something and I will just pull up those virtual instruments that I know will work and it will stop me from probably experimenting more with sounds! Knowing that I have to work quickly so I'll just pull those favourite standard virtual instruments up straightaway!!

7. How does budget influence your decision making regarding virtual instruments choice ?

But it can be two things: budget can be how much time do you want to spend on this project? Or do I love this project and that budget doesn't matter and spend more time on it. So there are two very different approaches; if I've just got a turn that job out, and the budget is in that great I will of still do my best to do the best job I can but I still will work a lot quicker my brain would have time to stop and think. Or be a little bit more creative, on how I would approach something.[12:53]

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

I suppose over the years I have I been lucky not just being a player but I've had and used technology. So I've seen it change, the biggest change for me is that I'm not using any hardware! Any of my old synths or hardware I'm not using a SMPTE MIDI outbox to keep things in sync all these things just sit here in the studio- everything sits in the box. And for convenience, I travelled to LA this year and I had my whole studio in a carry on bag you know I could carry my hard drives and my Little Mac Mini in there and it had everything an incredibly powerful! [Craig]It's the stuff of science fiction 20 years ago] - yet it is and I've worked in big studios as an engineer and I know what I can do now would have required a million-dollar desk and that's without any outboard gear and now what you can do for under 10 grand is the equivalent! It's great.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Ah yes, they expect more they definitely expect more! They definitely expect a bigger sound - they approach you as if you can achieve any sound!!!... Which you can but its um .. They approach you as if you can achieve anything - like a Hans Zimmer sound - without any extra help, so I think their expectations sometimes are a little bit unrealistic.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No. Film TV, songs, I write with artists arranging at producing for them.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

I have an iPad as a remote for the logic that's all. No other external MIDI devices. I use a Novation keyboard and I've got knobs which I can assigned to different MIDI controllers which I do occasionally and I have a little old Beringer fader which I use just a fader controls that again my hand is on that mouse!

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Yes because I can get some amazing sounds! - And as I said before the fashion of music how you can combine orchestral with electronica suits me fine so the satisfaction I get in that in achieving that style is.... I mean I get great satisfaction out of that!!

14. What role do virtual instruments have in the future of screen music ?

I think they'll keep continuing along this path for while! More samples will be available a lot more quality of samples will be available because the competition is getting harder and harder so those companies need to keep the standards very high, I think the next 10 years will basically stay the same in the way we work and the way our workflow is.

With the combination of virtual instruments and live instruments is here to stay now I think. People are learning to adapt to the combination of virtual instrument and real performer environment - I can still combine real players with the sampled sounds and virtual instruments!! [20:59]

Interview Transcription Peter Dasent (6 February 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes.

Secondly, Do you wish to be identified or quoted ?

If you want to sure, yes.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

My first experience with using a PC was a Yamaha product. Using a PC that you could sink to picture I did a couple of TV commercials using that synth, and the fact that you could edit using a notation display was ahead of its time and it was just a baby computer in terms of power. Yamaha didn't take that any further but once the whole PC and music software came along there was really no use for it.

So I guess the first actual virtual instrument that I got that really made an impression on me was BORE And it was an emulation of Hammond B3 made by Native Instruments, this would have been about 10 years ago and I thought it was totally amazing!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Computers have made what was once the area of specialists have made those things available to everyone! But not only in music, I mean everyone is designer these days, everyone is a writer, but that's not quite the same really everyone's of filmmaker, everyone's a editor, everyone's a composer, so I mean that's a good thing in a one way. I

think it affects what people who hire you expect, if the bloke in the office next door is fiddling around with some beats or something, well he is a composer and he can do the music for an add or a doco or a television program or something like that. So that's what I mean everyone's a composer!! But they're not!!

For me virtual instruments are fantastic, I'm not into creating music entirely electronically I'm old school- I grew up with bands that played together in recording studio, and if you wanted an orchestra you went and hired one like the Beatles did - and George Martin did the arrangement so that's where I come from with music. The samples are getting better and better - I'm like a kid in a candy store, here is a beautiful clarinet sampled in various situations with different articulations and dynamics and everything is there. [Craig-any downsides?] Yes well just in the last few days I've been trying to find a marimba sample [8:26] but all ones of heard have too much reverb and it doesn't suit my needs so I am currently downloading one that has a close mike so after we've finished this interview, I'll be working on that. I did a search on marimba samples and I found the one I wanted it was \$100 or so - it is so cheap compared to the Hammond B4 it was \$400 years ago it wasn't cheap, the price of everything has come down with the latest version of ProTools and the latest version of Logic are absurdly cheap for what they can do its incredible. Logic is my go to program for composing, but for recording ProTools has the recordings are mean I've just done a recording of children's songs and that's where it lives. [11:03]

If I need to record a string arrangements, I fire up my east-west samples, find the articulations I want play in the parts, fire off into Sibelius, and get string players to play it - that's probably a very common use of virtual instruments and part of me would be

equally happy working them out on the piano but I guess it's quite neat to actually play the actual track that the arrangements going on and fiddle with it, whether I get better or worse results I don't know.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

No not really. The only thing I will do is take all of reverb off if I can, if it's possible. I get somebody else to do all my mixing and recording. I did a documentary last year recorded piano percussion cello and viola they made so many changes, that it didn't have enough music for some new cue! And we didn't have a budget or another recording session so we just had to match the sounds which we did really it was fine, it was a documentary and it was in the mix there was Atmos. and effects you couldn't have done it for an hour track but in the context of what we were doing it was fine.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

It's not important for its own sake. I'm not working in areas where I imagine that would be important like dance music or hip-hop, where it's all about the latest sound so the short answer is no.

But in saying that if something new comes up and I get excited by it - I'll buy it .

You can buy whatever you want - if you search for it , you just buy it its great.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

The fact that you can play what is basically going to be the finished product as a demonstration is a demo, that's a change!! I never worked in the days when you couldn't do that and that is not do a computerised mock up. The work that I have done, I've been able to play to the director on the computer and that's what is, sound like - with the proviso that sound even better when it's mixed properly. Directors seem happy with that. These days I only work with people that I like and like me or not out hustling work I do woodwork [sic] idiots I've been there and done that. Once or start working with someone I'll probably work with again.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

I've got enough to cover most things that are asked of me that need to be delivered quickly. The libraries of stuff that I've never used never even listen to or even explored or played with their there, someone needs an Armenian finger Bell I've probably got it....

[Craig-do you have a group of favourites that work the you?]

Yes I guess so, but occasionally get sick of my usual things that I use and explore different sounds and sometimes you find something that works and sometimes you go back to my what I know works it's nice to have the choice which you do these days. The do you have the time? Nobody has enough time these days that's one thing about these virtual instruments, you look at a library and you go wow I could spend a day writing a piece of music using these sounds and quite often all start doing something like that and it stays there, I never come back to it because it is of the stuff but I have to do!! And there is no outlet for it-quite practical about the things that I do I don't do things for their own sake, or do that with a view to get in and out there somehow so of the various projects on the boil and it got plan for them.

7. How does budget influence your decision making regarding virtual instruments choice ?

I don't think it influences virtual instruments choice, I mean the main thing that meet with budget is: is this a project where all the music is generated from the computer using sounds of samples is it going to be recorded with live musicians. For some projects the director knows that it's a good thing to have some live recordings of instruments that so budget is always a factor, so I'll mix it up and do some cues with real instruments and other cues totally virtual. The main thing with budgets is that there is never enough money - and the composer is always last. My time has been compressed so many times because of hard deadlines - like film Festivals.

The thing about software instruments is that they allow you to do stuff 20 years ago you could not have done in that time - and I guess that relates to your question on deadlines it's pretty well expected that you can do something in 5 minutes whereas 20 years ago be 5 weeks to do something!!

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Absolutely, yes totally it's amazing what they expect you to do! They'll say some acoustic guitar, well okay I have some virtual instrument that don't sound like Harpsichords, and I play some guitar myself so I know little about the voicing's, so I can put acoustic guitar on a on a track - what are they expecting me to do? Are they expecting me to hire a guitar player with the budget to give me? And the deadline given me? Of course not. They just think a guitar is something that you pluck out of the air - that's what a composer does - he supplies guitar - an orchestra or an Armenian cymbal.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

No I don't use a keyboard on a keyboard player. What I do is I look at the screen dial up the instruments and play along - improvising I can't imagine doing it any other way. It's all very hands-on to me and it can be very quick because of that!!

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I think so yes! Yes just because you can have that immediate feedback!! Never the real thing that you get a very good idea of it ! It's the immediate feedback that I really like!

14. What role do virtual instruments have in the future of screen music ?

Well I think they're here to stay aren't they ? Totally. Interesting that Hollywood has the budget and still use orchestras for film scores even though I think a good programmer

could do pretty good mock up these days at There are probably scores that you think that's an orchestra and its virtual orchestra especially in television and I quite like the way the clever guys and merge real sounds with obviously electronic sounds that work these the people who are on the cutting edge film and television music.

If I was 20 years younger it be right into that I think but not technical at all! Playing with sounds programming is not something that I have spent a lot of time doing. I used to use Cubase way back when before it was Cubase audio I you knew that program back to front. Programs these days DAWs are so deep these days, I have to hire someone to show me new stuff because of my learning process.[37:43]

Interview transcription Paul Doust (23 July 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

I do.

Secondly, Do you wish to be identified or quoted ?

Yes that's fine.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen
? [help me understand your use of virtual instruments].

I use a selection of different virtual instruments from different software developers through a digital audio workstation or a DAW so either through Logic or ProTools, I use them as programs within programs essentially, so that I can have tracks of different instruments of varying samples replicating organic samples - ranging from traditional orchestral instruments(strings woodwinds brass etc). And then there's or synth stuff that is more custom made and more sort of malleable, or electronic focused and more contemporary. I've always used virtual instruments for film projects exclusively unless there's live performers. Very occasionally I think I've used notation software such as Sibelius compose it, there is a score that's been written that will be intended for live performers so that bypasses the whole instrument step.[Craig interrupts][3:15]

[3;57]

Generally these days I would use virtual instruments, if I'm writing for instruments for live performance, to produce a MIDI mock up - if that's required for the film or even my own personal references to have something sketched out in a more vertical fashion like a traditional score where you would read it vertically. At a similar concept with instruments that have is laid out in score order.

[Craig-can we explore the concept of 'verticalization' of film scores?]

Yes I'm stickler for organisation, so for me it's part pragmatic because I'm from a classical background. If it is for traditional orchestral instruments it'll be woodwinds at the top brass and percussion and in strings so I tend to order my virtual instruments in that way as well just for ease of workflow! Perhaps it has another psychological effect I don't know. To set it out in this way is more familiar with me because of my classical training it allows me to have templates just for ease of workflow. I'm a pragmatic screen composer very organised something that I've learned over the years it saves me a lot of trouble in the long run just to be organised, in terms of dating things and files backing up files, the whole 9 yards.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Great! Everyone should have the access ability to these things! It's hard to say what the future will necessarily bring in terms of whether there will be saturation point in terms of virtual instruments - we'll never be able to replicate full orchestral sound but I think we will come pretty close and I think that's probably good enough! Especially when it comes to budgets it's ludicrous to be able to afford a full 60+ orchestra for films if you can do it exponentially cheaper then why wouldn't you?! Where're not quite there yet but - to answer your question, the accessibility of virtual instruments evens out the playing field a little bit and it means that - Its still not that cheap but you know it does lend itself or to a meritocracy in regard to everyone has the same access to the same

samples that's when you know that your talents can shine.[Craig-any negatives or drawbacks?]

Absolutely, I'm not that technologically savvy. I'm certainly not remotely one of the forefront guru wizards at using virtual instruments to their full potential it's something that I'm learning is a skill - I'm getting better every day, but every day I have technological troubles that impede my workflow and it's not always the virtual instruments themselves, it's often to do with if it takes up too much RAM, or they load too slowly or they don't have the flexibility that you want them to have - I can't alter them in some ways.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Yes! I always try and... Because everyone has the same instruments they do tend to sound the same! If you listen to things you can pick up and recognise oh that's that sample, for that reason and for personalising it I like to fiddle around a little bit just to get something a little unique and unusual!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

When I have the money for it! In all seriousness, that is part of it. When the project calls for it when I feel like I have a gap in my database my library, quite recently I bought

and upgraded a couple of things - I really wanted some strings that had some functionality that I didn't have in other libraries, certain effects and techniques that I really wanted that I didn't have so now I have that. But there is a dangerous slippery slope, no amount of samples can teach you composition!! It has to be a combination of the two.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I would say that more is expected for less! So basically deadlines and quick turnarounds, moneywise you're expected to come up with epic orchestral sounds in in under \$300 those kind of things-so in general more for less.

[Craig-thank you heard of the disappearance of the lock off?]

Never label anything final. I will never ever label anything final.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

7. How does budget influence your decision making regarding virtual instruments choice ?

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

No, there are some things I do always if the project allows for it I will read the script and watch the film with the director in advance, sometimes that's not possible so I do is get the film, or some version of the film, and I start playing straight away - playing around with sound palettes. In general, I will create a sound palette a bunch of instruments that I want to use that will suit the mood and the tone of the scene or the film in general then I will start to write!! After I've sorted out where I want to hit each point, if the film that needs to be hit at certain points and then I will sort out things like tempo and other miscellaneous things - but sometimes if I'm just mucking around on the flipside, I will just I will come up with something that I think is great I will start going from their and then I'll start to think about fleshing it out, but that is more of an exception rather than the rule!!

Also film music is a medium where you are a part of a creative conglomerate and you're one of the last people if not the last to add to it so you have to think very methodically about what you are adding to it and why and how so that's doesn't generally allow or for spontaneous creative creation and that's different to absolute music.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

Not really no, I have a microphone that I sometimes sing into. And now write ideas on a notepad in terms of harmonic progressions. MIDI input from a keyboard that's what I use.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

It does on the level if I get frustrated if my vision doesn't coalesce that's my problem not there's. So that's something that I have to get over.[18:03]

14. What role do virtual instruments have in the future of screen music ?

They are the future, at least the immediate future until something more amazing comes along! It's already happening even in Los Angeles in big scoring studios, you can see that no one even the big production houses, have the budgets necessarily that they used to have and so its going to be 99% of the time you going to have a score which is composed exclusively out of or almost exclusively out of virtual instruments. That will be the trend for the next, 10, 15, 20 years, but after that who knows what technologies will arise!

Interview Questions Neil Parfitt (24 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

...ok, sure.

Secondly, Do you wish to be identified or quoted ?

Sure you can use my name if you'd like.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen
? [help me understand your use of virtual instruments].

I'd have to split that into two answers : 1) If we're talking about sample based libraries - it's a key tool with the work I do, mainly because budgets don't allow to record the real counterpart i.e.: Orchestral. 2) If we're talking about non-sampled virtual instruments, that would be a replacement for hardware modules.

The virtual versions offer the sound quality, flexibility, total recall of automation and most importantly - as many instances as I need to realize an idea

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think it's great that these tools are available, but you start to hear the same sounds everywhere because most composers don't have access to the real equivalent. Which waters down what we're hearing out there. The same loops, the same patches. There's a danger of getting lazy as the 'work' to make a patch sound great is done, so at the 11th hour there can be more of a tendency to just choose a pre-done patch vs. sculpting your

own unique sound, but of course, with any sound library out there you need to research the real deal. Just like you have to be aware that a drummer only has 2 hands and 2 feet, an orchestra can't play a 20 fingered chord!

Because the software allows you play in whatever you want, if you're un-educated with the instrument - it will just sound wrong no-matter how good the sample is. So, the quality doesn't supersede the skill and thought put in to a part if you know what I mean. granted, sometimes you have to pull off the un feasible sound, i.e.: the HUGE (Hans) Zimmer epic etc but that's a sound itself.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?
4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?
- 6.

No, not from that standpoint (other than they love how good stuff sounds if they've been in the biz a long time). I don't miss the JV-1080 orch sounds. As for delivering cues though, it hasn't changed.

7. How do deadlines influence your decision making regarding virtual instruments choice ?

The deadline is set and they expect your work to arrive on-time. And if they're here at the studio, there's no difference between adjusting MIDI on an internal or external instrument - just the quality is obviously better on the virtual end.

8. How does budget influence your decision making regarding virtual instruments choice ?

9. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

No. I was a hard worker before. But has it changed the FLOW of working? Absolutely, It's faster to realize complex ideas.

Some of the cues, if I even attempted to use outboard would require hundreds of modules!

From the hardware to the software? No. It was a blessing. Gone were the restraints of hardware samplers - most capped out at 256Meg of RAM!! I have found though, that with the ease of being able to load up all these great tools places increasing demand on the computers needed to run them properly. So it's been an expensive climb up the ladder!

10. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?
11. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?
12. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?
13. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

I have your standard run-of-the-mill 88 key for note entry, the icon for volume/pan/automation. Grey area would be my Expert Sleepers plugins, they let you take MIDI automation, convert it to CV controls so I can remote automate my modular synth. but otherwise, no nothing weird, (I honestly don't have time when on a gig) The piano is the fastest way to get MIDI notes in, as I'm a piano player.

[Craig- Do you work alone ?]

From a writing standpoint? Yes. If I'm super slammed I'll get in outside help to deal with emails, general ProTools work.

[Craig-] Alone in a dedicated studio ?

Oh - yes. I work from my home studio.

Can I elaborate for a sec on the work from home? I had my studio at a dedicated office for a long time, however, with communication via internet literally exploding over the last 10 years, I found that even though I'd interact with my clients the same amount. The METHOD of communications have changed big time. Before, it was mostly face-to-face. Now, It's email, phone, cinecync, yousendit/dropbox etc etc. Basically, having and paying for a separate all of sudden didn't make any sense. separate "office" - it's amazing how fast that changed.

Well - you do have to be very disciplined as it can be very easy to get distracted - whereas the outside studio - you GO there to get work done - but people do get confused about the 'home' studio. It's still a ton of money, just a room in your own place vs. paying rent for somewhere else.

Satisfaction.

14. Have virtual instruments changed your satisfaction as a screen composer in any way ?

15. What role do virtual instruments have in the future of screen music ?

This is kinda lame, but the future is now. Virtual instruments are here to stay (and sadly replace in a lot of the scenarios) I still feel that nothing replaces an outside 'human' factor. I routinely record vocals, guitars, real percussion - just so there's something

organic in the track. Yes, obviously you can't do the real orchestra in your house - so those libraries have to be leaned on but if I need bass, I'll try and get someone in vs. using a generic Native Instruments patch IF - I have the time and budget virtual instruments are the most important tool in this age of composing, but the human factor must not be forgotten.

*Interview with **Michael Darren** Interviewed 7th February 2014*

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Secondly, Do you wish to be identified or quoted ?

Permission given to be recorded. Permission to be identified.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Pretty much extensively used, at least half the instruments I use are virtual instruments. It depends what it's for, between film and TV: I use them a lot! I keep buying them more my library gets bigger and bigger their great!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

You have hit the nail on the head, there are a couple of larger ones like Spitfire and those guys, they are actually composers themselves who have decided to start their own libraries and decided to release them to the public and charge for them. What's great about those, as before, they were more of a corporate thing but now composers themselves who understand what composers need are releasing them! I'd say in the last couple of years, it's really accelerated a lot ! There were a few companies before that did it, quite large ones and you know we all had the same libraries and I can often hear when I watch a film or a TV show I can hear the same samples, you can hear them all the time. So yeah, it's definitely more accessible to everyone and that's okay I don't mind.

[Craig – other any drawbacks?] Well, there is that ...which is a problem, you watch any sort of horror or suspense "Symphobia" library gets used by everybody, I hear it all the time. In fact, the film it is worked on I wasn't the composer, I was head of the sound department so I was in the mix, yerh, that cue came up low and behold he used the same woodwind patch that I used years ago and I know exactly what patch number it is and what libraries from, I guess the public doesn't know what but, I know it and I kind of

laughed at myself, you don't that's the way it is. Talking about TV, I don't think there's any composers who were assigned to that they use lot of library instruments - they just pump it out bounds of material per year it is about how much you can do as opposed to the quality per se. I'm not saying what they do is nothing it's amazing its is far different, I'm at the crossroads at the moment, I work onto TV shows, and they both have a quick turnaround! And I've just finished a feature film and that was very different I had literally months and months and months to work on it, so it's a very different approach. For that one I actually tried to make sure that no one could know where my samples were coming from! And there are tricks to doing that sort of thing. And I played lots of different instruments on top. [Craig Thank you being are so clear]

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Not really, not much at all it's just always the hunt are something new, I don't really go into the patch and edit the patch and all that sort of stuff I mean there are all playing a real sample anyway. The reverbs and such I use my own on top and that tends to change the sound a lot actually.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

In terms of what? [Craig-in terms of samples and upgrades]. Yes I am kind of swayed by that, I have spent quite a lot of income on them especially in the last few months, and

I wasn't even doing any composing I was just there and thought there's a new Hans Zimmer library from Spitfire everyone's been waiting for it. They're very smart because what they say to you, is if you buy before this date you get a reduced price and of course you buy it! Actually I bought it the day it came out! So there's two aspects to that: there is the technical requirements of the computer to be stable enough to be able to play the samples and that's kind of important to keep your samples and patches up to date because it was really unstable because all this stuff when it first came out you needed mountains of computers to run them and they were crashing or the time and they still do, they still do crash. I have noticed in the last couple of years, that it is more stable: which is good. And that instability kind of sways your decision making process to which ones you use!

I can give you a direct example of that: the play engine which is the sounds online guys I own a whole bunch of their library staff the play engine was notoriously RAM hungry, but that's all. The east-west strings library was the standard for every composer everybody had it, as a whole bunch there the choir one, they all really good! I guess what happened is that they started to become really unstable, I generally work in ProTools directly which are slightly unusual for this sort of stuff it was crashing. So then Kontakt became the next big sample player and you can do things in Kontakt to make things a little more stable and so that's what I use now. Well I own the player but I haven't loaded it for a while. So for a couple years then, its weight [sic] me against the play engine but that forced me to use other libraries and it can change my composing anyway! Which is kind of good! So in a way the play are dictated what instruments I chose, yet it stupid and away but it did, I was getting very frustrated with it.

We still work with it I work with a few different composers sometimes will need the choir from that, so of load it but of course everything is changing now with the 64-bit versions coming out. The theoretical now is that with 64 bit all the engines and ProTools 11 and stuff, should theoretically run much better on a machine. That's the theory behind it, it's just the transition phase were in now.

I think being a composer has one of the hardest requirements on hardware there is - when I do my sound work you don't need anywhere as much power as a composer would need that's because of all of the soft synths and virtual instruments they are so RAM intensive and CPU hungry: the application itself doesn't take up much at all for years and years ProTools, Cubase or Logic were all restricted to 4 gig of RAM anyway and that's a limitation of the 32-bit architecture - so it didn't matter right - now everyone is going 64-bit, but in order to have 64-bit you need to have a 64-bit operating system. You have to have the fastest possible Mac that you can get your hands on which will be the new MacBook Pro this year - it's the biggest thing it's just expensive that's all.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I've been using these tools for 20 years so its always been the same I haven't been using analogue tools-I started with an at 1040Atari-ST in 1990 whatever it was what kind of

context are you talking about? [Craig-what I mean is do you ever meets or never meet a director?] ooh that sort of stuff - yes, the Internet allows you to work with people all over the world which I do but you still can't beat having a director in your room though, and people know that. If the director knows, it still is very much a relationship type of job, if you know what I mean! So it really doesn't matter what you use what I found is, it's all about relationships is not about what tools you have they don't really care really. But having said that, the Internet has made a massive change and it really helped my career! I work a lot in the US and I send files back and forth a lot. The TV shows I work on, although he is based in Adelaide, I never actually saw him for composing or post production at all I'd write cue, I do it quick export I send it via email or FTP or Dropbox or whatever and he check it and say yes and that's the way we worked! That worked extremely well because I know him extremely, well is actually my cousin, I actually know him so well that I barely need him to direct me, whereas I'm not sure if that would really work if I was working with a new director that I had no experience with I could imagine they would be hesitant to use a compose our remotely in that situation. They'd want at least to be in the same state or something.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Not really. No I guess the virtual instrument should be stable enough to use in any situation regardless of deadline otherwise I wouldn't use it!

7. How does budget influence your decision making regarding virtual instruments choice ?

Well just means that you use more of them - so if they don't have any budget at all to hire any musicians, which is becoming the norm at least in the TV world, it is ironic because you rely on them a lot more, as a composer, you have to spend the money to get them. It's always good if you can say I can get you a violinist's can be \$295 because that's the cost of me bind the virtual instrument for you but you can't really tell them that though - it much rather have the real thing.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

I think the expectations of the composer are much higher! So, the producers and directors are pretty they go you're going to do a full orchestral arrangement right? And they just expected it! Not all, mind you, I worked with the director last year and he was very understanding. But they hear it or they hear another composers cue from someone else and go, wow we really like that, hey you guys we really want the same thing. And you go, yerh okay...[haha] the thing is it's very time-consuming if he will start doing stuff that's that layered and detailed, you going to put a lot of work into it you can't display it straight in. It's almost like a false economy in a way! But the fact is, you can do it! To a point that most people can't tell the difference especially for TV work. I mean, writing for film is a different kind of thing then writing for TV it's in 5.1 and you know you generally have to spend a lot more time on it. So yes I think it has changed because we are expected to do more!

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

I think directors and producers expectations generally in the whole post production environment has changed! I don't think they would really understand what are virtual instrument would even be. But, for example I put up a patch with the Albion strings for a director - because he said to me can we have strings? Are they any good these days? He's my age and he remembers back in the day when they always sounded so thin - I put it up and played it to live and he goes wow okay. Let's put that all the way through! It would be really good if we could get some players on top of this, and then no one would ever be able to tell the difference!! He loved the idea but couldn't afford it.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No I did once long time ago. But not anymore.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

Not really, I used to have a "ribbon controller" on a Kurzweil but that's long since gone.

I probably have a ribbon controller on my Korg.

[Craig-can you tell me a little bit more about the ribbon controller?]

So a ribbon controller is like a vertical pad and you essentially vibrate your finger left and right onto it - it simulates vibrato of a string instrument or if you have a fair and you can use it as a pitch down device controlled with your finger. Pretty cool but I don't have anything else. It would be interesting to use other technology but I don't have the time to set it up.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Yes, you know for sure!! It's always a frustration when you, I mean part of it at the music is trying to get the sound of the instrument right - we seem to be more sound engineers rather than composers most of the time because you're sitting there trying to... And it's inspiring if you can pull up a patch and the strings sound really stiff and hollow I mean this is not a work but really,

14. What role do virtual instruments have in the future of screen music ?

I guess that relates to the question is the orchestra going to be retired, dead probably two a point yes I can actually see how the reality is orchestra's are extremely expensive per hour, and you can't hire them for an hour you have to hire them for three hours! Half the instruments from Hollywood would be coming from libraries already or the Hans Zimmer stuff. His recording orchestras but he has a massive library and a producer will say what a way have to spend what I have to spend \$12,000 on a four-day call when I can spend \$10,000 whatever is never quite the same, but dude, it's getting close.

I've quoted on Hungarian Orchestras and there quite a lot cheaper, they are being used quite a lot. Australia really doesn't have a film industry, I call it a film hobby the reality is that they never going to be able to afford it here - you listen to Australian scores and there quite "sound designy" there's one guy doing it in he's lounge room or his home studio three different to the US stuff - but I guess it's down to the financial thing. With the virtual instruments thing as a composer you want to try to do the best job possible so of course you going to use them and of course you want to try and emulate a real orchestra because that's the ultimate goal!

Using real people is not just about the sound the strings or whatever, to me it's about, bouncing off ideas and that's probably more important and interaction is amazing to have that. [Craig-is that were experimentation comes into it to?] Yes, the last score, the feature film I did last year I got a solo cellist in three different violinists in and I gave them some clear direction on what I wanted and then I said hey, what do you think? And we just rolled in ProTools and that play a whole bunch of stuff back which is great!

It gets you out from being stuck behind a screen alone for once it's what music should be about.

[Thank you very much.] It's a pleasure

Interview Transcript **Kirke Godfrey** (interviewed 24 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

I am happy to be identified or quoted.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I use them well in the last couple of years, I've just started teaching at the film school AFTRS, I'm not doing that much composing doing more teaching over my career I still am doing some definitely - I took to software instruments very quickly! As soon as anything was available that could do it I was really keen to get away from using hardware!! It's such a broad question, I use them as absolute replacements for acoustic instruments that I either don't have, don't have recordings, you know I don't have facilities to record I don't have the technique to play it goes across so many different things because some of it's just that if I needed a very simple piano part, I'm not a piano player - I don't have a sophisticated recording studio at my disposal. The reality is I don't have a sophisticated piano nor a sophisticated piano space - and also because I'm not a piano player I'm unlikely to play it with as much finesse as I would like, and I can finesse my MIDI data!! So I can get the performance exactly as I want it.

Kontakt is my software sampler of choice it's pretty ubiquitous almost everyone writes libraries for that format as well it being I mean it's a bit the same way as ProTools has become the postproduction audio software of choice, Kontakt has become the default software sampling system, despite the fact that there are some very worthwhile competitors who don't have market share and therefore don't have the libraries.

[Craig-limitations?]

They all do absolutely any program that I've never used has got really distinct and really annoying limitations, but by the same token that also got some extraordinary delightful and reading and musically assistive components it's always a trade-off I'm yet to hit anything that's not a bit of a trade-off!!

Regarding sample libraries themselves, I find some of them inspiring I come at life from, rather than being a classically trained musician, I come at life from a more "soundie" end of it. I was interested in it from the get go when it was basically racks of modular stuff that required patch cords to plug into each other because I'm that old. I'm a guitarist technically. I really liked being able to manipulate so I really liked using samplers that provide lot of really good manipulation of the sound can be really important to me, rather than pure playback of something that you don't have much control over. For example, being able to get a grand piano and then being able to mess with it or turnaround or do something quite strange to it - so it doesn't just sound like a grand piano any more. Using the term grand piano for any acoustic instrument.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Brilliant !! Bring it on! Absolutely brilliant. Actually it was quite pleasant for me at the time to be able to have all that gear set up, and I had worked as a job called a programmer which is a guy who works around the studios in Sydney with a DX7 and an Akai and an Atari 1040 computer, and I had a microwave Waldorf at one stage and I had that in rack with a DX7 and stuff. I got jobs doing what is called programming which is basically what everybody now does all day!! That was its own job simply because nobody was in a position to do that - people didn't have the technical chops whereas now, every Apple laptop you buy comes with Garage Band and people are doing records with Garage Band which sound great.

When my students complain about investing in a \$3000 computer and program system, I think that's about 40% of what Hans Zimmer was doing Dusk with. Things change that much and I think it's great, I think bring it on.

Please quote me there!! I think the democratisation of this type of stuff is fantastic. I mean I can't played piano properly, I can't read and write dots and nor does Han Zimmer and that's okay, it comes down to what your ideas are and if you got enough technical chops, to be able to get those ideas out then you're going to be great so bring it on and produce lots of lovely sounds of people to listen to!! [14:48]

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

That's the plan and it's been much the plan to often to turn it into something which is identifiably itself rather than it being a sound library thing. It helps my aesthetic and it helps differentiate you in the world musically - the default sound is not exactly what it looking for - I have to do is manipulate it a bit.[5:05]

I made a living for a long time, a long time ago, Yamaha came out with a synthesiser Yamaha DX7 it was the first of its type it used an FM synthesis, it was seen to be impossibly complex to create sounds on that it had really interesting sounds that had been unlike anything else that had been around because everything else around was old classic analogue synthesisers and it made it sounds via its FM synthesis. Which was

brand-new and exciting at the time, and you basically just had sine waves but the way that you interacted the sine waves would create all of these really complex sounds.

[Craig spontaneous prompt-That was your niche?] Well I bought one, I got rid of my "Korg Mono-Poly" which was really completely gorgeous for oscillator thing, and bought one of these because I figured it was the future! And I taught myself how to use it, which meant that I ended up with a huge amount of work because everybody wanted the sound of this machine ... It had 64 presets and everybody wanted something that was not just those 64 presets because they wanted that sound that they knew it came very apparent very quickly you heard the same. 10 favourite sounds all over every record because it was exciting and new.[6:46] It's like when the Fairlight came out suddenly you hear Fairlight's all over everything.

Looking out at what is available to my young students at the moment my eyes just roll back in my head and I just think, oh my God you've just got so many amazing palettes to play with!! So many choices.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

For me now less so - it used to be absolutely critical and I would be constantly chasing new tonalities and palettes. Things have settled in some ways, in probably over the last five or six years or so, because Kontakt gets more and more involved and now it's just down to the libraries themselves. A lot of professionals that I speak with have basically

nailed their palette to a high degree!! There's got their basic go to everything!! Already set up and running and every now and then they'll add something new to spice it up a bit just for their own interest they will generally already have their full palette set and running!!

When Hans Zimmer kicked that in millions of years ago

I worked long time ago I did a whole bunch of stuff with Hans Zimmer and my brain just completely melted when I saw the way he worked because even then, he had even more tools than God!! So after that I showed everybody that how to set up their systems so you set up your system so that you have everything already loaded have your full orchestral palette the settings are ready to go include reverb so that it's just there in your palette - waiting so that if you want a piccolo you just select and play the piccolo track , next if you wanted a distorted bass, you would just select and play in the distorted bass track. And whole idea was because none of us had enough power to really do that and we all had to with the fact that we all had one Korg synth and if we had a sampler we had something that would play 16 notes at once and with one sound. And what he did is he defeated the principal by buying 25 Akai samplers at like seven grand each and having them all racked up and the digital connection between them and we had 15 of those, he had nine of these Korg synths or of these and seven of those so he could just go cha ching. Everything was never turned off was there ready to go - and I was just gobsmacked by that!![10:55]

[Craig-it sounds like you've learnt a lot from this experience?]

Well this may have been the way that everyone was doing it in Hollywood at that time, I was just not familiar with it and everyone I knew around Australia and Sydney was not familiar with that as an idea. But most importantly no one could really emulate it because we didn't have anything like that amount of money. However I'm sitting right behind a \$3000 iMac, with a \$210 piece of software and a load of Kontakt on it, and a couple of extra sound libraries and I've got and I've got 137 channels of stuff on tap ready to go!! And the total cost of that would be about four a half grand so, is not even the cost of one 16-voice Akai it's just insane what's available now.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I think that everybody, and this happened in the pop industry too, everybody expects what they're hearing is the final or is dangerously close to the final very quickly! A director doesn't seem to be able to accept all wrapped them mind around a rough sketch! You can't describe any longer in words, for example there's going to be percussion down here and is a counter melody up here - the director says "where is it"? "I want to hear it". So you then load up your "ginormous" library of stuff, create one that sounds pre-produced crazy good because these libraries and now so pre-produced in a fabulous way that they sound instant Hollywood anyway, and you've got your gorgeous soaring strings and the director goes that's nice, but there's a certain fizz to that string sound and you go that's okay, I will load up my second string choice and the director says that's

better. So, this is new this was not available in any way pre-all [sic] of the digital revolution basically, because the composer would play it on a piano or and hum them the melody, and it's only when they got the go ahead and the money that they would then go into a studio and record a full orchestra - and at that point there goes the budget ! [Kirke makes 'Ka Boom' Sound]

And the idea of constant re-edits which happens all the way through the film processed now, that's the other thing that's massively changed !! Oh well, we have to change the timing.[25:45] there are moving goalposts now, and this is one of the reasons why I moved away from this area and started teaching, it was partly me and partly what I saw my friends going through and the stress involved. I don't deal very well with re-edits - I'm not very good at it - and as my mother said to me just tell them to fuck off, and I have many examples of when directors have changed their mind two or three times, unless I can get the director to acknowledge that they actually did say something completely different I mean, because the technology is what it is today, now just expected that we know that you can easily edit that we know that you can quickly change that, and sometimes the edits are very simple and you can and other times it's very difficult but because the technology is what it is now, it's infinitely easier than it used to be!!

The other revolution which has been incredibly helpful is the ability to stretch audio without any pitch changes. This allows you to stretch or compress some audio that has already been recorded so that it actually meets a new edited mark. This allows you to accurately hit hit-points in the film. Had this technology had been kept secret from the

directorial people so they didn't understand that that was possible and us musicians could just quietly do it, that would have been fantastic. Someone gave a secret away!! It would have been great because we would have been able to make the changes and then we wouldn't have been told to re-re-remake them !!

The problem with that is that you can rearrange a picture frame and your brain can take in a picture change, and you can remove a few frames and that's okay your brain just absorbs it. But if you had just a piece of music that was underlying a film smoothly and then you completely did all of those edits to that image with the music coming along for the ride, it would be a cacophony of noise and come out as this annoyingly disjointed thing! Whereas if you looked at those same pictures mute, after the edits, you would not even flinch you would just accept it - your brain would just accept it as a new edit. And the problem is that a lot of directors even the very skilled ones seem to not necessarily get the time component in sound - that sound actually has to flow and you suddenly just can't take out or frames and expect that to work it's because that tiny little bit makes the music too late - for that scene because that moment that we really wanted to accent has suddenly become late and now that the music is late everything falls over and the whole thing seems weird!! Because the directors know that this type of elastic audio exists, they don't blink with it comes to re-editing!

I think we're losing something, something is bad comes from that, in that, the amount of films and I've worked on where you eventually give up and say well, that'll do. There is no music to breath or to become settled - will give you an example of when I used to work in recording studio, he used to finish take and then as the tape was rewinding there

was this moment where reflect upon what had just been played and is there wasn't an infinite amount of tape. And with the advent of digital technology where you instantly hear back what you had just played that was a very jarring experience for many musicians there was no breath was no time to think about it. The moment it that reflection time, the brain had a moment to think about it the moment we got rid of that, it changed things !! [35:47] Now with loop record technology where you can digitally record take after take after take means that there is a really different brain involved in and I think. Not necessarily worse but different!! The negative impact of this is that decisions become relentless musical input devices and they get tired - there with this is input device to a hard disk or computer or a sampler - I'm a happy bracer of new technology but I have seen the downside.

[Craig-how have virtual instruments changed your working methods as a screen composer?]

I started using virtual instruments very early with film so no real change, often I would just go with what I could do synthetically or with virtual instruments and samples, in regard to digital tools, my working methods haven't changed that much because I got into it really early.

And I embraced it really early for a number of reasons, partly because I'm a control freak! Maybe because I couldn't afford to be hiring musicians a lot because you require a recording studio and you require time and you require an engineer, and a whole lot of softwares, working hardware, like that, I was in a position to actually do it in my lounge room on my Atari 1040.

[Craig-normally do you work alone?]

Yes very definitely, unfortunately when I can work with someone else it's good but there's always issues with compatibility. Technical issues with compatibility due to software platforms and file formats and transfers and stuff like that unless someone else has an exact mirrored system it's pretty much impossible to just hand them a file and go you have to sort of render everything out as audio and then give them the MIDI as well and if they don't have all the same sound libraries, and all the same blah blah blah it becomes very problematic - for them to reconstitute for example if I want to give them my beautiful piano piece and I'm using a certain piano if they don't own software piano is greater sound different, it's going to be a different piece because the sound quality for me extremely pertinent !!

This is effects everyone really in that, now that we are writing in what is going to be the final sound in mind a lot of the time, that becomes far more pertinent whereas the few composers who still write with pen and paper, they just saved well this is grand piano here, this is first violin this is second violin ; they don't say; this grand piano from this sound library played with exactly these velocities!! And they don't say this is this set of first violins and second violins from this sample library, that's not how their thinking but most people who are working with software synths and software instruments and things, are often thinking very much about I'm dealing with the final sound immediately!! I'm not just dealing with the abstract set of notes that are will be then is thought about when we get around to the final mix and recording later, they're just purely thinking of melodies chords and timing whereas probably most of us who are working with

software are thinking about the production and the final production from the get go!![20:32]

6. How do deadlines influence your decision making regarding virtual instruments choice ?

7. How does budget influence your decision making regarding virtual instruments choice ?

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

When writing music for a film important to keep in mind that you're just a cog, you're there to serve the film. As a composer you have to acknowledge that it's the director who could quite possibly be wrong, the director is the one who is allowed to make that mistake.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?
12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?
14. What role do virtual instruments have in the future of screen music ?

It is obviously pretty vast I've been fascinated with this recently actually, Apple have just released an update to their program logic, along with a library of new sounds which have slightly improved, which is an artificial intelligence system that is a drummer. You select the drummer, and they have about 12 or so drummers to choose from, and each of these drummers has a little micro bio slightly cheesy, they all come with the back story and when you select one a whole range of load up with it. Along with this comes another selection grid it XY grid of power and busyness, and this XY grid is something that you can control. You can also allow it to track other instruments, so you can ask the

drummer to keep an eye on the bass. I experimented with this new technology and came up with a far more convincing drum track that I had previously, the result was amazing. They're doing is they're giving each of these drummers a stylistic guide.

As an aside, is a vast amount of composers and pulled musicians who are using Logic instead of ProTools even though that ProTools is the industry-standard simply because of the enhancements that's Logic has made regarding its usability when dealing with multiple sets of soft synths.

A couple of years ago I threw away all of my hardware and I just used Logic - that used to be around \$1000 but now it is around \$210 and it fits on my laptop which is just astounding and it's so portable and convenience it's scary.[55:57] Max MSP is even more powerful. It can control video audio and MIDI in real time. IRCAM Paris do some amazing stuff [60:13] it can be also be connected to Ableton Live. You can beat map direct to video also.

Interview Glenn Humphries transcript (24 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

Either or, if it's of any use to you, yes.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I started using sequences when I was in year 10 at school and it was something that I became interested in because I used to go to a music shop for drum lessons and I always saw computers and samplers being used. I asked questions and they explained it to me. And then when I started composing, it was pretty much all I composed on! It was only later on in life that I ever that I started to use things like Finale to write music to be played by real people and I've used them in the home studio when I was first learning, in a commercial studios and also live for events like via gigs in Melbourne right up to the "The Big Day Out". It covers every facet of their use - in the beginning they were amazing in the studio when you are compiling albums or singles or just writing for music releases, and then getting them on the road was another trial it was primitive technology and laptops were sensitive to vibrations, therefore they didn't perform the way you'd hope they would. Had a good experience with all sorts of hardware samplers and keyboards and VST samplers plug-ins virtual instruments you name it I've used it.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

The price of virtual instruments and samples was always very prohibitive when I started fiddling with them in 1992 and started putting money into it in 1995. And in that time the cost was very prohibitive. And what I think it made you do was instead of having this incredible palette that you could draw from to make you music you were a lot more selective. Because you could only afford one plug-in at a time or you could only afford one virtual instrument or one sampler or one hardware device[4:32] so you researched the life out of it, you listened to it in music shops, you got together with friends who had it and try to see what they got out of it and what you could get out of it to make your sort of music. And that sort of separated the wheat from the chaff, if you're really serious, you invested your money.

Now that technology is available to everybody if you invest \$100 or \$200 you can get Logic, an electric piano a drum machine soundscape machine a synth Hammond B3 it's available.

That's produced I think, I glut, of music from people who maybe don't have the skills to be writing! Because I'm a firm believer that you need not traditional music training but you need to have an ear the music to be able to create music! And by lowering the price a lot of people who don't have an ear for music are creating music!! It's not a bad thing is not a good thing it's just how it is and how it always will be and now that the costs

come down the never going back up again!! And that cost was justified at the time because of the amount of really specific hardware like the Akai samplers were built from the ground up as a sampler! So a lot of R&D time had to go into that. A lot of the early EMU plug-ins, EMU is emulator, their early plug-ins required a hell of a lot of R&D and that was all man time and that had to be paid for therefore... Going back as far as the Fairlight the Australian company, with the CMI they poured hundreds of thousands of dollars into those machines because the technology to support them was so expensive and therefore the software to write it was so much more expensive because they had limited access to the technology. So now that all of this technology has become cheaper and far more powerful, so many more people can write the software or create an instrument for any platform they choose.[Craig-and that could be any platform?] Yes, especially the experimental people who use Max MSP, a lot of the people who cut their teeth on early MSP developed a hunger and a heart that type of development and that's how they got into it.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

The great thing about virtual instruments is that it makes... By customising them and altering them and that's right believe they come into their own. Because when you're composing for film and television you always have to consider dialogue the great thing about virtual instruments is, depending what the material is like and what the show is having to sit under dialogue you are able to customise and tweak those sounds so that they don't get in the way of dialogue so you can then re automate them and customise

them to create that sound that you want when you've got space to feature the music!

And that's one thing that's really bad about library music. Library music that's made by acoustic instruments or virtual instruments is that it's a generic vanilla thing that you can download or buy from an online vendor!! And it's usually chosen during the off-line edit stage and you'll find all of the time, not naming names, the big library producers have tracks that just do not fit with dialogue!! And that's a real bonus for virtual instruments is that you can tweak the frequencies and sounds and is no longer a analogue tweak or customisation its digital and it can be saved very quickly and efficiently, what I'm talking about here is the settings around such customisation.

The way I work is that I get inspired by a preset and then I'll customise that preset!! A lot of people would not admit to this but I always start with a preset and then tweak and customise it. The people who've developed the instrument have made a set of presets that have that really show off that instrument or that samplers qualities and abilities.[Glenn elaborates about personal experience].

[14:02] ...music and dialogue can coexist at a healthy volume if the frequencies don't clash and that's what I think a lot of composers don't consider!! Especially young composers when they start making music telling in film is that element of frequency when it comes dialogue!!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

No not important at all! I stopped investing about 18 months ago, what I've got now got ProTools and I have a very early version of logic and I've collected enough sounds that I can pretty much get any sound that I need to, and if I can't create it via a virtual instrument or a plug-in I will always go back to a sampler, I grew up on samplers I'm more dextrous and can tweak and refine with an Akai sample or with the structure of plug-in in ProTools I can usually find created in Melbourne and looking for. But for every day run-of-the-mill stuff I can usually generate what I need to from that collection.

I think the update cycle coming from the Apple ecosystem where you click on the Apple and [16.19] go down to software update has borne this generation of people who have to have the latest and greatest update. If they update something and I don't like it I can always roll back to the previous version and stay there! Usually the thing that breaks with virtual instruments is automation and I rely on automation a lot, and if they update it and they get the automation wrong, it could be a coding thing or just the way responds now, I'll just roll back the version I always keep a good backup!

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I don't think it's changed because it's all I know! I grew up with it, it became prevalent in 1992 and that's when I became interested in it and prior to that I'd always been

interested in music but never knew about the process for television and film. And so its always been there is a tool. It's not like a builder who learns to build with a hammer and then the compressed nail gun came in and the changed the way they worked - it's always been there it's all I've known. I've always been able to dial up a timpani or a viola and ask myself how is that going to sit next to the rest of the score, do I play that the director or do I just muted at the moment, it's always been part of the toolkit so I don't know any different!

6. How do deadlines influence your decision making regarding virtual instruments choice ?

That's a really good question and I think they comes back comes to what we were talking about before about presets and starting from a good colour palette or good sound palette it's great to be up and tweak away and do all that sort of thing but if you need to pull together a good sounding little score - or something like that quickly, presets are a great place to start!! If it was the virtual instruments half the TV shows that we see at the moment wouldn't be delivered the music is always the last thing to arrive at the mix!! Be that of a TV ad or a feature film it's always like visual effects it's the last thing to come in.

Has become a tool of procrastination? No I think it's become a tool of productivity!! - Because, if there is no longer the budget to have orchestras, there is no longer the budget to have instrumentalists and musicians, it's all pretty much self-contained unless it's a large film, then you have the luxury of being able to go somewhere like Track

Down and record a proper score. Virtual instruments and samplers are the basis of that. And that is why I believe I would start from a preset for scoring film and television and also making my own music.

7. How does budget influence your decision making regarding virtual instruments choice ?

I think it influences everybody now! The samples have got that good - you can buy the Vienna Symphony for one-off price of 2 1/2 or three grand and have that sitting on a big monster hard drive connected to your Mac this is something that I've been thinking about over the last week, I think that music has become both the TV and film in the wider world of all sorts of music, has become more creative from these virtual instruments because creativity doesn't strike at 9 o'clock in the morning when you check in into work, it hits you at 1:20am in the morning when you can't sleep and you say to yourself of all of got the best idea and you run to your Mac and then just dial of the U Vienna Symphony orchestra and you ask yourself what do their pizzicato strings sound like in the key and then experiment and it inspires creativity having all of these tools at your fingertips and I think it's a great thing and amazing thing you can only be good.

Coming back to budget, you can't afford the Vienna Symphony. You can't afford a lot of things now, I mean a lot of TV shows are lucky to even have a composer regarding the music libraries (like audio network libraries), when it comes time to mix if there running out of money, the first thing that will get cut is the music!! And I'll run with these horrible library tracks so any show that is got a composer is lucky and the thing is

that there is no way something that is running out of money are going to spend 10 grand of the music session. And I think it's part of an composers toolkit is to have those things if you are an aspiring composer it's just expected that you've got that now!! Previously it was different [6:05T2], write the music demo it up for us and we'll take it into the studio and record it. Now it's, that's your temp music can you mix it and get it to the mix so it's assumed that you have all of those great sounds to deliver to the mix.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Absolutely! Older directors who were making films before the evolution of virtual instruments would go to a composer they'd listen through the score they'd put in that temp music, then maybe they put together something with primitive synths, like a Yamaha DX7, and now they have much greater control they can mute the cellos they can quiet down the timpani's, they can virtually pre-dubbed the music during a temp session!! There is that much power and that much flexibility in those sounds, anything is possible and the possibilities are endless!!

The directors have come to expect the high quality results that virtual instruments can produce -it's expected now that's how things are done. And it's the same with audio post

and read conforming pictures, because of automation and being able to cut in a non-linear digital environment people are now cutting and remixing right up until the 11th hour. It's opened up this flexibility and this Pandora's box of anything is possible right up until the line and that puts a lot of strain and pressure on people!! Because they put a lot of heart and effort into composing something and framing it for a scene or setting and then within three strokes of a pen that entire scene can be recut and there have got to go back and do their whole thing again!! And that puts a lot of strain on everybody... In a way, I think it's a bit of the Wild West at the moment because of the tools that people have, video editors composers audio posts people anything is changeable right up until you have to commit.[9.19T2] Committing wasn't six weeks ago when you had that picture locked off, committing is when you have two hand the tape into the network or when you have two hand the song over to the distributor. What used to be known as the lock off, there is no longer a foundation for anyone to work from! It's a loose ever-changing set of goal posts that you just have to try and aim for the horizon and hope that it all comes together at the end!!

People who are confident in their craft especially as filmmakers know what it takes to get the best out of their team, and that is to give them a solid foundation to work from and that is a lock off. Because, the more you change the less time there is for creativity and the more you change the less time there is for true crafting of the piece as opposed to just getting it done.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?
12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

No, but I wish I did. In the mid 90s I was fascinated by the Korg wave-drum, and the possibilities of that instrument because it was a MIDI instrument that could be altered by touch pressure and velocity and movement I thought there were some real things in their ... Also at the time, the Akai EWI, I was fascinated by that but I never got into it was just a little bit too far out of my financial reach at the time and I wasn't a woodwind player so it wasn't really my strength. EWI stands for Electronic Wind Instrument.

I have used an Akai MPC it's a sampler in its essence, it has 12 or 16 touchpads. I grew up on the X 2000 XL. It's a sampler MIDI trigger device. I use this mostly for my own music not for the screen.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Yes absolutely! I think, being able to compose with a new complete sound is a fulfilling experience!! And being able to alter those instruments and move them around. I also like arranging the sounds from where they come from based on traditional orchestral configurations. Being able to customise like this is very satisfying and hear the instruments from where they are actually going to come from that is really satisfying.[17:06]

14. What role do virtual instruments have in the future of screen music ?

I think it is the future of screen music unfortunately. As the budgets diminish they will become the go to instrument and go to voices of modern film. That is unless it is a very well funded big budget feature. Or it's a project about musicians or music. Virtual instruments are here to stay and the only going to get more complex and they'll be modelled of course on old things which they have always tried to do but there are a lot of possibilities are new sounds - and manipulating sound is endless. I think the interfaces with the iPhone and the iPad expressly the iPad mini being able to interface with a keyboard I think that will be important. Virtual instruments are here to stay, that been since 1992 and I and I don't think there's going to be any change any time soon - it would be nice if everything had a budget for a nice orchestra and a proper band or Choral group, but they're not cheap. With the reduced schedules and timelines and the delivery requirements from everyone in the postproduction process, trying to manage orchestra sessions, and choral schedules becomes almost impossible and I haven't worked on a project that has probably had that sort of budget. [21:24]

Interview Transcript with GMA (5th February 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Sure do.

Secondly, Do you wish to be identified or quoted ?

Please don't use my real name.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Well, um, While I have various templates I use I logic and pro tools, I tend not to use the Logic and Pro Tools instruments that I've got, because I've got the Native Instruments and Kontakt libraries. - so I have the Komplete ultimate contact library version 9 I think it is now - and I use the that exclusively - rather than the hardware synthesis that I used to use - synths rather than samplers - and I was slow coming to sampling - I stuck to my I've got an Akai S5000, I'm not sure you know that what is,

not sure - it's a top of the line sampler, with 64 megabytes of sample RAM which I could never get very much out of if you're talking about orchestral scoring, but now I've got virtually unlimited RAM available to me which was the main reason in the end that I sort of came around to virtual instruments. [3:04]

I write from 30-minute shorts to two-hour feature films dealing with computers of the time can be frustrating. It can be frustrating because I have to work with computers all the time and it certainly changes the way I work.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

It's pretty dangerous for me really. I can download a whole sample library, I have a whole lot of third-party programs for Kontakt - I almost exclusively use Kontakt. If I can't make my own sample library or instruments or instruments all the sample libraries. Go hunting around the net and purchase from my usual suppliers invariably will find it I don't have the money for it it's quite often very disappointing because it doesn't really match with they say it can do. you get on with it.

[Craig-] sounds like you customise..

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Back in the day when you used the hardware synthesis, you tweaked every knob that you could because you always struggling, particularly in orchestral scores, all ways

struggling to make it sound more real, like a real instrument. Now I got beautiful libraries, I'm a string player, I did my undergraduate on violin I'm always struggling to get those stings to sound as life-like as possible. There is only so far you can get with a sample library. - as detailed as the key switching is if you know that that is >?

Basically, pizz to legato in the once sound.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Good question. In one respect not at all, because I making my own, on the other hand I have to update my Kontakt Library very annoying, not only that but the operating system so its not really got much to do with the quality of the instruments, but the computer hassles we have - also you might have a sample library from a third party vendor. and it's a Kontakt instrument version 6 or whatever it is - and you've only got version 5 so you have to update or I have another programme that converts to a lower version - so it's frustrating in that respect. Is that what you're after ?

I do believe in buying samples rather than ripping them off, because I do work for broadcast and field and I have to be conscience of the fact that someone could come along one day and say hey where did you get your sample libraries ?

So, sample control and copy write control are version control are constantly making you update your software. but that's true of plug-in and sequencing software as well.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

With the director, you mean?

Well I think the expectation is that you can make it sound like a Hollywood Blockbuster these days - that a bit a bit of a problem, because that's what they think they need, you've got the sample libraries, you can play them demos or they listen to your past work or whatever, and they say that's fantastic, you know a big show reel type piece, that you've come up with -- and the difficulty comes with trying to convince them that actually not what they need for their film - because they don't know films as well as you do - they don't know their own film as well as you do! Because you are a new set of eyes and ears and you know where the music should go and what style it should be in. These days, you hear it all the time on radio and adds in particular, this full-on blockbuster music, you know where it's come from - I've got that sample sound. that choir or string sound and you think - wow that's over the top... which is fine for an add or something like that not some emotional type heartfelt film that needs minimal instrumentation, it doesn't really fit.

[Craig] - I understand completely.

So they might have done half a dozen Indy type of films or a feature, one feature maybe, but I do more than that in a year - well definitely more. And for the last - since I've left high school, and you think, wow, you're under a bit of pressure time-wise [the director] and they need to be economic about stuff.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Well you've just gotta go for the best sound you can and work out what the style of composition is. The deadline is also a time and money thing, so Ideally, I'd mock everything up in my sample library and take a couple of weeks putting it into Sibelius for an orchestra if that's what we're talking about, and record it properly. So that timeline is completely non-existent. It doesn't exist in the films that I do. Their trying to beat some deadline of a film festival or a funding or something just got a new distributor in America. Ok and there is no time and there is no money to do it - any other way - so when sample libraries - or better samplers first came out, these libraries were used for mock up - they sounded good but obviously not a real orchestra. And now we've skipped that step now we don't get a mock up at all - we go straight from nothing to Hollywood block buster. Temp score is the score!!

- Do you think that we have skipped a stage in experimentation?

It can be a variety of things I think. Using loops is not the same as having a real musician play at.

7. How does budget influence your decision making regarding virtual instruments choice ?

Most films that I have been doing recently, couple of thousand dollars- per score, \$5000 on one and you could blow that in five minutes online on sample libraries if that was what you are going to do. You certainly couldn't record an orchestra on that budget so,

so budget is a key factor, I get a fee and there always is an expectation from producers or directors that they want it as cheaply as possible. There gone down the free path when it come to me and they realise that you can't use library music or you can't use licensed music it's cheaper to actually get a better score out of someone like me but then they start crunching on figures, and they realise what sound they can get out of me but then want more changes. And this is a real trap for composers that use virtual instruments because the changing of the score can keep going on right up until the last minute and as far as I'm concerned I've already earnt my money and of composed how many cues they said that they want and they want to keep on tweaking it because they can. It's in the digital realm can keep tweaking it to the last moment and that it becomes, well, if it was recorded and done I couldn't delete that any longer, if there they were real musicians. Musicians would have to make decisions about the music informed decisions.

A friend of mine and I talk about directors directing with a yes / no mentality which means yes I like it, no I don't like it there is no actual directing going on.

The point that are making is that virtual instruments make this possible, constant revision and revisiting cues that have already been written. And the directors know it, or they are blissfully ignorant of how annoying it is and just expected to be done.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

Their expectations are far in excess of what they should be on a whole range of issues and levels.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Yes, so what I found out is, I used to work at one computer and now I have 4 networked computers and their only function is to load sample libraries. That is a bit frustrating as well because you have to upkeep four or five computers rather than just one but sample library started off just being moderate size things that you could load but now they are just out of control, like one instrument maybe 1 GB or more it's out of control it's good the sound but you can't load that sort of thing for all orchestra into one computer because it just comes to a grinding halt.[Craig-] You need a supercomputer!

Don't get me started, no matter how much you max it out with RAM or new software or process or whatever the next software update, it means that your computer is already out of date or too slow. My 50 computer in my process runs video only. All of my computers are linked digitally so the frame sync rate can never fall out of sync - just to keep the main slave computer free to keep up with the processing.

Too much CPU power is never enough!

- 4 MacBook Pros and 2 laptops all dedicated for this purpose.

- It looks like you have your studio there dedicated to your work?

Yes, because I mix well the whole mix - I have 5.1 surround so I mix in 5.1 surround in the studio. And I also deliver my music in 5.1 surround which is another thing that they want nowadays. I also do a lot of sound design.

And that's another point that I'd like to make, that film scores have gone from being more melodic based to a mix of sound design and mix of musical elements. It's not

music in the true sense of the word it's kind of using music like sound effects. They don't really care about the emotional impact of the music or the storytelling part of the music that you're trying to write for them, they just want to have a sort of sound design, I just need some glass sounds or some wind sounds.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

I should be but I just have got the time. I'd like to - I got asked arrange some music for a choir. I said okay and then they sent me the specs of what they wanted it was a four-part choir \$200 to arrange charts that they have chosen that's okay I can do that. I can knock that over in a day probably - but then they wanted band charts, with all of the instruments in addition they wanted individual recordings of the choir parts. So this project didn't work out. I started writing an opera - I'm quite interested in opera but, shit house at lyrics - I need to start working with a librettist. I written two operatic stories which I've always wanted to do but I haven't had the time to find a proper librettist to do the dialogue so to speak. If someone decided to give me a grant someday I do it bus until that day comes... I don't even have the time to put in a grant application.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No, the only thing I have is a couple of guitar to MIDI converters. Otherwise of just got keyboards.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I suppose so yes, I just bought this cinema tech library which is pretty cool, cost a fortune it's really eclectic and has really interesting stuff I think there are a lot of sample libraries that are boring. Some just don't do anything for me. Or even in Kontakt the natural library in contact, I wouldn't use the kind of fillers you know he used to get hardware samplers- sounds that you would never use. I tend to make my own rather than depend on those sort of things! Find a couple of crazy sounds and put together what is that sound design? No its customisation its is specific to your aesthetic. You're only as good as your knowledge of music and your knowledge of the craft in general. Sure the annoying thing is that sample libraries is like all film library bill hits scores sure, someone can go out and buy that themselves screen composer but it is not the same as doing it for 20 years. Or studied at uni in a significant way. Importantly we

have to compete with these fuckers and it makes life difficult. And these guys will work for free, it's very frustrating.

14. What role do virtual instruments have in the future of screen music ?

Probably it's just going to go on and get bigger and bigger. Will the computers are getting bigger and I can't imagine the sample libraries getting any smaller, I think there is a job for me creating sample libraries - there's probably more money to be had it that then writing for film! So I should look into that at the moment is a film composer you have to multitask. In Melbourne, there may be approximately a dozen people making some sort of money out of it that supposed to the tertiary institutions here churning out every week supposed film composers that have done a weekend course its moneymaking for those institutions. It doesn't help that screen composer community or the craft general. [37:30] No I don't think it helps the community or the craft. Plus, there is no incentive for local film producers to use local composers in any meaningful way! Sampler libraries are going to get bigger and wilder and huger, and perhaps people start to turn off to that sound and want something real. Every time I hear Action Strings on Masterchef I say to myself I know that sample that's Action Strings I use that sample. And it's the same with Voxos Choir on an epic soundtrack, that's VOXOS! hahaha. I tend to use "Boulder" and "cinema technology" Red River they are just third-party providers that are left of centre. Eclectic type of stuff, that's what I want my sound to be.

That's very clear, thank you.

Thank you sincerely for your time. Craig Morgan

Interview transcript Edward Primrose (4 February 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

I do.

Secondly, Do you wish to be identified or quoted ?

Only if it turns out that it puts me in a good light. Of course you can.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I use them. I had the fortune, or misfortune of starting this palaver with computers at the very beginning when there wasn't such a thing as digital audio. So the back story is important in that respect, the used to be a MIDI standard and with the advent of the Fairlight and a few other manufacturers got on the act of sampling, we got the Akai Sampler which was one cheapest and one of the first - then there was something called a "Mirage" - it used to sample at eight bits and then it sampled at 12 bits and this was

piloted by a MIDI sequencer or keyboard provided a simulacrum of sounds that vaguely resembled real instruments - or you could use them more adventurously making your own sounds. This evolved into more elaborate sampling machines like the Fairlight Series III and the "Wave Frame" which came out of the United States which had such high quality that it was almost indistinguishable from digital recordings which also were being created at the time, so there was a whole process of going from analogue tape to digital tape et cetera. So the idea has grown out of many facets that are partly to do with recording, partly to do with emulating real instruments and partly to do with synthesising instruments. Or synthesising sounds. And with the advent of the DAW the digital audio workstation which had all of these things have been able to bring together so we have them all on one machine. However, not everyone has followed the same pathway in thinking, how these get used and now anybody who is being introduced to it will just say press a button and that's a real violin, it could well be that it's actually a real violin because what's the difference between a sample of that note there [Edward plays notes on a keyboard] and a real one of those, is the recording or is it a sample? The only difference is when you start using that sample in different ways which take away from that recording or you resample it in different frequencies you treated with effects and so on.

So there is a very mixed bag now, we have a whole palette of possibilities and what I use them for are quite particular to the job at hand.[5:08] A lot of the time it's to distinguish timbres from one another instead of everything being a piano sound, it's being able to locate them pan them and hear them as different textures. At the same time

you always have to remind yourself that this is not an orchestra, this is not a string section this is an imitation one no matter how close we get to it its still an imitation one. [Craig paraphrasing - Edward uses virtual instruments difference in timbres to assist in composition] but that's the composition stage, when we go beyond that there are other uses.

Coming back to the last project that I did, I recorded a string quintet, an oboe and a Bassoon - to produce an orchestra. I had a lot of troubles with the quintet they made a lot of mistakes so I had to do a lot of corrections at the minute level in ProTools doing - moving notes and very subtly replacing things and that was a very time filling exercise. Then I was able to boost the sound with sample sound to fill out frequencies, to make things a bit more articulate a bit more rounded and where there was really patchy playing I could add a little more the synthesised stuff and a little less of the real stuff - is that cheating? Absolutely!! This is for a documentary on dance. I use percussion from the Tabla, it had been recorded - all the will of the performers had been played and recorded at different times, so none of them were able to read what the others were doing in terms of where beats were placed.

So there's quite a lot of discrepancy between the oboe and bassoon even though they're both principal players in the CSO. They both come in at different times and interpret quite differently what the rhythms are - because they're not in the same place at the same time. And it's a little bit like that issue of all orchestras interpreting a conductors beat the downbeat when we play, depending where in a film orchestra or we're in the Vienna Symphony where the note is miles after.[9:38] so there's a little bit of that at play, because had you interpret metronome?

And it all depends on what is the context if they're given some sort of source recording then they will play to match that, if there is none and it's just a metronome then they going to interpret again where a note is placed!! So there were quite a lot of things I had to do to edit those things around, and this is sort of getting down to the nitty-gritty of digital editing where, is the sound of a sample or is it a recording?? Because you're actually breaking up a recording into its component parts moving it bits sometimes retuning...

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Well I wish a lot more were available to me![haha] is a downside to this which is the globalisation of sounds, where very radically losing identities which is to be geographically based, geographically and culturally so now it's very easy to emulate imitate borrow become the same as a West Coast Hollywood sound, London sound, a Prague sound, just on the virtue of these instruments!! And then emulate the writing style of composers who use these sounds, so the negative side is the danger that everything eventually becomes a soup [Craig - a homogenisation?] I guess, an example you know about the whole business of theatre trailers in the cinema, look how many American films use boom crash boom, to punctuate. And the sounds they use are so similar, and you tire of it after a while!! So all of those films sound the same. Even though a lot of the music has nothing to do with the film that they're demonstrating it's the people who put together these advertisements are starting to sound the same!! But

there's almost like there is a code there, this is the code theatre trailers, and you have these big booming sounds which echo through the theatre and they're so dramatic like someone is getting a gun through the head or someone drops a glass on the floor someone slaps, someone something happens a car accident, any of these being booming sounds that is that's a sample of the sound that's an idea of the sound that is gone global!! And people use it willy-nilly, and am sure now that the people who make these things are under pressure from various directors and producers - I want that sound!

[Craig-other any positives to the democratisation of virtual instruments?]

It's fantastic now the sounds of libraries that have been generated! Because people are finding new ways of doing things, especially in the synthesised world so sounds and textures are being produced which didn't exist before and at a much higher quality than ever before. and it's always hard to imagine how it can be improved and then somebody goes a long and improves it!! And then again, after saying all that positiveness I come back to the negative side, if you purchased that sound and use it in your composition what are you doing exactly?[17:05] all of the extraordinary synthesiser patches that got created when we had analogue synthesisers, that you could bring up to memorise and they would appear in lots of films... There is to be a sound of a kind of flute it was sampled on a Akai or one of those sampling keyboards, and it was just a riff of a flute and it was so popular, that it kept popping up in all sorts of films and documentaries not just the sound of the actual melody and the rhythm at the same pitch as well it is extraordinary!! And it comes back to this globalisation thing, on the downside if nobody has composed that, there's virtually taken somebody else's music and put it in their own

film. That it is also like a key a global sense produces ears will prick up and say oh I know that sound that's familiar, let's use it in ours as well they may notice its familiarity and see that as a positive!! so look from a composer's point of view you have this explosion of sounds people are doing lots of work we are also learning new tools and how to do it ourselves, how to make our own sounds and that's great! Positives negatives it's too big a question. I can't come down on one side or the other I see both.

[19:22] Edward gives an example of a composer who generates his own sounds even though he has an extensive virtual instrument library.

Another example is drum machines became available, drummers started to think that they were going to be replaced but then they found out that drummers actually make good programmers of drum machines but also, drum machines have become a another sound world in itself that drummers use, and they're able to play musically that of something being quite mechanical it's interesting subset. And I think may be this coexistence sits comfortably. You don't get a string section to play musically out of a sampled instrument, you get a string section to play it because they not only do it so musically and so much more accurately in response to that music, you get every single or research to do that differently!! Depending on how many strings there are, what room their in. Where they come from how they react to that downbeat where they were trained.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

I do it mostly through mixing of different sound world's, I use a lot of Kontakt sounds only because that's what I budget has allowed, but the process takes on different stages where you... I should just answer one question here... If it is a music that is relying on a score that is a conventional score past where you've got a first and second violin part, they can be play on things like contact but it's lousy! It's just not satisfactory. Except for a very simple things sometimes pizzicato, sometimes a harmonic which can be held for a ridiculously long time, via a loop effects and they can be an interesting effect and very low notes because strings can always be pitched lower double always sound very good rather than pitching high because you will lose it all. So there are some things about the sounds which you can use and I'm sure with a loss of invention you can make them do things in different contexts, but coming back to the score context I can't use them seriously I have to use live players. Or I will replace that has a more synthetic quality like an analogue synth where you have those padding sounds we don't get a sense of voice leading more a sense of changing chords! And this results in a smooth texture and I think the ear accepts that a little bit more readily.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Not all. No. I think if someone has the budget they would grab that of course. Then you come back to someone like Hans Zimmer who is created his own huge library of recordings because he knows is going to be using them for and so on. I think when you fit midway where you're just dependent upon people coming up with the latest batch of

sounds, if you're in a business where there is a rapid turnaround where you need...

Maybe in the advertising industry for example... Who might be more aware of the latest sounds or whatever thing that might be fashionable it might be applicable to them, that's not applicable for me.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Do you see how many people are in the room with me right now ? -[Craig-there is only you in the room] the only person in this room and that's what I think it's done, was once a solo activity where you met up with collaborators when you were working on a film has become even or a solo activity because those interactions are kept to a minimum!! It's like the force of technology has its own rewards and downsides, it makes things faster you can transport stuff across the world now but it also means that you have less and less of this human interaction!! [Craig-and these working relationships have changed over time?] Yes. Going back even further when we didn't have the capacity to play material so readily, so this is the pre-media age, you had to spend a lot of time talking about something that you couldn't even demonstrate, so it was a different quality of conversation!! You spends it end up spending a lot of time just talking about anything to try and get a feel for what it is - and vice versa so that the director can get a feel for you and gain some confidence in what your brain to come up with because they can't listen to what you've just done and say yes or no, I mean you can play it on the

piano... As they did in the old days but, so things have changed very quickly since 1983
I guess.

Producers and directors are expecting a virtual finished product.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

[28:16] if that means there is no time to record then that could have a huge
influence,[29:20]

7. How does budget influence your decision making regarding virtual instruments choice ?

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

I think they have, it's hard to know when and how that was detected, I've maintained a model now that I've had for more than 10 years which is to use a DAW as a compositional device then output it to a notational program. So it's when you get into a notational program that you seriously consider what the instruments are doing because you're orchestrating as you do this you are imagining the sound and it's quite a critical period because you have to get away from what was that sample territory![32:21] I'm talking in context when you're composing for live instruments. So you have to get away

from what was that sample sound and start imagining as you would as if you were writing on paper - what that sound really is going to be and of course you're still speculating, because you don't have proof of exactly what it is that you got a better idea because your ear is trained that way.

So that is certainly affected by the quality of sampled instruments sometimes they can do a good job and sometimes are just nothing like it, and I suppose you learn after a while that you can't believe your ears and you shouldn't believe you is sometimes, such as playing a chromatic scale on a harp for example, there are simple mistakes like that which is just not happen or plain impossible chords on strings things which it is not feasible, it it's that sort of trap that you can get into - but there are also questions of balance and hearing solo, [33.52] harp for example at piano[p] against a big orchestra which you can do in the virtual instrument world and make it sound glorious but in the real context it's a joke, except if you've planned to isolate that harp in a booth for the sole purpose of isolating that notes and making it sound that way. I think there is a lot more you can take here, but in the context of using virtual instruments as a means to get to a live recording, you've still got a keep very much in mind what is the reality here when composing - when using virtual instruments, it's only a simulation.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Sure, yes the expectation that directors will talk a lot more about the sound that is coming out of the loudspeakers during the composition process [35:11] and even though

using ago you played that all on piano may be made have to imagine it because they knew that it was not going to be a piano, now, as it approaches closer and closer to what a real orchestra sounds like, when they hear it their starting to expect that to be the sound that they going to hear! So it's harder and harder to say to a director "oh but it's not going to sound like that is going to sound better or different" so that the expectations now are that you are the studio creating the reality!

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Yes, I write concert music but - No I use similar tools that I don't work in the same way. Basically because of structure and writing for the concert hall is really about imagining a performance so I think the tools are less and less - much less important in that process. They can still be very useful, because there is no chance that you going to be using any of these sounds it all has to be imagined and so it's the actual writing of the score becomes a lot more important. And there's a lot of things you just cannot put in virtual instruments; for example multiple divisi's and glissandos, and string effects that you might find a sample for you'll spend a lot of time doing it for no real reason. If you did anything aleatoric for example - I mean would you do? 38:37

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

Two different worlds entirely. When you're experimenting with a virtual instrument you are seeking a sound of your own making which I'd imagine you are going to use eventually in the score. When you're experimenting with an orchestra if something to use in the school but you are you have the capacity to alter so many facets. Now it's very hard to generalise here because obviously there are some sounds that are more amenable to being produced virtually with an orchestral instrument - and again coming back to the things which it impossible like a Flute note which sustains for five minutes without break [Craig-all like a *ppp* note on an oboe]. Exactly, are so many things that you can do virtually that you cannot do with the real thing - but anything to do with aleatoricism - layered dynamics are so much easier to control in the real world.

And anything that is beyond the players immediate understanding will demand some musicianship, that is, if there is some sort of harmonic or melodic idea it has to be in tune and in place - when you do it virtually, it's a different outcome - you lose that musical expression!!

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No, I don't but if I had one I would love to. I work a bit with Max MSP. I use a little oxygen keyboard it has lots of controllers, but it's quite clumsy because it is not designed for fingers.

[Edward, *Actually yes*]

Edward has a electric wind instrument. So you can put a fingering on it as a flute player or a saxophone player or an oboe and you blow and you have control over the breath you have control over the octaves, you can also change the pitch with this pad your which has a pitch bend and it all comes out there still hole here which is a USB connector. I use it sparingly I use it for a melodic lines that need expression, whereas before I would have to play that on a piano and then carpets with control parameters here I can do it in one sweep, where I combined velocity wind pressure and pitch bend to give contour to a sound. !![44:22]

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Not directly its changed my dissatisfaction certainly. I guess it makes life more tolerable in all the idle moments when you don't have work and you can muck about and have a nice sound then you use to have! So you don't miss the orchestra so much, to pretty horrible reason.

I'm not sure if this is an answer to this question or another one but I wrote a piano concerto and for that I did a synthesiser version of it so people could hear it - potential players and so on. Five years later when I listened to it again, it's just a horrible sound so things have moved a lot in quite a short time from something that was intended to be

a simulation to give you an idea of the harmonic and melodic contour on the structure, I'm now hearing this horrible yuk it's embarrassing and nothing like it should be. Obviously things are moving along in ways that we are not detecting.[Craig-this is effects your satisfaction as a composer?] I'm not sure if it does what it does tell me is that my ears were not finely tuned that I just assumed that this was good enough years ago when I heard it I was listening with those "simulating ears" !! Where you hear a sample but I'm imagining a real player playing it or real string section playing it. Now when I hear it cold some years later, I'm hearing how other people would hear it, and it's nothing like that imagined world!! So something has gone on their where my dissatisfaction has increased - or potential for dissatisfaction.[48; 22]

14. What role do virtual instruments have in the future of screen music ?

I'm a bit more determined by the use of the terms of screen music I am virtual instruments. Because of virtual instruments I think is going to be continually something in flux - because, I can foresee a time when things could be quite integrated between this sort of thing [electronic wind device] which produces sound rather than just MIDI data. Like an electrified violin or piano or something to that effect. What am I trying to say here - I've seen all levels of possibilities there the way that we collect information from a player, how to use bodily movement as a means of expression!! And I can see enormous possibilities there it's just a question of us catching up with hardware and software to make use of it and I think there are people who are working in that area.

The idea of screen music however is completely a different scenario, because there it is such a chunk of the commercial world that it's not for us to say we don't have power over that.[Craig-how do you see the immediate future of virtual instruments in screen music?] It's just a continuation of what's been happening lately where virtual instruments are getting better and better, and more easily be able to replace music that used to be recorded by orchestras, so it's going to be putting a lot of musicians out of work, on some part, but on another part is going to employ musicians to make those samples but not nearly as the same - it will be a 20th of the time it takes. There's that side of it I don't see anything stopping that because of the volumes involved, the commercial pressures, I think it producers can find a way of doing without orchestras altogether they will do it - except in the rare case where they need a live player - and where the option has universally been well let's get a pop singer.

So, what we do in our education is try and mitigate against such simplistic directions, I cannot deny that they are there, but at the same time the artist part of ourselves is always trying to find a way to do things better - And more authentically. So that's the counter force that I can see in action, however the commercial world is so powerful that's what we're going to hear most of. [53:20]

Interview Transcript DCA (Recorded 23 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do Craig.

Secondly, Do you wish to be identified or quoted ?

Please don't use my real name.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I use them fairly extensively particularly in order to put across an idea to a client! I don't think we are living in tin Pan Alley any more - we don't rely on a voice and a piano to kind of put across an idea as much as we would like... I mean the brass section more coming here doesn't really paint the picture for them. You have to show them, clients expect that these days is a lot more expectation on the composer to achieve a level of realism even within a demo!! That will describe to the client what it is hopefully you'll be putting across as the end result. This experience is quite across-the-board and widespread really and there are a lot of dangers that lie therein.

There is a downside to this and that is "demo love"!! If that certain point that you get to with certain sounds and certain frequencies and certain responses that may or may not be realistic to the real world. Say, a brass section that the client becomes wedded to - or

do I say even the composer becomes wedded to!! Where you identify emotionality of the piece with the colour of the samples rather than the composition itself!

'Demo love' is a great fear for me - and especially for all composers because particularly when dealing with producers and directors who have become particularly attached to temp music. My great real world example that has appeared in my life with monotonous regularity is either "Eye of the Tiger" or "We are the Champions". I mean these pieces occur in sport docs or whatever, and the client will say to you well we haven't got the \$300,000 to give Queen for "We are the Champions" can you do something like that. And my response over the years has been 'I can't give you the feeling at 16 living in the in the back of the car, with that girl that feeling is absolutely tied to that piece' and nothing else even close even a demo, even the Queen's demo of "We are the Champions" would do it for you.

The way virtual instruments fit into this scenario is that I found certain drum loops and that sort of thing where I've worked on various TV shows where I found various well-known pop songs that contain a well-known drum loop they want that piece but they can't have that piece. Because that drum loop has been essentially public domain, I can go back and re-sample that drum loop. What we're looking at there is plagiarism of the plagiarists!!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

Well, it means that every kid with a computer in his bedroom probably has more or less (if not the same or more) firepower than I have! In so far as access to virtual instruments and sequencing capabilities. I mean there sequences out there that are available for free. No need to pirate them their free of charge. I mean I don't use them because they're not as easy to use as say logic and they don't have the functionality of logic that still pretty good![Craig prompt-I mean its not out of the realm of possibility that a 16-year-old can create a very sophisticated sound?] And they do they are basically young people with ideas brand-new fresh ideas. And a conduit that allows them to manifest what it is they're dreaming pretty astonishing![Craig-I think this is a pivotal moment] I think this is a great question and are looking forward to seeing the results.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Not as much as some people I don't have the patience for programming that a lot of people have, but I do tend to get an idea in my head, or a sound in my head that will spend a lot of time attempting to achieve whether that be you know, in the real world or likely through a combination of real world and sampling!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

I tend to subscribe to quite a lot of user groups and the like, I have a lot of subscriptions so they float around and come into my letterbox every couple of days! Things catch my

eye and I'll tend to investigate what's going on![1034] And they keep repackaging it and adding a bonus track if you like, to try and resell it you, it's the age-old repackaging and repackaging of the same product. For example Kontakt Native Instruments, for example they come out with a new package every year or so its the same old package with a couple of new additions.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Yes, it's pretty extraordinary if you're working on a queue for example and you're working in the virtual world and that cue changes, your job shifts as well. And there was a time as a composer that you would score a piece of music and have recorded it will be laid up against the picture at some point and somebody and somebody would come in and slash the picture. You know, edit the picture. Unexpectedly - and now you're cue would now become no longer completely relevant to the scene so then a person called a music editor would walk in and their job would be to try and make your cues match the new pictures - as best they can and it's a very interesting job that. I know a couple of guys who do that through living and it's just a fascinating process that they go through.

However, if your working purely within the virtual world clearly it's a lot easier for the composer to go back and edit out a couple of bars or shift the elements around to match the new pictures. And that would never be possible within a scored situation.

[Craig-did you do a lot of live recording in your career?] No, my main bag has been television, to just be clear, when I started I started at a company that created TV commercials and even then I had a Mac plus was a brand-new hot machine! Which is now about as useful as any doorstopper and probably less smart to. You know, I get to work and it plug in my floppy disk version of "Vision" which is a precursor to Logic off I go and so even back then I was working within sequences. By the time I got a real job - a place that was producing music 24 seven what was beyond 2000, there were about five or six composers working full-time there, hard to imagine now! Everyone worked off sequences and off virtual instruments. So it never really been one to set at the piano with notation.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

I'm good with deadlines, I've just got a business partner who is the money man [15:55]
He's the money man and without him I'd be earning a lot less than what I do.

It's typical of the musicians/composer to sort of rollover or see themselves as the underdog, and that's not always the case! I do want to paint everyone with the same brush but I do know a lot of guys who will do anything for a gig!! Whether it comes

down to do this one for nothing and do the next one for half cost. There is a little bit too much of that going on in this industry. Without fighting for the buck you won't get anywhere!!

7. How does budget influence your decision making regarding virtual instruments choice ?

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

Yes it's been pretty much the same. I'm not sure if this falls into your category or not but there was a keyboard called an M1 by Korg, I mean it was way back when, and it had an on-board sequencer - an on-board eight channel sequencer, hundred and 99 sounds, when we when the guys the guys that I used to hang out with first saw one of these things, we have thought that the gods had come to earth and given us this amazing machine! It was amazing. I hear what I used to do on it now and I giggle with embarrassment. You know it sounded a little bit like a piano and it sounded a little bit like a drum kit a little bit like a base. You would work on these elements separately walk into a studio dump it track by track as you would of back in the 16 or 24 track days, and then work out what we will replacing and what we were going to do with what. But that was an incredible thing to be able to do - to walk into a room with just a keyboard under your arm plug that in and have all this composition is pouring out of it was pretty impressive at the time.

[Craig-when you view demos of the latest virtual instruments on YouTube they just sound so good, marketing!!] Well the compositions that are created to describe the product and sell that product are specifically tailored for that product. And when you buy the product and this is happened to me on numerous occasions, that's all that product does. It just does that one thing you can create piece out of it but all you're doing is shuffling the jigsaw around, it's the same piece!! I've been stung on quite a few occasions so quite wary. I'm quite discerning these days I think I know what I'm hearing what I'm listening to and the elements that I need to take away from that. I think that's what experience brings well hopefully.

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No I don't. I've written music that has been performed in concert halls but I don't write for the concert hall, it's just been a by-product of a TV theme or you know whatever.[Craig opportunistic prompt question:-on that theme, did you ever intend for that piece to be played by real instruments?] That's a hard question to answer because when you're scoring strings you might be thinking well this may be never played in the real world by real string players but in your mind you're attempting to make this sound as close to what string players would play like! Everyone likes to think that sort of whatever it is their worked on the two weeks or so will be noticed and loved by

someone enough to want to play it for real!! Sonic the hedgehog was played by the City Symphony Orchestra last year and are not sure how the composer would have felt about that, I think he would have been bemused - and so would the players because that's not what they signed up for!!

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No I don't think so no. I'm surrounded by walls of guitars and mandolins. I've got a cello in the corner. All kinds of stringed instruments. They are used probably less than 20% of the time for compositions often of use our real-world bass - but when we're talking about demos for TV - it all is derived from the keyboard.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

That's a great question you know because - virtual instruments allow me to as kind of an untrained rock 'n' roll hack make a career out of learning and playing! Playing with

sonics and playing with sounds and instruments orchestral instruments or whatever and learning about these instruments had a place then how to use them correctly in a way that I would never have been able to do without being a classically trained musician! And going to the con and learning about composition. So in a lot of ways virtual instruments the door the interface between a vehicle all sorts - I was playing in a rock 'n' roll band that I know how to make a lot of noise but I had no idea about actual composition until I started to try and do it and it was the ability to access facsimiles of real instruments that allowed me to facilitate that. It's a backward way of moving forward but nonetheless it's been, mildly successful for me.

Your question reminded me when I first started working at beyond 2000 the other guys there were far more technologically capable than I was that's what they were into I mean they were the boys from "Misex" I mean they sort of invented how to use a sequencer in a rock 'n' roll band. And I remember they had this brilliant sample of a solo violin I'd never heard that before, I'd never sat at a keyboard and pressed a key what sounded to my ear to be a real player! This impressed me immensely I sat there is a days trying to work at how to incorporate into every single piece, into every single cue, that I wrote for the next couple of weeks.[28:58]

At the time to my ear it was the real thing, I can play like a violin player makes sounds like a violin player. This process, this feedback, enthused me to continue with it!

14. What role do virtual instruments have in the future of screen music ?

More and more I'd say it's pretty amazing looking at a company at the moment you may know what it's called Spitfire in the UK in answer to your question I recommend that you visit their website and view their latest products that have brought Hans Zimmer over from America to air studios in London with three of his favourite engineers/composers there've sat there and recorded the first of what will be a series sample libraries based on his percussion.... I appreciate his works is not really my cup of tea nonetheless, you can't deny his success and power in a lot of the material he produces. I guess what I'm getting at two in a roundabout way is this is the future.!! This is the future of screen composition. You going to have screen composers signing up with their signature to libraries so that you know hacks like myself or whomever can say I want to sound like Hans Zimmer today[32:11]. And for the buying in price of that library, you will buy that library and sound a little bit like Hans Zimmer ish. It goes round and round.

They are making it quicker and easier to sound better with less talent [experience or dedication]! Perhaps that's a bit strong a better word may have been experience or dedication you know you don't have to get to grade 12 on the piano go to the Conservatorium for 6 years. I've worked with people like this by the way that is to say, they would call themselves professional musicians, who didn't actually know what the chords were that they were playing. Like when we hit a D -7 and they say what's that, and I say, that's the notes that you're playing right now That same person who couldn't describe what they were playing in any notational way, was composing some really good music highly melodic and well structured music. It's just that he had no idea.

I mean, this is what are virtual instruments bring to the table, whether or not that's a good thing ,or not that's really subjective.

Is a great bunch of questions! I mean it's like everyone's dirty little secret of thing that nobody likes to own up to too much. Everyone likes to talk about how they got this soloist in from the USA to play on this track or they went hearing got this guy to play for them and we all know that underneath it all the real building blocks the fundamentals of what's really occurring is all sample based!!

In my own work the internet has opened up some amazing workflow capabilities.

There's a studio in London that I'm working with - or send them over a demo of what I'm working on and every sample of a cello line and I ask them to record that - so the nature of the sample all the virtual instrument has allowed me to describe to them exactly what it is that I want them to play!! I mean I'll never meet these people but I have a very strong working relationship with them - I've had some interesting experiences that I can strongly say that I've never had any bad experiences! They got paid, they were happy, they wanted to make the best product from me that they could in fact a lot better experiences then I would with the City Symphony Orchestra players!! In some ways the remoteness is making the world a nicer place!

I mean I've sat in a room with half the City Symphony Orchestra and none of them want to be there!! They all make it very plain that they think that the last take that they did was absolutely fine and I should fuck off and, I'm fighting them. And I'm thinking why? When am paying all of you people all this money and of got EMI booked for a day and

you're giving me the shits! I'd rather be sitting at my keyboard with virtual orchestra than working with you guys.

And this is a common complaint this is not just me, any conductor that I've worked with will say "this is what they're" they just want their tea breaks, they just want their three hours over and done with, they don't like your piece, they don't like you!, And they just want to go home - and I'm thinking do know what, they can go home and I just won't employ them again, I will just stick with guys that I'm using in the States or in England and use virtual instruments!!

[Craig prompt-gives example of confused cellist. Cello player would not play because of notational ambiguity]

You discover go back to the Beatles and what they recorded with Sgt. Peppers with the LSO, most of these guys just hated them and they made it plain they would not play in a take or they refused to take part. Or they'd say that's my hours and just walk out - so it's sort of an ongoing abrasiveness between modern composers and classical players and of course you can understand it. I mean these people have spent a great deal of their lives working to achieve the level that they've achieved, and working with the material written by some of the best composers of all time - and then that got to deal with some kid from [the suburbs]!! Do know what I mean it must be annoying?!! So I can see their position but none the less, when you getting paid to do a job, and I've worked on jingles for shitty advertising agencies, you know you just suck it up, if you don't want to do it ,

don't do it at all. But if you getting paid for it, do the job!! You have my permission to do what you like with it. [42:41]

Interview Transcript **Damian Del Borrello** (Interviewed 28 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

I do give my permission.

Secondly, Do you wish to be identified or quoted ?

I do wish to be identified and or quoted.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Now I've used a lot of different types of virtual instruments, the full range. I've used multi-sampled instruments which is technically a sampler that plays samples based on the way you play. I've also used synthesisers as well as normal samplers - and put my own recorded sounds into them. Drum machines entire programs that I used as a virtual instrument used to "Rewire" into ProTools. [Craig-tell me more about the non-corporeal ones, the ones that exist inside the computer?] I use "Ableton Live" and in that program there are instruments "Operator" being one of the synthesisers, "Sampler" being the sampler - I also use native instruments package "Komplete" which I use the samplers in there. [03:01] also in ProTools I use "Hybrid" which is a synth - what more can I say?

[Craig-when it comes to writing music the cinema, which instruments or devices to focus on?]

Primarily I prefer "Ableton Live" as my main Virtual instrument tool. I use ProTools for editing mixing and recording but when it comes to instruments Ableton Live is my go to.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think it's broader than just virtual instruments with the technology becoming more and more accessible it has democratised the whole industry! And it goes forward through to picture editing the acquisition of picture - cameras are far more affordable - I can take HD video on my phone now and get an okay result!

On the downside of that, it has meant that the bottom end of the industry has kind of fallen out!! So you actually can't make money make as much money in the lower budget TV commercials, and also corporate style documentaries a lot of that stuff is just going in-house!! Because the gear is so cheap a lot of companies are just not going to pay professional rates and do them all in house.

[Craig spontaneous opportunistic prompt for clarification- So, when you say in-house what do you mean?]

Say I am BHP, a big company with a big communications department instead of going to an agency who comes up with an idea and then a production company gets involved to produce it, I can now a video guy to do all the production and video stuff for me buy a laptop, buy a hard drive, by the camera because it is so cheap, the barrier is no longer the equipment it's the idea it's the is that creative! The cheaper technology, the more advanced technology has broken down that barrier!!

[Craig-what are the good and bad elements of this going forward especially to do with familiarity the products themselves?]

I think there are good and bad things - I guess the good part is familiarity leads to a more tighter collaborative experience! Say it work with an editor with a linear timeline they can actually come into a session that I'm working on and almost point to an exact certain point in time where they would like a change to be made and vice versa I can then just walk over to a video editors suite, and look at their linear timeline that has

blocks of media arranged in a certain way, and pointed the exact time that I might suggest change so its enriching that's experience!

But having said that, there's also the opposite of that where, because someone thinks they understand one type of timeline that they understand all types of timelines!! So there are similarities but there are a lot of differences. In terms of the way they work.

[Craig- Familiarity with time based programs gives you an insight other members of the film team's programs. Even though it looks slightly different there are many aspects of the design of their tools that you can relate the icons that you can identify because they made by perhaps the same manufacturer, you have an insight into their world that perhaps was there 15 or 20 years ago?]

That's very true absolutely I would definitely agree with that. And if I may add to that the reverse is also true where an editor may insight into a screen composers programs and tools because of the design of software!

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

As part of my practice, a lot of what I do is *musique concrète*. I will actually create a sampler from scratch, create a blank sampler and load my own sounds into it- and then use those in my composition. Customisation is essential for my personal aesthetic! It is time consuming way of working or she just can't load a patch preset and get moving - I

have to think a lot more about the types of sounds I want and whether they going to work or not [Craig-and where this is inspiration come from?] The inspiration comes from the story the inspiration comes from the screen it comes from discussions I had with the director of the collaborative relationship I have with the editor it's informed by the content! Always.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

I have to say probably not that important! Because I liken it to a carpenter - it's a carpenter knows how to use a hammer, as long as the hammer is not broken, they can use any hammer that and have to use the latest and greatest version of the hammer. If they now had a new set and a really well they can do a job really well that's all they need so I know I know my virtual instruments so well that the new versions add functionality - and if that's the case I would go for an upgrade but it doesn't offer anything in terms of functionality of the bug fix or something I wouldn't bother. There would have to be a change inside the instrument fundamentally to make me want to change!

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I am a digital native. I've only been in the industry for about 10 years! So I will always worked in the digital realm but having said that when I started, it wasn't all in the box, so I would record via digital console into an audio workstation and then and then edit and then play it back, mix on the digital console, and then recalled the output of the console, rather than being completely in the ProTools or in "Ableton Live" - yes so there has been a change. It's made my relationships with other members easier for sure! Specifically working with picture editors because having one system for audio and picture playback is just a lot easier - you don't have to worry about sync between two machines and also, being able to open a file, that is being updated as we go by the picture editor is a bit of a revolution![16:34] "Reconforming" has become common practice.

[Craig-I'm unfamiliar with that term, is that like an online type of editing?]

Written form is basically when there's been - the picture editor has handed over and edit and you start your work on it but then there's been a picture change - so the picture editor then exports another file called an "EDL" and then you compare the old EDL with new EDL and create change list, and this is all automatic there are programs out there that will do it for you and then basically takes your session and that cuts it up rearranges all your sounds and music to match the new cue. This process would have been manual before!! So now this is automatic and it's a revolution!!

And as the top thing that was just laborious doing a "reconform" - it is literally from need to hear to their copy to there, hear to their copy to there, it's the type of thing that

you would give an assistant to do. But of course with budgets shrinking I don't have an assistant!!

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Guess my choice of virtual instrument isn't always influenced by deadlines. Sometimes when I don't have time to create something from scratch will probably use the same virtual instruments but. It is have to say it doesn't affect me at all

7. How does budget influence your decision making regarding virtual instruments choice ?

Budget is time! So for me, it determines how long I can spend on a project. It also has to do with content how much music I can actually supply for a particular project if the budget is lower, it's just less music!! As simple as that. It's not as black and white as that but generally there has to be limits - put on the amount of time can spend on a project if the budget is not big.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

I guess when I first started I couldn't do what I really do right now [21:15], because a lot of the software based on virtual instruments actually went that great in the very early days of software samplers! Even hardware-based samplers were not very good. They couldn't play a minute and a half of a wind recording that I had done, and this is something that I do quite a lot I will record a lot of wind edit it down and put that whole sample into a sampler. And choose sections of it and then map it to different parts of the keyboard. Computer-based samples have evolved in a good way because they are more powerful, in terms of what they can do and their user interface - it's a lot clearer if I need to get a sound really quickly to a certain point really quickly, as opposed to a hardware sampler is a lot more steps to get sounds in and to get sounds right. I could not imagine going back to the old way of doing things there were just take too long - budgets are shrinking! So time is money and budget is time and time is budget!!

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Absolutely yes definitely. Part of it is that shared understanding of digital workstation technology so a lot of directors are familiar with picture editing software and so they do have a shared understanding in a very limited way so they are very aware of what can happen in a picture editing program and expected that in a music composition or a sound editing program!!

There's also the graphic interfaces over time have become very user-friendly so someone who doesn't have any experience with a particular program can often look at a

program can look at a virtual instrument or any sort of plug-in and get a feel of how it works!!

I think there is a common understanding of icons buttons and knobs throughout these computer programs at the labels are really clear they are written on a lot of these plug-ins and a lot of the manufacturers do plug-ins and virtual instruments themselves so it makes it even easier. So then there's the other side of that where, directors are exposed to music technologies and virtual instruments a lot more than they used to be - through "Garage Band" at the accessibility is there so I think they..... Things like "YouTube" they see things on YouTube and they think there's this magic that happens when people are using some of these virtual instruments and so there is this perception that you can actually create anything you want in terms of music and sound from any bit of program!! Even though there are differences in the way things work and there are limitations this I think is a bit of a golden era of the sound and music because for a certain extent you can do whatever you want and create whatever sounds you want-but when it comes to managing directors and their expectations it's all about time. Yes I can do all of that but that is got a time and time is budget!!

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No, not all, wish I could!

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?
12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] – What instrument/s do you use ?

Yes I do I use something that was specifically designed for "Ableton Live" and it's called the push- -[Craig-I understand this type of machine it looks like a square box with many square boxes on top native instruments have also designed one with a similar design - however this one is for "Ableton Live"] a grid of touchable squares that light up different colours and can be programmed with different sounds, samples, virtual instruments and sequence MIDI can use to record audio clips scroll through libraries it has an expression ribbon as well! Which is similar to a mod wheel which can be programmed for pitch, volume it's a very powerful tool. It could also use it to navigate through your program basically this is designed so you don't have to look at your screen. Play your virtual instrument using this pad has many views that are very helpful for my working methods there's a lot of functionality here. I use this often and it's connected to my computer via a USB port. Whenever I use "Ableton Live" I plugged this in and that's most of the time that I write screen music. It doesn't look anything like a conventional 88 key piano keyboard but it does map it can map.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

I think virtual instruments are the only reason that I've been able to do any screen composition!! Because before that because, I'm not a classically trained musician the only way that education and using real instruments!! This makes me satisfied that I can produce music for the cinema. Probably in a way that was impossible before certainly in the way that I work or impossible but, limited to a certain group of people with budgets at a certain level so its enabled me in my practice.

14. What role do virtual instruments have in the future of screen music ?

They're here to stay - they are not going anywhere! They're only going to take more and more of a role especially if the I guess there are a few things as the quality gets better, and the ability for a composer to articulate expression through them they're going to be more widely used from a creative point of view.

But from a business point of view as budgets get smaller and smaller it's more of a viable thing, you can still have a full orchestral recording but without real players!! I think you are already seeing it I think!!

I think only really the big TV shows and films get a real recording and when I say big I mean big budget! These big budget productions have the capacity to employ real musicians and the other ones don't. Absolutely, the conductor, the orchestrator, the copyist, the facility, the recording studio and all of the other infrastructure that goes

with that - that's a lot of people that's a lot of money - especially in Australia I don't think there are many movies or TV shows that can afford that.

[Craig spontaneous question-Do you think Australia is prepared for the changes that are happening, what I mean by that is those copyists those recording studios those artists those people who will be impacted by technological affordance - do you think Australia is completely ready for that?]

I'm not sure, are you suggesting that there may be a reluctance for the more classically trained composer's to jump on board the virtual instrument bandwagon?

In that context absolutely!! There are some top-level composers who don't really know how to use these instrument packages, they can write for an orchestra but then they have their team of "minions" to do all of that other technical stuff. I think the composer of the future is a composer that can sit in the studio like this with a keyboard and operate the native instruments Komplete package or Ableton live or some sort of virtual instrument package to get the sound that they want and final sounds that they need for the film or the TV for the screen-based narrative, so the composer of the future is essentially a producer and engineer as well!! There's a focus on the composer here to take elements of the roles absolutely because that ties directly back into budget - budgets are getting pretty small so often, productions can't afford to hire an orchestrator and a MIDI programmer or an engineer they can only offered afford to hire the composer so if the composer can bring those skills to the table, they're going to get more work!! So there is the composer of the future - a generalist!!

I think the young composers coming out of film school right now have an advantage because they know how to use virtual instruments because they're empowered to operate virtual instruments as part of this study because they do that is part of their course at the Australian Film and Television and Radio School (AFTRS)

Interview with Christopher Gordon 20 Feb 2014

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes.

Secondly, Do you wish to be identified or quoted ?

Sure.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Firstly I have a huge amount of stuff. I've spent many thousands of dollars as one does, and I never use it. It just sits there on the computer - I have no interest in it at all. I find it most unsatisfying. From a practical point of view though, being essentially a pencil and paper composer, I don't need to hear the sounds to hear what I have composed.

So, at the first level I don't really need them, however, there are some caveats to all that.. And the first big one in film of course is that the director and other people need to hear what you've done before they go and spend the big money recording an orchestra or whatever.

So, it does need to be done - so, I do one of two things: If it is a little bit complicated, I will employ someone to do the MIDI mock-ups for my scores. If it is not so difficult, which is quite often the case such as *Mao's Last Dancer*, I will do it myself. I work within finale and notation program not a sequencing program however, despite being a notation program you are able to hear sounds back you can link it up to GPO or whatever or Kontakt it comes naturally with GPO sounds there is an advantage there with finale can handle it the and play back to the director whatever it is that you composed. With a minimum amount of tweaking that is more complicated and some things that you write in notation don't automatically sound good when played on synths, they need to be adjusted - and when that happens I prefer to give it to someone else, to do the adjusting to sound like I've written it.

There is an interesting aside to that in a not sure I'm getting ahead of myself [Craig- please go on] - is that many composers will compose to the samples they've got. If it

doesn't sound good on the sample they've got they won't write it, if they can't find a sample that is working they won't write it.

Yes, that's exactly what they're doing and there is a very pragmatic reason for that, you'll find that many people around will do that. And it makes perfect sense, it's quicker. You know that you've got what you need, particularly but there are two levels of this, one level is your composing on synths with the end product being synths, then of course you want to compose the sound that you've got there is going to sound right that's pretty obvious. Where it becomes a bit odd is where you compose on synths with the intention of writing all replacing it with a proper orchestra, or real instruments. And then it's a pity, I think that people compose the strength of their synths rather than thinking about what it's going to sound like at the end. And I think that actually narrows down the possibilities, and that's the reason why I find we hear too much similarity between scores because people owning all the same samples the same libraries "East-West" and whatever else, by writing to the strengths of those particular samples. And not writing to what a real cello or a brass section can do, you see.

There is a real danger, not a necessity but a danger that composer will stick to what works on that sample and not do anything else and think - ah yeah, a real cellist will be able to, just do this and bend it and you know what I mean, whatever it might be in that particular expression. I don't have the sample but I know that the real player will be able to do it. That would be good! But I think, I get the feeling a lot of people don't do that and work by what they're sample can do. So that's a limitation in itself. By the samples that you own, that's the music that you are going to write!

But there are other sides to it, anything can give you inspiration or ideas and sometimes getting a new sample can just make even a well seasoned composer, whose used to working with real instruments all the time will hear a sample or something go "a ha" that's great, so it can bring ideas and the same thing can happen if I put on a CD of someone else's music or if I go to a concert and I hear something, inspiration can come from anywhere. So just to be clear, I'm not talking about electronics I'm talking about samples which is a different beast to electronics. Because electronics is absolutely a brand-new colour/area where a sample is are recorded sound of an actual instrument in a sophisticated environment. Of course, there is a crossover where you can we can take a sample and do things to it that's a whole other world. I've been speaking up into this point and assume that's what you're after - I've been sticking to that area where the samples are trying to sound like real instruments. That's our parameters of discussion. [Craig-thank you Chris, that's so clear].

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I'm not sure, beyond what I've already said. I think this may be a relevant topic and it comes down to quality. And it's hard to talk about quality because inherent in that is one's individual taste. So my idea of good quality may be different to your idea of good quality, allowing for that I think, I think it's a double-edged sword it's great that I composer can have this wide range to do with and to play with that's it was the good thing but it has another side to it, is that I've always had a bit of a problem with it can make amateurs in the worst sense sound pretty good! [Craig-I understand] do know

what I mean? So that the actual quality of the writing may not be that great but the sounds the sounds almost like the real thing, is the very same sample libraries that Hans Zimmer may have used. Or whoever, so the performance sounds pretty close but the composition is not very good, and the trouble with that is, particularly if you use it with Garage Band or more simple types of software there is a was a danger of within film that producers or directors will actually like that or think that they can do it themselves! And to a degree, they can it's done there, it is I just find that there is a level of composition quality that is lowered! ...With all of this. [Craig-thank you that's very clear].

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

99% I don't. Well because I seldom use the thing that is the final product. You see so its only just like it is a temporary thing. There are a couple of exceptions, I used electronics the Virus do you know the Virus? The Virus TI or T1 I used sounds from it on the score for *Day Breakers*. My concerns about electronics sorry my concerns about samples are not to be applied to electronics there is a difference.! So with samples themselves. This harks back to an earlier question, the great existence of samples even when you've just recorded a full orchestra, is sometimes there's something to add to it at a later date like you just need a sustained note in the bass that hadn't been there when you are writing, in the film requires it, you pull out a sample and you put in one note. So they're great for the purpose and I've done that. And maybe there's a situation, we've diddled a bit with a sample generally just to get rid of the built-in reverb and put our own reverb on, simple stuff. The big answer to your question, is no!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Look, it's not at all-except when the time comes when I think I might need it, then I'll get whatever the latest is.

[Craig-how do you know when that is?] It varies I think, I've got this big film on I'm going to have to do demos, I better get some samples that suit, a more up-to-date sample library. That's no longer the case now because I have "Vienna Symphonic Library" and Cube, you know I spent thousands it is a major investment. I've got "East-West" I've got GPO. I've got a whole drive full of samples are 2 TB drive full of samples that don't get used.... But, in the past I think I've got a get something so I'll get something to get back up-to-date, now it's more likely that I can't really talk about To me it's very much a background thing, I know that other composers it's a foreground thing. If you're composing the finished product like in TV, you can use the samples. So it is important that they stay up-to-date.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

I mean, the most obvious one is the relationship with the director where even as that is you 2000 I was playing things on the piano and humming them to the director - saying

I'm going to do this like people always did it, I was a little bit behind everybody because samples up until that point were awful so I wasn't interested in investing, since then of course, the quality has got much greater. I was working on the Fairlight in 87, no I'm not like a Luddite there are quite clear decisions made.

So, the relationship with the director has changed in the sense that as soon as you can have a mock up played back to the director they can they get here much better what you're doing though this, adjust the change in the dynamic - when you're humming and playing the piano badly which I do, well I suppose it going to be okay! ... Mostly the days of doing the dog and pony act are a better thing mostly, if you've composed something that's really good in that it works with the picture and it's good music but your mock up doesn't show that it's good, the director will think it's not good! So then, the director will make comments and they can be a problem and every composers problem is that a: their mock-ups aren't really good enough to show what's really going to happen, and the director is uncertain. Or B; the mock-ups are so good that the producer wonders why they should spend money on a real orchestra! It can be a risk that the mock-ups are too good and this is a very real problem.

For example when I did *Day Breakers*, the samples deal with what I wrote and I got someone else to help me who improved it but it still wasn't always great. And I wasn't prepared to go and write something different just to make the sample sound good when I knew what I had written was going to sound great with the actual orchestra and choir! But the director or directors because they were twin brothers, were very uncertain about a few bits, there was intense moments everyone was a bit uncertainty, I felt bad on their behalf because I could understand, quite reasonably, they couldn't hear what it was what

I was trying to do, and they were uncertain if I was going to mess up their film or not. Unfortunately, that doesn't happen too much as in I find that samples can handle most things these days if you put in the work to make the sample do things or I get in someone else - so relations, on the whole it makes it clearer for the director Bruce Beresford when he what I played for *Mao's Last Dancer* , he and the editor Mark Warner came in, and I played them what I had done which was the whole film except the finale and it was like phew, fine. I think there was one minor change everyone was just so comfortable it just worked! Beautifully, and that could not have happened as comfortably if I'd been playing on a piano and humming to try and imitate my thoughts and ideas.

The working methods change also, sorry I've jumped the gun again you've got another question.

6. How do deadlines influence your decision making regarding virtual instruments choice ?

I'm inclined to say not in the slightest, it's irrelevant. I've got what I've got and if I can make it work then that's what I'm using. I'm not a composer who composes with the samples being the end product! And if I was, I think that question would be very pertinent! But because I'm always writing for live musicians it doesn't matter what sample some using, you know it won't speed up my deadline. I've still got a get down on notation for real performers to perform.

7. How does budget influence your decision making regarding virtual instruments choice ?

The first answer would be to say not at all, but there is a caveat. And when I say not at all I mean, again it sort of irrelevant. Because I'm only using the virtual instruments to demo! That I already own, maybe if I felt like spending money, I felt that I could demo this better if I had "X box something" then spend the money and do that, but that's rare. Basically I think it's sort of irrelevant. The caveat to that, it sort of inverts the question on its head in a way but I think it is relevant that, you can do things that you use to not be able to do. So if do a production and there is a problem in the recording I distinctly remember once on *Sydney, a Story of a City* the violins holding this high note and it wasn't in tune I later found - at the time of recording it wasn't noticed. This is before 'Mellodine' where you can retune things. I couldn't afford to record an orchestra again for that cue, I'm not John Williams, I got a synth and overdubbed it that same note, now the out of tune violins are still there but we took the close mike off so it's only the big room mike, but then we used the sample synth over the top. Close mike and that made it feel like it was in tune. That's a budget thing in the sense that I couldn't afford to go back on free record an orchestra, very few people could anyway, but it did enable me to solve a problem! Cheaply, if that makes sense. [Craig-thank you].

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

They have, this is the biggest one, this is the first question that really is to do with me! Because I'm wrestling with this right at the moment, I was only today having a discussion about this problem. I used to write pencil and paper with the help of a piano. 100% completely. In film I'd use a computer to work out the timings, if you go at this tempo then your land on this frame. No samples just DP, the timing thing, but that was just a calculation, nothing to do with the music! I would write pencil and paper finished project would be in pencil. In the early 2000's, it became possible in finale to sync up a QuickTime movie to Finale so suddenly in Finale you could do what everyone else was doing in DP and Logic and whatever else with the film and sequencing now I could have the film with the notes! Do you know what I mean? That's quite a change and what happened is this, 2008 is a good example, because I did two films at the same time back-to-back. *Mao's Last Dancer* I composed in Finale with the pictures sunk up, and that was it everything went straight into the notation, no notation at all. Because of the way the music synchronised with the picture was sort of that general thing where it didn't have to hit things all the time it just had just sort of start now maybe go through its thing, peak at about this moment and end there. [29:13]

Something that you didn't have to play with mathematics at all it was a more generalised spacious phrase. And basically the whole thing was like that. The other film I did at the same time was *Day Breakers* which was a vampire movie, and it required precision hit points all the time - so I did at my old way. Where I wrote the whole thing in sketch form, sketch form is like one stayed two staves three staves right through the entire film using DP to do the calculations for me write it on paper, and when that was done I did the orchestrations-straight into finale, every bar was there in pencil and paper in the first place, I knew what I was going to do melody, harmony and so on and then I put it into

the full score in Finale. And have the picture running in tandem because I find that QuickTime and Finale there, the old way is much more precise it hit things it's dead on like sub-frames exactly where I wanted it to land a downbeat and so on. So there are those two ways.

Now all of this is an introduction to my current problem, and this involves more my concert music than it does my film music, because the concert music is a much deeper intellectual process than film music! What I found in 2007, is that I wrote a chamber Symphony and just work that piece never done it before I composed everything directly into Finale without any pencil and paper at all! Maybe I wrote a one bar or two bar sketch just to remind myself if something comes into mind but in terms of composing, bang straight in 25 to 26 minute piece that was dear to me and I'd never done that before. I've since done or Horn Concerto, in the same way. I'm now writing a Trumpet concerto and am very aware a little bit self-aware with these things, in that something is happening to my composing! And am not happy about it! I'm finding, that when you write pencil and paper maybe with the help of a piano or something, you have no choice, you have to be inside the music, it has to be inside you. Because it doesn't exist anywhere else that feel that music that you can feel, the pacing it's all in your head. When you do it on synths, all you have to do is press the and suddenly it plays it and you can walk away and that music's still going, it's a separate entity to you even though you're the one who's composing it. And therefore, I find, that I never ever get inside the music, when I compose on a computer, and it doesn't get inside me and there is a slight disconnect and therefore, laziness steps in. And when I work on the computer, it's a lot easier to sort of, errr I don't know what to do, I'll just copy and paste this bit and

transpose it. Or just copy and paste this bit from the flute and put it into the Oboe. Do you know what I mean? It's a copy and paste function it's not like a developing new thing all the time which you do with pencil and paper! The thing that makes it easy for me it makes me a lazier composer and is I'm wrestling with that right at this moment. I've actually decided to go back with the Trumpet Concerto and rewrite force myself to rewrite on paper with the computer off -because I know it will be a better piece even though it's a harder process.

To me I think that's the most profound influence that virtual instruments have had on me because they made be lazy!

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

[34:32] Well they expects everything now or yesterday, they say can you whip something up and played to us in the morning? They say that at 9 o'clock at night. Because they see it as something that you can just whip up, so I think it's put a lot of pressure on composers. It's also now assumed, because of computing in all facets of life, make it possible to do something with less people assisting you so now, even with the big orchestral things, there are much fewer people working on a project! There's a budget expectation we don't have the pay you as much. And the overall music budget won't be as much because you already own those samples and you can do that really quickly. So, I think there are quite negative aspects to it shorter timeframes and lower budget! There is also the expectation that now because with everybody the samples

often do sound very good that there is an expectation that they will always sound very good, so they just expect it to sound good right now. Rather than seeing it as a building process, like this is a draft it's only so good at the moment it will sound better, you can't risk that any more. You have to get it to a finished product before anyone hears it!

Consequently, there can be some unreasonable expectations at times—the more professional they are, it's okay.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

We did talk about this before. What else is there to say. I feel that writing concert music is a whole different brain space then writing film music I'm not sure if this is relevant. Film is only an accompaniment it's only a percentage of the total artwork therefore it only has to put forward a percentage of the total artwork. It doesn't have to engage you as the total artwork as the concert piece does! And consequently it simply doesn't have to require the same application of intellect not saying that is not intelligent, it doesn't require the same intense focus [film music] in the compositional process. It does require a great skill in understanding dramaturgy, and understanding what a film needs. There are great skills in there, but that's not purely music. But all that I've just said doesn't matter if you're using virtual instruments or not.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

I mentioned before this thing about copying and pasting in a negative way, because I was making a point, but there is a positive side to it! In that it does allow you to easily discover things about what you're writing that you wouldn't of - the whole process of taking a passage and doing that as a palindrome, literally backwards. On pencil and paper that would take you two days to write about and see what it looks like in Finale, I can do it in about two seconds. And I can instantly see what it's like you know. [40:18] ...and I've used palindromes and I love palindromes. If used wisely, for example, once the composer John Adams, uses DP a lot for that sort of thing and you could never accuse him of being lazy. So that's a positive side and can do things like double speed or half speed third speed or triple the speed shorten or lengthen or whatever. Things like that you think I'd like to do that sort of thing, but if I did it on pencil and paper you can spend an hour or day to is writing it out to see what it looks like. Whereas on Finale or digital performer or whatever program using you can do it in seconds that aspect of it is fantastic. Of course, the flipside is what I said before is getting lazy about it and just doing those things to cobble together a piece.

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No I don't. Years ago it might have but no, not now.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Yes and no. Yes, in that there is a satisfaction in being able to present to a director what it sounds like and no, that they're happy before you go on to the recording of an orchestra. And no, involves what we were talking about before, I think that it's making me lazy as a composer.

14. What role do virtual instruments have in the future of screen music ?

Gee, they are so total, they are almost virtual.... The whole thinking is layering up if this sample is great we'll use it. If not will get the orchestra to play at, and treat it as a sample! Tailor-made for your project. I think some years it's been the dominant way in cinema of writing of thinking it can only be more so I would think. I think we will enter a new level of human development where somehow you think something and it appears. You think of tune, it's written down and you can hear it. Whether you're physically plugged in or if its wireless when that happens and you can actually just think something, and it appears that's going to change. And by that stage virtual instruments will be so far advanced that they'll be outward to replicate what you're thinking I wouldn't be surprised if we get there in 100 years. When you think about how far would come in the last hundred years or even in the last 20 years.[Craig- thank you Christopher Gordon for your clarity and your time].[46:52]

Interview Transcript **Cam Rossiter** (5th Feb 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

I do.

Secondly, Do you wish to be identified or quoted ?

Sure if you'd like to.

Digital tools

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I get most of my virtual instruments through Kontakt, Komplete nine, and I also get a lot of free instruments through creative common sources online as well. I find that put some variety into the score and it is just doesn't make it sound as though that it's been made with Kontakt or the instruments bundled with ProTools or the expand series.

I create the scores for the animated films that I work on. Normally, there is not much going on in the way of synthesisers, or blatantly artificial sounds. I lean more towards orchestral instruments - instruments that have a real-world counterpart.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

I think it's great. I remember the first year of uni where the Vienna Symphony Orchestra was the bees knees of the sampling world and that cost it I remember. And now there are a lot of other developers out there and maybe the competition has brought the price down overall.[Craig-any positives or negatives?] The positives are that someone like me without a huge budget can afford to use them, but I guess like anything it becomes common and popular. It's trying to give your work something special and out of the ordinary that is more difficult now that it's more widespread.

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Quite a bit! That it I am not sure if this counts as customisation but the dynamics on the instruments I like to give things a more natural feel of get in there with the pencil tool and change the volume [Craig-the waveform?]-Not really the waveform but more towards the dynamics like a crescendo or decrescendo, velocities and stabs or get right into and try and make them as specific to what I want to be doing at any given point. I'll use EQ and reverb - I guess it's dependent on the quality of the instrument to begin with

if it sounds more or less like the colouring, I wanted to bring to a scene that I'll leave it pretty much to factory settings but if there is something to be done that can make it a little brighter or darker then I'll use an EQ or reverb or something like that!

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Not that important to be honest, I guess because I do source a lot from online! [The creative Commons]. To me at the end of the day it's all about the sound that I think will suit a scene or a sequence best and that's not necessarily what's the latest thing from Kontakt. Great samples are awesome. I've heard someone say "you're only as good as your samples" but the way that you manage them and the way that you work with them are just as important as well. And if you do have an old faithful sample library that you can finesse quite well and you know how to use it with different combinations of other sound sources that you have at hand, I think that can be just as effective.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

It's tricky from me because I do most of my work solo, but in the few collaborative composing projects that I've worked on there was not a lot of time involved so there

wasn't really... My working relationships with other film team members have not changed - I'm a digital native...

6. How do deadlines influence your decision making regarding virtual instruments choice ?

Personally, not really because I would go for the best sound that I could regardless of when a deadline was, I would try and do the best that I could within the time was given. It would affect the quality of the sample or the virtual instrument because the way that I work I give myself a lot of the time to finesse the instrument to make it sound richer or more authentic or convincing.

7. How does budget influence your decision making regarding virtual instruments choice ?

That's a pretty significant factor ! If I had the budgetary resources to have at least one performer that had a prominent melody line or something, then that would be brilliant I think! Because, as good as virtual instruments are, it's never going to be the same feel as a real performer would bring to the mix [Craig-what do they bring to the mix?] They bring themselves I guess, they bring subtlety that you can't really recreate and no amount of finessing is going to create something that performer might do in terms of expressive technique, or subtle dynamic changes - I think they can bring more character to a melody or to a piece - virtual instruments seem a bit more restrictive in that sense.

8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Yes, I do have one experience where I worked on a short film where, this was after graduating from film school at AFTRS, there I didn't have access to a wide variety of virtual instruments, so I was a bit restricted in that sense, the director could tell that there was a noticeable difference in the sound of the work and said oh wouldn't it be great if we could have access to Kontakt 4.

They could tell the difference of the sound quality because I was using the samples in the expand library which comes bundled with ProTools and they could tell the difference between the two.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

No. [Craig-do you intend for your compositions to be played by an orchestra?] Maybe one day that would be great if I had access to one, but it's film score music so it's not concert music.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

No I'm pretty boring. MIDI keyboard pitch bend and a mod wheel.

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

Yes, I think so. I think it's a joy to be able to move something from an idea to rich and high-quality sounds, I think it's brilliant. It does give you the sense of It's good, it's very satisfactory.

14. What role do virtual instruments have in the future of screen music ?

I still think the best music is with live performers, but in terms of temp music or being able to put forward an idea to a director, musically quite obvious to what it's going to eventuate as I think that would be great. I don't ever see them taking over live performance. Not in high budget works for example. [21:07]

Interview transcript Bruce Smeaton (24 January 2014)

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes, depending on how you intend to use it. Craig-the intention for its use is a PhD research. [Bruce]: sounds fine.

Secondly, Do you wish to be identified or quoted ?

If it suits you, it doesn't worry me either way.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

Craig-gives a definition of virtual instruments.

Bruce: I don't use them at all! I have many years ago, I scored an entire movie called "Wendy cracked a Walnut" and they were keen on that sort of thing.

When I start writing for orchestra, I usually start with what I call a "scratch", that's the roughest outline of where I'm hoping to go. Then I do a sketch and from that sketch which can be 2345 staves - a short score in afterwards, I then orchestrate and often re-compose as I orchestrate. In this case, I had a daisy chain of instruments hooked up including Akai samplers and goodness knows what else and this was done in a converted beach cottage in Victoria - a row between 13 and 15 film scores down there with a lot of television stuff and other things. I found it a very interesting experience, but I never wanted to repeated as long as I live!!

And I'll tell you why....[Bruce expands on his history] some compositions change their nature because of my competency on the keyboard - I'm a woodwind player.

[Bruce expands on the history of the copyist]

Professionals who have spent a lifetime perfecting their craft learning their instrument with thousands of hours of practice and experience will always bring something traditional to the music that I write. The trouble with virtual instruments is that they do not! Another example is the use of a clarinet when using a real clarinets with a live performer which fingering are you going to use for that particular note because each fingering gives a different colour different style. It makes a difference now when you add all those tiny subtle little things up it makes a difference. An operatic analogy would be that Pavarotti bring something to the music that no one else does they may be technically proficient and equal. When you're sitting in a room creating music with the virtual instruments you've got none that - one of the many choices that you have is to

spend an enormous amount of time altering the envelope shape of the notes modifying the dynamics change in the articulation altering the wavelengths there's all sorts of things the amplitude the signals in relationship with each other the amount of reverb.

If you doubt, that then get the stewardess to fly the aeroplane you're travelling in through the thunderstorm. They've both spent a lot of time in the air but their experience of their time in the air is quite different. And, I found that my other choice was to compose differently which meant that I had to think differently and make use of the sounds the way that they are it could have spent a year doing nothing else but finessing these sounds, and I've got better things to do with my life! Sharing the music with other people is more like sex and doing it all in a room with virtual instruments gets closer to masturbation I think!... and I prefer the former. I found that I was approaching the music differently I think that if you look and listen to modern film scores where they create the music as the film is being slung together it has produced a particular form of approaching music!! That is characteristic as say minimalist music is - a lot of the composition and the creative approach to the music is being dictated by how they use those instruments because whoever happens to own the film - the producer or the director or both of them, they are going to judge whether they think the music is effective by how *they* like it - if they don't like it- the music won't be used and that particular composer won't be working very much!

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?
4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?
6. How do deadlines influence your decision making regarding virtual instruments choice ?
7. How does budget influence your decision making regarding virtual instruments choice ?
8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?

9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?

Yes, I very much so, part of that is fashion because I think the method of putting music together -say with Hans Zimmer as the film is being made I think that's a particularly extreme example - as it seems to my ear that most of that is based on that movement of *The Planets* by Holst named 'Mars'. The other thing I've noticed is that the filmmakers become so addicted to the early versions that they actually prefer it - and when it comes to mixing they will often mix what was originally only designed as a substitute for the orchestra and push it forward [in the mix] .

In the movie *Logan's Run* which at the time was touted as the first electronically scored music in film which just can't be true, whenever there was a romantic or emotional scene, they replaced the synthesised music with acoustic instruments with a score. They could get more human emotion out of acoustic instruments so it was like a bipolar score. [Bruce elaborates of the inefficiencies of the Fairlight system]

[the colour purple - the efficiencies of the Fairlight, could be adjusted to suit the dance scene] [40:37]

[Bruce was the first self-supporting film composer in Australia by that he means he had no other salary, job or commissions]

Philip Powers recorded for the Sydney Symphony some of Bruce's work.

10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Yes.

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

14. What role do virtual instruments have in the future of screen music ?

They've got a very big role now and I imagine that will improve. As far as I'm concerned, the world's first virtual instrument was probably the first instrument that anyone made whether it was a blowpipe or a stringed instrument and it was formalised with the pipe organ. If you look at the stops on a pipe when they say all types of things like oboe on violin and Vox Humana (the human voice) with all due respect bull shit -

this setting sounds terrible. But people have learnt to like it for what it is now people have learnt to like oboe is people have learnt to like saxophones, Celeste, clarinets these are all relatively modern instruments and where there is great resistance to them now they can't imagine music without them!! And I think that this is going to happen I just see virtual instruments as a continuation of that tradition the only difference being whereas the so-called acoustic instrument produces its sound without the aid of an electric current, the virtual instruments require electricity to make them work then so do lots of things. I think to deny the use of the instruments is silly I prefer to write on paper for an orchestra but at the same time I just finished a small film score before Christmas for a movie called husk I want is only Celeste but I could not get one... I was working in a fully solid-state virtual studio for a start so even the recording process was virtual, I couldn't find a suitable Celeste sound so I used a library sound called ice bells I have no idea what that means, it's just an emotive term that someone is given to that sound!

[55:07]

I'm not interested in what I have written before, I'm interested in what I'm writing now.

[59:38]

*Interview transcript **Aaron Kenny** (22 January 2014)*

You have been randomly selected from a group of 46 screen composers who elected to participate in an interview, following a voluntary survey.

Firstly, do you give your permission for this interview to be recorded ?

Yes I do.

Secondly, Do you wish to be identified or quoted ?

Yes I do.

Digital tools.

1. Tell me about your use of virtual instruments when writing music for the screen ? [help me understand your use of virtual instruments].

I use them all the time! In 2014 with the training that we get particularly as I am an emerging composer the opportunities that are presented to us have such small budgets that paying live musicians isn't unfortunately an option so we need to do our best to replicate that using samples! Even on scores that you know are going to be using real instruments they still need to be mocked up.

I've only been writing for the screen for the last five years so I'm relatively new to it. Even in those five years the leaps and bounds technology has taken is mind blowing at the start I was coming from the concert music world so I was used to writing and composing music on sheet music - written scores. Knowing and understanding how they work so I could imagine in my head I could hear basic MIDI representations of that, but that was it I could still play a piano reduction on the computer and see it in sync with

the picture - so that I could see that everything hit, but it was written more as concert music to picture.

2. Virtual instruments are more readily available these days with the lowering of the cost to buy them – what are your thoughts on that ?

[8:40] When you talk about this I immediately think of the comparison with the DLSR camera - a digital camera. And the quality of the video camera is very high which is suddenly made it available to so many more people... you look at the results -and think just because that tool is available doesn't necessarily mean that quality is being made! In regards to virtual instruments I think it's good in that more stories can be told, whether the filmmakers realise that or eventually realise that. Even starting with Garage Band that comes on every Mac operating system that every Tom, Dick and Harry can use to write music, with the resurgence of people coming from PC to Mac all of these people didn't have that on PC - now does that mean that all of us who have this technology are singer-songwriter's, or songwriters who can write of these all right they just using loops?

[12:18] Taking an example from Action Strings where you have the repetitive pattern where you can adjust but basically you present hold down keys and you get a whole string orchestra are doing this sort of repetitive pattern which sounds really cool!! However it has its limitations. You have Hollywood Woodwinds by Cine Samples, where they have wind patterns... The most famous composer of our time is John Williams and they took a lot of his woodwind patterns that from his scores you can press and hold a key and suddenly you have a recognizable motif, whether it's from *ET*

or a marching pattern from *Superman*. This brings up the question of at what point are you a composer? Are you just 'montaging' things together!! One could argue that that's always been the case and that's what a composer does. What was the question?

The good side of it is allowing more people to compose and create new music which they wouldn't have had the opportunity to do before. The other spinoff from the availability of orchestral virtual instruments is that it encourages younger generations to go out and see what the greats did and what the music was that they would not have necessarily sort out!![16:02]

On the downside, you have people just copying certain styles and imitating them without any originality to them. You have the overuse of loops

3. To what extent do you modify or customize your virtual instruments to enhance your musical identity [personal aesthetic]?

Personally I haven't. There are some instances where I have tried there are some examples where I have tried and experimented with it but, I know that there are famous composers that unknown for their sound and their sound is in combination with sampled instruments or synthetic instruments. I'm talking about our Hans Zimmer and David Newman and Thomas Newman they always use it in combination with real instruments! [Craig-what about you?] I have a very limited budget and it can play keyboard and clarinet I would have a very limited range and style - if I was sending that two directors they would get sick of that very quickly.

4. How important is it for you to have the latest 'cutting edge' virtual instruments library? [samples or upgrades] ?

Short answer yes or no; answer, not necessarily. It was made clear to me the other day in conversation with another screen composer that I did not possess the East-West suite of virtual instruments - that there are certain sound libraries that that are staples "if you want to be a film composer then you need to have a staple sound library" such as East West, Quantum Leap all the different ones that they have that thing that binds us together is the torment and the struggle that we face fighting with certain samples to get the sound that we want! I do believe if you are starting or continuing with your career that you should get the latest of course six-months down the road the going to come up with something new that is just the nature of technology there's not much you can do about that. If I have a sudden influx of money, I will go out and buy the samples that are on my wish list. It's all part of that iPhone mentality and iPad mentality which encourages frequent upgrades.

Working Methods.

5. Have digital tools changed your working relationships with other members of the film-team ?

Yes (and no). Let me give you an example. I was recently finishing off a short film that was produced in Adelaide and at the time I was writing and composing and recording

for it in New York on the other side of the world, because of technology I was easily able to do that! Whether it's just with emails or Skyping the director or talking to the producer instantly drop boxing, Google Drive everything like that of a high-speed Internet you can transfer large starter and send it back and forth very easily! There was a time in this production where I was travelling to Zürich and finishing off part of the score it was all made possible by digital technology and working out the different time zones. Whether it's a good thing or not that I was still able to be involved at this stage of the postproduction process, I'm not sure about? The stress is not great and that is certainly a downside, I think there has always been stress in the industry.

I am a proponent of the latest and greatest technology and I love it, and I'm experiencing this at the moment. I still think that one-on-one relationships and seeing people in person will always outweigh online interactions!!

6. How do deadlines influence your decision making regarding virtual instruments choice ?

I think it has in the past yes ... [32:20] now I've become accustomed to having pre-set up templates - it's hard conceived me not using a template, but there was a time when I didn't use a template and every time I had to do a score I started from scratch, I had to create a whole bunch of tracks and load all the samples in individually to what I needed this also highlighted the capacity of my computer and its limited processing power, but now I think that is not such an issue for me at least. I like to keep my templates as simple as possible because I come from a classically trained background. For example,

what would usually be a five line string ensemble on paper exists as perhaps 8 or 9 tracks in my DAW. I'm conscious of the instrument getting in the way of my creation.

7. How does budget influence your decision making regarding virtual instruments choice ?
8. Have you always worked in the same way ? Have your working methods changed because of virtual instruments ?
9. Have directors / producers expectations changed ? [has virtual instruments / digital tools played a role in this change]?
10. Do you write music for the concert hall ? / Orchestral music ? Are your working methods the same ?

Only the ones that Sibelius provides! If I'm writing for an ensemble performance concert Hall performance a live performance it's always got to be the end goal so whatever the end goal is, that's what I'm writing for![5:43]

11. (optional) How is experimentation with virtual instruments different from experimentation with an orchestra or an ensemble ?

12. Do you use any non-conventional MIDI-interface devices when creating music for the screen ? [what I mean there is, do you use an iPhone, or a MIDI sax?] –
What instrument/s do you use ?

Satisfaction.

13. Have virtual instruments changed your satisfaction as a screen composer in any way ?

You may have a piece of music that you have written and hundreds of thousands of people like it, but if the director doesn't like it, it's not going to be in the film!

14. What role do virtual instruments have in the future of screen music ?

I mean you can only get better from what I've seen! The use of virtual instruments the quality of virtual instruments the affordability of virtual instruments the access to virtual instruments all of these can only improve particularly in a competitive market! They don't have a choice, if they're not recording new samples and they're not releasing new products, people lose interest and they may move on to a different company who is recording new stuff, and who is making it cheaper! I still think that there is some separation in the market where some virtual instruments are of much higher quality and are far more expensive than others - like a three tiered market system. The middle range is available to the majority of people, and then at either end you have that instrument

range at a student discount price and then you have the high-end market as well. The high-end ones people will pay for it because people have got the money.

Well the latest is that Hans Zimmer is coming out with his sample library of percussion instruments and the other instruments that he uses in his scores - but again this comes back to your previous question, well if everyone has Hans Zimmer's sample library is everyone going to sound like Hans Zimmer? Short answer yes - It's the same with the John Williams sound that everyone tries to emulate or replicate.

APPENDIX D. Statistical workings.

Table 5: Age and Experience of Australian survey respondents.

		Age	Experience
N	Valid	102	102
	Missing	0	0
Mean		41.25	12.97
Median		41.00	10.00
Mode		33 ^a	5
Std. Deviation		13.032	10.573
Variance		169.835	111.791
Skewness		.282	.728
Std. Error of Skewness		.239	.239
Range		55	41
Minimum		20	1
Maximum		75	42

Table 6: Genre as selected by the survey respondents.

	Freq.	Percent	Valid Percent	Cumulative Percent
Valid Action	2	2.0	2.0	2.0
Adventure	2	2.0	2.0	3.9
Animation	5	4.9	4.9	8.8
Comedy	12	11.8	11.8	20.6
Documentary	16	15.7	15.7	36.3
Drama	34	33.3	33.3	69.6
Family	3	2.9	2.9	72.5
Fantasy	5	4.9	4.9	77.5
Horror	2	2.0	2.0	79.4
Mystery	1	1.0	1.0	80.4
Religious	1	1.0	1.0	81.4
Romance	1	1.0	1.0	82.4
Sci-Fi	1	1.0	1.0	83.3
Short	5	4.9	4.9	88.2
Silent	1	1.0	1.0	89.2
Sport	1	1.0	1.0	90.2
Thriller	10	9.8	9.8	100.0
Total	102	100.0	100.0	

Table 7: Was the cue composed in more than one location?

	Freq.	Percent	Valid Percent	Cumulative Percent
Valid no	51	50.0	55.4	55.4
yes	41	40.2	44.6	100.0
Total	92	90.2	100.0	
Missing System	10	9.8		
Total	102	100.0		

Table 8: What is the intended destination of the cue?

	Freq.	Percent	Valid Percent	Cumulative Percent
Valid	Academic	8	7.8	7.8
	Ceremonial	2	2.0	9.8
	Cinema	43	42.2	52.0
	DVD	2	2.0	53.9
	Festival	15	14.7	68.6
	Personal	2	2.0	70.6
	Television	30	29.4	100.0
	Total	102	100.0	100.0

Table 9: Days given to compose split by instrumentation.

Row Labels	Combination Recordings Only	Virtual Instruments Only	Grand Total
1-2 Days	3	2	20
3-5 Days	3	1	6
6-10 Days	9	2	13
10-15 Days	5	2	9
20-25 Days	2		3
25-30 Days	12	2	15
35-40 Days	2	1	4
40-45 Days	3	2	5
45-50 Days	1		2
55-60 Days	7	2	9
70-85 Days	3		5
100-150 Days	1		2
More than 150 Days	2		4
Blank	3	2	5
Grand Total	56	16	30

Table 10: Did the project have a music budget?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	36	35.3	38.7
	yes	57	55.9	100.0
	Total	93	91.2	100.0
Missing	System	9	8.8	
Total		102	100.0	

Table 11: What is the function of the music?

		Freq.	Percent	Valid Percent	Cumulative Percent
	Credits (at the end of Film)	2	2.0	2.0	2.0
	Off Screen (Source of Music is not Visible)	74	72.5	72.5	74.5
Valid	On Screen (Source of Music is Visible)	12	11.8	11.8	86.3
	Titles (at the Start of Film)	14	13.7	13.7	100.0
	Total	102	100.0	100.0	

Table 12: Self Rating of digital tool functionality.

		Freq.	Percent	Valid Percent	Cumulative Percent
	2	3	2.9	3.4	3.4
	3	12	11.8	13.6	17.0
Valid	4	36	35.3	40.9	58.0
	5	37	36.3	42.0	100.0
	Total	88	86.3	100.0	
Missing	System	14	13.7		
Total		102	100.0		

Table 13: Did you work from a group of favourites?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	24	23.5	27.0	27.0
	yes	65	63.7	73.0	100.0
	Total	89	87.3	100.0	
Missing	System	13	12.7		
Total		102	100.0		

Table 14: Virtual instrument customisation score.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	6.9	8.4	8.4
	2	17	16.7	20.5	28.9
	3	30	29.4	36.1	65.1
	4	18	17.6	21.7	86.7
	5	11	10.8	13.3	100.0
	Total		83	81.4	100.0
Missing	System	19	18.6		
Total		102	100.0		

Table 15: Are there certain virtual instruments that you avoid?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	35	34.3	36.8	36.8
	yes	60	58.8	63.2	100.0
	Total	95	93.1	100.0	
Missing	System	7	6.9		
Total		102	100.0		

Table 16: Most frequently used words from the interviews.

⁸¹	Count	Word	
	(Constituting Aprox. top 30%)		
Instruments	651	Screen	148
Virtual	469	Differently	149
Sounds	414	Knows	133
Music	367	Recording	129
Just	272	Coming	127
Think	258	Going	122
Likes	243	Good	122
Things	224		
Composing	212		
Samples	208		
Changing	194		
Times	182		
Writing	167		
Library	164		
Make	154		
Played	152		
Really	149		
Using	149		

⁸¹ Includes similar words. For example, "Likes" = Like, Liked, Likes, Likley.

APPENDIX E. Participant information sheet.



Sydney Conservatorium of Music

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The Role of Technology in the Working Methods of Screen Composers

PARTICIPANT INFORMATION STATEMENT

(1) What is the study about?

This project seeks to understand how professional composers who write music for cinema and television (Screen Composers) use technology in order to do their jobs. This research is needed as the technology surrounding screen music composition has fundamentally changed recently. This study aims to quantify and qualify for the first time the working methods of screen composers in this digital age. My hypothesis is that the digital tools used for composing screen music are influencing what is composed. This project seeks to understand if there are any statistically significant relationships between working methods, digital tools, the music's 'purpose' and composer satisfaction.

(2) Who is carrying out the study?

The study is being conducted by Craig Morgan and will form the basis for the degree of Doctor of Philosophy at The University of Sydney under the supervision of Dr James Wierzbicki, Senior Lecturer, Arts Music Unit.

(3) What does the study involve?

You are invited to participate in an on-line survey. The survey has a simple point-and-click design, taking less than 20 minutes to complete.

(4) How much time will the study take?

The on-line survey will take no longer than 20 minutes to complete.

(5) Can I withdraw from the study?

Participating in this study is completely voluntary and you are not under any obligation to consent to complete the survey. Submitting a completed survey is an indication of your consent to participate in the study. You can withdraw any time prior to submitting your completed survey. Once you have submitted your survey anonymously, your responses cannot be withdrawn.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

We cannot and do not guarantee or promise that you will receive any benefits from the study.

(8) Can I tell other people about the study?

Yes, you can tell others about this study. The current applicant may pass on the researcher's details.

(9) What if I require further information about the study or my involvement in it?

When you have read this information, Craig Morgan will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact: Craig Morgan on +61 (0) 409 308 745 or cmor6470@uni.sydney.edu.au or Dr James Wierzbicki on +61 (0) 2 9351 2066 or james.wierzbicki@sydney.edu.au.

(10) What if I have a complaint or any concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep