Music by Numbers
The Impacts of Music Technologies on Pop

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ABSTRACT

This dissertation investigates issues surrounding music technologies and their use by performing artists and music producers. I discuss the accessibility of devices such as compositional softwares as invaluable tools, but I also endeavour to illuminate the problematic areas associated with these practises. The emerging artist today must negotiate a plethora of technical mediations and to this extent, the impact of technologies become apparent in terms of how artists adapt to this environment. Furthermore, this adaptation raises questions relating to musical code and the methods by which this is ascertained. By deconstructing the components of pop, value and meaning can be examined more closely by utilising construction methods that can be applied to these components.

I argue that production values are essential parameters for understanding the inner workings of modern music creation with contemporary technology. I situate producers, and their associated skills, as integral components of this process. In this context, production standards act as score and this has ongoing implications for musicological study. Through closer inspection of several key aspects of what many consider to be complex interactive processes, the apparent lack of structural and harmonic content often associated with modern electronic music today can be redefined as a highly complex and skilled process.
I want to extend gratitude to my supervisors Alan Anderson for his unwavering support and especially Robert Burns for his constant enthusiasm and friendship for which this task would have been far greater without. I would also like to thank my family: Vivienne, Kaela, Jazz, Olivia and Brynmoor for their understanding and remaining intact whilst I was temporarily removed at times throughout this study. I would also like to thank staff at the Otago University Music Department. In particular, Dorothy Duthie and Mary–Jane Campbell for putting up with my administration requests. Louise Kewene for making sure my computer kept working. Graeme Downes, Ian Chapman and Dan Bendorps for just being there, and Henry Johnson for his invaluable support. I want to also extend gratitude to Leyton for his humour and advice on all things technical and finally, I want to thank those who participated in my questionnaires and surveys.
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Throughout this research I have maintained employment as a teaching assistant in the areas of music technology and as contemporary rock performance ‘coach’ at the University of Otago. I have observed interesting phenomenon during this tenure and have often deliberated over the abilities of musicians as a reflection of my own experiences at similar stages of my career. It would seem that although technologies have created new tools for emergent musicians to utilise, the discipline necessary to extract practical results, is not high on the agenda. The problem lies with a need for recognition without sacrifice. My observations of work methods and/or achievement standards are reflective of current visual medias such as MTV where the images do not portray the exertion of musicians behind the visual images. Many students, for example, display all manner of current rock guitar trends but cannot locate a name to the action. I have found this quite disconcerting and implicate the mass amounts of guitar tablature available in the form of numbers over names as responsible for a decrease in personal informed learning attitudes where being on the stage takes precedent over skill. Music technologies have had similar effects on student output also. The emphasis is based on compiling sounds and loops but not so much on editing and crafting. This is not to say that these students do not have skills, it simply outlines the changing attitudes of musicians in a media saturated technological environment. : Attitudes that adhere to visual and aural images dominated by mass consumerism.
METHOD AND ANALYSIS

My intention in this study is to conduct a hybridised phenomenological inquiry consisting of documented scholarly literature and established qualitative methods. By formulating a multi dimensional inquiry, we can delve further into the pop phenomenon as it is for musicians today. My primary qualitative approach utilises the Maykut and Moorehouse constant comparative method. This combines inductive category coding with a concurrent comparison of all segments of meaning obtained from the transcripts of collected data. The data for this process was gleaned from several sources. These included a questionnaire I conducted with two lecturers of music technologies at the University of Otago. The aim was to establish a pattern with regards to students and their interpretation of software being taught. It is important to note that classes contain students from a cross section of disciplines and my concept was to ascertain how music/non-music students associate with technology on a creative level.

I conducted a second questionnaire for music students that invited them to discuss their thoughts on technologies as musical tool. Only five students agreed to participate from a bulk email that was sent to over one hundred enrolments. This is a significant factor towards this thesis and represents what I have found to be an often-present attitude toward external musical activities. It is difficult to ascertain the reasons behind this but aligns with my observations of participation through interaction over application of theoretical material. This is certainly the case with live performance ensembles I have worked with. A further series on online surveys was conducted on a selection on music communities. These were selected randomly and are primarily New Zealand web communities due to my interest in gauging views from a local perspective. One further global web community was surveyed also. After all data was collected, Maykut and Moorehouse’s suggested method for establishing propositional statements was engaged. My statements in chapter 8 are the result of this process.
My analysis approach involved a synergy of suggested concepts by noted musicologists. The term ‘methodological toolkit’, as proposed by Tia de Nora, is an appropriate metaphor within this analysis approach. She describes this concept as,

…uncovering intertextual allusion, identifying conventional tropes and the ideological connotations and functions of these tropes, comparing (some aspect of) music’s structure with (some aspect of) the structure of something else… (De Nora, 2004. p.37)

The primary notions of viewing pop as layers of voices as suggested by Jason Toynbee is a component of the toolbox.¹ By assembling pop music as ‘voices’, such as the dialogue of encoded interfaces, the opportunity to qualify alternative facets interlinked within pop is greatly increased. Traditional methods of investigation/interpretation have their place in history and provide solid foundations: problems occur however, when these methods do not interact with or admit the composer’s/consumer’s tacit knowledge of their field, and in particular, their knowledge of music technologies. Through identification and categorisation of varied interrelated texts we gain further insight into the inner workings of pop music.

The ‘aesthesic-poietic’ approach, as described by Laura Zattra (2004), revolves around a relationship between perception through listening and creative process through observation.² This analysis is derived from the view that the two most important changes to have taken place with computers and musical work are that notation has been replaced with sonic representations (waveforms) and compositional form has developed from the timbres emitted from software instruments. Zattra maintains, “…the musicological study of computer music coincides with the study of this hybrid world – where technology and art work alongside each other.” (Zattra, 2004. p35) For clarification, aesthetic analysis refers to the perception of the listener or auditor. This method involves the human as a kind of ‘aural interpreter’ and seeks to identify sound objects such as the perceptive separation and identification of sound sources through illustrative descriptions. According to Zattra, “This type of approach – so called aesthetic – affirms that electroacoustic music does not have, and probably never will have, a neutral level, a musical text with a strict connection between its graphical representation and its sound text.” (Zattra, 2004. p37) Poietic analysis, on the other hand, has qualitative tendencies and is more phenomenologically based and therefore maybe suited more appropriately to this research direction. To this end then, poietic analysis can be considered grounded in social construct. The concept of production as score, that I will discuss, may benefit from prudent application of this approach.

¹ See Toynbee 2003, p105
² See also Nattiez 1989
Upon closer inspection of Zattra’s proposition of a multi-dimensional analysis method, it becomes clear that stylised methodologies are the way forward for musicological disciplines. (See Fig.1) By taking into account computer data as score, intensive aural analysis through familiarisation, voice of the composer, documents on the work such as score and any explanatory texts, Zattra’s method affords a thorough investigation on many levels. Difficulties exist in the graphical representations of waveforms, that depict density, amplitude and so forth, but I believe that tools such as spectrograms can reveal production details such as the placement of instruments in a sound mix more accurately. We can evaluate these accuracies as indications of stylised production techniques through these visual representations.

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**Figure 1:** Accessed 03/03/07  Zattra, 2003. p.38

I will argue that understanding internal, tacit knowledge in artists imparts new perceptions of compositional strategy in terms of the modern composer. The current ‘toolbox’ at their disposal today emits stylistic influences pertaining to the negotiation of interfaces and so forth. These influences are considered as an interactive process between two distinct sets of values. I will discuss the aforementioned interactive process as a system of valorization that may be approached from two directions. First is the value of the technology from the artist’s
point of view. Secondly, what does technology bring to human performance? This is highly dependant upon personal opinion and as I will show in future chapters, variable according to current trends of production values and other socially connected influences.

To instigate this analysis approach I will examine four songs from Madonna and discuss the music of Justin Timberlake. I will also discuss the technological content of Industrial pop with a view to locating fluency of editing procedures as paramount to this genre. I will draw on the works of Stan Hawkins and adopt the intertextual and dialogical approach he suggests. Through these processes, I intend to situate the stylisms of technology use as a fundamental component within pop texts.
CHAPTER 1

1a Thesis Introduction

Since the invention of the phonograph, music and technology have formed an integral correlation in their association with pop culture. This relationship has emerged as a constantly evolving phenomenon, especially in regards to the inception of a digital protocol. I suggest that pop music today is a product of technological consequences and on this premise I intend to examine the impacts of technologies on contemporary musicality. History has localized a multiplicity of important musical revolutions and the result is the liberation of musicality in various forms or sound concepts. The phonograph, the alteration of traditional tonal compositional procedures to atonality or dodecaphony and the electrification of the guitar are examples of new musical eras of discovery and innovation. This research aims to discuss the current liberation of music making with technologies and the encodification problems that exist between established commercial production standards and pragmatic consumer definition. In the last forty years or so, music technologies have redefined music creation procedures, musical participation and have further altered textural interpretations and possibilities that are reflected as problematic areas associated within genre rules. The problems are primarily located with the differentiation of musical value between experienced professionals and amateurs. In relation to music creation, consumption and distribution, one of the most liberating technological developments of our time is the Internet. This phenomenon of technology has for many completely altered the way in which we conduct our daily routines, with arguably the most dramatic changes occurring for education, businesses and musical habits. The implications for musicians has required and enabled an overhaul of how they view themselves within ‘cyberspace’. Numerous issues such as ownership, identity, reception and the notion of virtual worlds have all been the topic of discussion within pop culture theory.

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4 In this context I am referring to the standards of established commercial music for sale and airplay.
5 Genre rules are defined by song structure, texture etc. These stylistic components denote the differences between musics.
6 As discussed by musicologists such as Moore (2001) and Frith (1996).
With the advent of the Internet, the musical novice can partake in an online musical society that has removed the limitations of connection and that now defines virtually anyone with a computer and software as a potential musician. In this context, the breaking down of musical barriers can be positive to a point but, in this technical environment, what constitutes musicianship? Furthermore, how does this reflect on musical value? My aim in this dissertation is to highlight the various areas that I perceive as essential to understanding the inner workings of modern music creation with the use of technology. This research is not designed to theorise any questions as such because the subject area is too large for this study; moreover, I intend to offer insights and suggestions towards evaluating technological content that in turn may act as the basis for further discussion.

A persistent problem within the musicological consideration of pop music is the lack of analytical ‘code’ that pop presents. In terms of textual content, pop can manifest itself as driven by fashion and relying on mass appeal rather than actual musical substance. Constantly seeking identity, value and meaning, pop music today is produced via an interactive partnership between human and machine to form what may be considered a specific culture. This culture relies on technology to further develop a more efficient dissemination of the music, and mediatory inclination favours the fluent use of tools to participate actively within rule-based interaction. The problem of poor codes within pop may begin to occur through the lack of fluency displayed by simple ‘copy and paste’ procedures. Fundamentally, I am referring to song form, which in classical music traditionally instigates rich textual code through tonal systems. Jason Toynbee suggests that we think of pop as layers or ‘voices’ so we can stratify pop into its components. This approach will be discussed in detail and it will be discovered that this concept can help us to view pop as a series of interlinked interactions that enable a dialogue specific to music technologies and their use.

Today’s musician creates, consumes and communicates music through a more diverse process than that of musicians from the 1960s. Some musics created today necessitates association with all elements that encompass the artistic process and therefore creation becomes a technologically dependent procedure. I suggest that a transformation in the way we analyse pop is essential to include a total amalgamation of all tangents associated within a particular

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7 Compared to the harmonic content of western art music, pop can be relatively simplistic.
8 Hawkins discusses this, 2002
9 I am referring to specific technologies/sounds within genres. Hard synthesizer sounds within ‘Trance’ for example, enact a set of rules that associate those sounds/technologies with that style of music.
10 Refer to the glossary.
genre. This, in theory, would better represent the social circumstances of a musician working in the field of ‘electronica’ for example. In order to establish the focus of this enquiry more effectively, I will set boundaries in that the focus is on popular electronic music that may also be considered computer music.  

By designating this boundary I enable the focus to contextualize the musician and technology. This research acts, in many ways, as a prolegomena into the enrichment of pop’s code through closer inspection of several key aspects of what many consider to be complex interactive processes between human and machine. Just as the paradigm of popular music studies shifted in the 1970s and 1980s, so too is the emergent paradigm of music studies.  

Interactive processes need to be stratified and each layer isolated in order to interpret more efficiently the impact each component of the process has on the other. We can then begin to outline the various layers and examine their ‘codes’ of communication, mediation and meaning.

To find a starting point for this enquiry, one must first consider which fundamentals of the topic offer the broadest scope for further investigation. As stated earlier, classical music offers the musicologist complex, rich tapestries of compositional material on which to analyse and comment. Some would suggest this relates to a time when music and culture studies did not coexist. It can be said, generally speaking, that the consensus on pop doesn’t allow the same considerations based on a tonal system. It would seem that many elements of pop have evolved from mass consumerism and more specifically, technological development. The music industry has received much attention as a primary participant in this consumption, as Simon Frith has observed. However, we still, as emerging musicologists, seek to discover the intrinsic associations within music that we are compelled to understand from our own personal tastes. This is a social constructivist concept but, behind the categorisations and labels, there remains a cognitive human link between technology, sounds and composition. The concept of ‘encounter’ in this capacity can reveal much about the musical implications of technology. Philip Bohlman maintains,

> From a historiographical standpoint the vital question is not that such contradictory issues of music and culture accrue to encounter, but why musical scholarship and the cultural study of music persist in their failure to close the gap that encounter continues to expose. (Bohlman, 2003. p.48)

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11 Commercial top 40 chart material.
12 See Shepherd, 2003. p. 70
13 See Shepherd, 2003. p. 72
14 See Frith 1990.
The impacts of technology on music are apparent in terms of sounds and textures, but the understanding of the communicative language or encoded, decoded syntax relating to human/machine interactivity equalling a creativity formula is still in its infancy.

The physical interface between artist and machine is subject to modifications but what effect is this having on creativity? Moreover, to what degree are the sounds created through these interfaces responsible for the alterations of musical interpretation? And if so, how does one sound or piece of equipment submit a specific meaning over another? Pop music is saturated with new technologies and resultant sounds. Composers today have a plethora of technical devices at their disposal with which to create but the question remains, why are these choices made? Andrew Feenberg suggests that people’s choices “are increasingly mediated by technical decisions.” (Feenberg, 1991. p.3) He further maintains that these problems are, “rooted not in technology per se but in the antidemocratic values that govern technological development.” (Feenberg, 1991. p.3) Michael Hamman considers Feenberg’s ‘critical theory’ and concludes that, “…critical theory of technology requires a rethinking of technology in order to bring about its transformation from an instrumental abstraction into a site for human thought and activity.” (Hamman, 2004. p.117) To this end, technology, by nature, produces its own set of rules and values in relation to the user and I discuss this in a following chapter.

Current trends in pop rely heavily on technologies and subsequent transformations used to achieve new sounds and musical directions, and ultimately identity, reflects the current musical climate. The effect of these transformations on music communities channels new strategies both musically and culturally. If music studies are to reflect the changing nature of human/technology interpretation, then it is worthy of further investigation.

This raises another key element within this enquiry, Peter Gouzouasis refers to this element as ‘fluency’ and maintains, “Fluency is defined by creative expression.” (Gouzouasis, 2004. p.3) He primarily accesses the notion of fluency as a skill level and with regards to this inquiry the degree of creativity shown by a composer is reflective of fluency associated with technology but, how do we assess this? The notion of fluency offers new means by which to address electronic music’s success as an art form derived solely from music charts. From this viewpoint, I suggest a significant textural alteration in electronic pop analysis will evolve. For example, if one were to consider the soundtrack of a top 40 ‘hit’, in a context relating to the creative and gestural articulations of the backing track and all its associated nuances, our

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15 Refer to Chapter 3a, p.39 The Accumulation Process
16 The ability for technology users to partake freely in musical practises. The liberation of the record industry for example.
perception of the involved process becomes more complex and therefore enables more
dialogue. I will discuss this topic further and I intend to disassociate talent and fluency as one
and the same. I maintain that fluency can be learned, nurtured and developed. Moreover,
‘talent’ is the physical attribute that makes one person more adept at an activity than another
and in regard to this study, ‘innovative’ programming of beats, for example, is situated within
the scope of talent. I will discuss this concept in a following chapter but the core of it lies in
the assemblage of components, arranged into fabricated grooves beyond standard drum kit
performances.

So far, I have introduced the ideas of ‘voices’ and ‘fluency’ as key areas discussed in this
research. A third key area I discuss is that of music systems. I refer to technological music
systems used by musicians for composition. I argue that by decoding music systems we will
acquire greater comprehension with regards to computer music composition. It seems
apparent also that the notion of fluency is associated within this topic and I suggest there are
definite connections between the two. The change in musical compositional processes has
evolved out of computer technologies. Many musicians have adopted this approach and have
become participants in alternative contexts in which the creative process is multifaceted and
complex. I aim to establish these complexities as textual elements of the affiliated music.

The computer may now be the most adapted quasi-instrument and there has been substantial
debate regarding this tool that can be embraced as a critical element of modern music.
Performances with computers bring about questions relating to a cognitive aesthetic
previously represented by human performers only. In short, humans have had to reinvent
performance aesthetics when utilizing technology and in doing so, modify performance
gestures. Gestural nuances imply humanizations subject to performance requirements or
scores. These gestures involve dynamics, articulations, phrasing etc, and denote emotive
qualities of the music to be performed.

A new area that has attracted little scholarly debate is that of production as score. If we could
consider the production values of pop with its associated voices and gestures as musical score,
we could then analyse pop in a more traditional manner. I suggest that articulations from a
classical context exist within a pop production and could therefore be scored accordingly.
Articulations in classical genres refer to alterations within a written score for musicians to
perform, to envision the composer’s interpretation of the work. Pop production values, which

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17 I am referring to complicated editing procedures that involve the rhythmical manipulation of sounds.
18 By this I mean programming of music.
are highly technologised, can also be interpreted in the same manner. This approach may perform as an intermediary role of authorizing pop productions as cognitive forms of expressions interlinked with creativity, fluency and music systems.

In summary, this research intends to reveal the multifaceted world of pop music as a technology driven entity. Entities that shape the way in which musicians create, perform, consume and exist within a music context. As a continual invention/reinvention phenomenon, it is difficult to envisage what new changes will occur in the near future. One variable will remain however; the need for artists to individualise themselves from others via the available tools used in music production.

1b Literature Review

One theme emerging from scholarly literature is that of the social/cultural nature of artists and the impacts and alterations that occur when small changes are felt. It is widely accepted that social and cultural processes are responsible for the evolution of popular music as it is today. Tia De Nora suggests in her interpretation of Antoine Hennion’s theories,

…music may seem to be interlinked to “social” matters, for example, patterns of cognition, styles of action, ideologies, institutional arrangements, such links should not be assumed. Rather, they need to be specified (observed and described) at their levels of operation, for instance in terms of how they are established and come to act. (De Nora, 2004. p.38)19

I do not intend to debate social or cultural issues, rather, I consider them as a merged entity within an individual’s personality, which renders them unique.20 Furthermore, I do not dispute the importance of social and cultural practise either, in essence, musical practise is social practise. In fact, I consider the social practises of emerging artists today as the result of evolutionary technological processes. Bohlman would situate this as a ‘historiographical encounter.’21 This in turn repositions the importance of technology for artists as integral to their social being in many cases. The ‘phonograph effect’ raises issues relating to the impacts that recording technology has had on musical life.22 These early device concepts are now readily available as software applications on many computers and the sociological aspects relating to this study are varied and exist within a new musicological approach. De Nora

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20 I am referring to individuality through interpretation of ones social environment.
21 See Bohlman, 2003. p. 46
22 See Katz 2004. p. 3
raises a fundamental point with regards to this enquiry though; observations of musical practice in my research area need documenting, description and specification. The sociological contributions to music studies in De Nora’s opinion can be categorized into, ‘(1) conditions of production (2) the construction of musical value and reputation and (3) musical tastes, consumption, and social identity.” (De Nora, 2004. p.41)

Jason Toynbee considers the notion of dialogism as integral to assembling the voices of music as ‘utterances’ and maintains,

… I still want to argue that the general principle of dialogism, particularly the notion that cultural production consists of the interanimation of social materials, is so cogent that it must lie at the center of any theory of creativity. (Toynbee, 2003. p105)

Assembling music as voices or utterances in this way has many advantages towards understanding and deciphering the code in music if considered a dialogue. From Toynbee’s viewpoint, we interpret the artist as an author and from this we consider the code shaped by this author. The questions are then asked, where does the author’s code come from? How does that relate to the music? A prelude to these questions maybe Toynbee’s notions of a field of production or the stylistic norms associated with each author. This concept adheres strictly to social circumstance and coexists with Tia De Nora’s suggestion of music as, “…a social process, focusing on how musical structures, interpretations and evaluations are created, revised and undercut with reference to the social relations and contexts of this activity.” (De Nora, 2004. p.37) She further advocates observing these practises as they occur as stated in the introduction of this paper. Furthermore, De Nora maintains that modern musicological practises are not that far removed from the theories and criticisms of Adorno, seeking constructionist approaches to music, aimed at revealing social content. It is widely accepted that social and cultural processes are responsible for the evolution of popular music as it is today.

Toynbee’s concept of a field of production revolves around all the variables or positions in a large contemporary ‘scene’ related to the author. To expand this further, one may consider all schools of thought or genre preference and in this case all associated technologies relating to music creation as a field of production. These positions are steeped in social content and therefore relate closely to a musicians habitus. Toynbee argues that creative choices are a result of the ‘push and pull’ effects between habitus and field. Further inside the field of

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23 The field of production is discussed in chapter 5.
Another concept of creativity has been termed as ‘the space of possibilities’ (first discussed by Pierre Bourdieu 1996). This is a more psychological characteristic of creativity and recounts the known and the unknown or the familiar and the unfamiliar as where ideas/choices/coded voices are initiated. Essentially, choices are made on what is known within an author’s ‘space’. The argument is that creative choices are subject to proximities not far from what is already known. It is argued further, that as an author drifts into the unknown, so the possibilities become more creative. Toynbee discusses this phenomenon and notes three important points about the choices to be found further to the outer perimeter of the ‘space’. Firstly, new choices are linked back to the selection of coded voices used by the author. This may involve utilizing a different production technique based on the fact that the author is aware of the changes they are making, which in turn creates counter-codes and therefore becomes part of the author’s creative vocabulary. Secondly, bisociation is central to creativity with the synthesis of unconnected components to be found on the outer radius of the ‘space’ and thirdly, highly creative choices are made when social authors find themselves in a position within the field not governed by habitus.

Guy Garnett discusses the aesthetic issues of human collaboration with computers and situates two areas to be considered as, “The human performer’s contribution to computer music…the computer’s contribution to human performance.” (Garnett, 2001. p.21) Garnett maintains a subjective/objective dichotomy between author and machine exists. More importantly, according to Garnett, this interaction is a humanist/formalist dichotomy long overdue for debate. In relation to aesthetics of computer music and the context within Garnett’s article he suggests, “…an aesthetic is the artistic valorization or system of valorization that inheres in a work or experience. Aesthetics is the study of such systems or, as a simple plural form, a set of such systems.” (Garnett, 2001. p.23) For many technologies, value is subject to the quality of an algorithm or complexity of a software program. Garnett refers to this as actions on behalf of the technology that affect the performers output. Garnett discusses the, “re-emphasis of human performance” which has developed further from the time of his writing. (Garnett, 2001. p.25) This re-emphasis has emerged as critical to understanding pop today, as are the gestural nuances he discusses. To bring this into context, Garnett suggests, “…the use of the computer conjoined with a human performer brings with it the possibility for certain new extensions to performance brought about by the technology itself.” (Garnett, 2001.p25) I view these extensions as performance programming for conventional instruments such as drums and keyboards, where the human performer factor is replaced by inputted data that becomes

24 See Bourdieu 1996.
subject to gestural implications. In this case, the computer assumes the role of an extension of the human’s intensions. In Garnett’s opinion, the aesthetic significance is increased in the performers abilities to actualise believable musical dimensions. This exists unquestionably as ‘fluency’ that is not only attributed to computer programming skills but also music production techniques such as sound engineering, mixing, producing and mastering. Aesthetic changes occur when the roles are reversed however with Garnett’s inquiry into what the computer brings to human performance. The computer offers limitless potential in terms of acting as an extension to human performer.

A significant topic to emerge thus far is that of fluency and this notion may well offer the musicologist interlinked textual relationships between composers and their work for the basis of a new dialogue in the analysis of pop. Peter Gouzouasis argues that a combination of interrelated dimensions such as artistic ability and conceptual understanding may enable humans to become highly fluent with arts-technologies and uses the label ‘FATness’ to describe ‘Fluency [within] Arts Technologies’. From this stance, can a text be submitted and endorsed based on the degree of facility an artist has with a particular technology? While this may be the case however; a standard may need to be incorporated whereby differentiation of software capabilities for example, are considered within compositional outcomes and to this extent, this is what Gouzouasis is concerned about. He maintains,

…music technologies seem to be pushing the traditional boundaries and challenging our notions of what constitutes music composition as well as notions of the abilities and skills humans need to learn to compose and perform music.

(Gouzouasis, 2005. p.4)

The concern for Gouzouasis is software such as ‘Garageband’ and the marketing pitch and implications associated with it.

You don’t have to play the piano. You don’t have to read music. You don’t even have to have rhythm. If you know what you like when you hear it, you can make your own kind of music. With Garageband. (Apple Computers, 2004)

While it is accepted that every potential fluent artist/social author must start somewhere, Gouzouasis maintains we must confront, “…the dilemma that music, and music education, faces in a society where software packages such as Garageband may enable any person to seemingly compose music without traditional forms of music knowledge and music literacy.”

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26 The difference in complexity between Garageband and Logic are quite extensive. The results are then reliant on the abilities of the user.
Reflecting upon J.P. Guilford’s observations on ingenuity, inventiveness and originality, Gouzouasis maintains,

Fluency of thinking and of originality is the pillar of Guilford’s model; fluency, facility and originality are considered as abilities. In a sense that they compromise a multiplicity of aspects, one may consider that Guilford’s notions of “intellectual abilities” (p.156) as the hard-core precursors to Gardener’s notion of multiple intelligences. (Gouzouasis, 2005. p.5)

Although Guilford’s ideas are based in a linguistic context, Gouzouasis suggests that his ideas can be endorsed in a media interactive context as another example of interdisciplinary methodologies.

Guilford proposed four constructs of fluency that were, *Word fluency, Ideational fluency, Associational fluency* and *Expressional fluency*. Each idea related to an ability to organize and categorize words in different capacities. Gouzouasis draws from these ideas and re-associates them with modes of technical abilities with media arts contexts. Further more, Guilford also proposed two abilities related to the construct of flexibility that Gouzouasis draws on as interlinked notions within the fluency discussion.

Alistair Riddell’s paper is closely aligned with the literature I have discussed thus far. Riddell suggests, “… any music system that includes a code of usage with, possibly, a hidden aesthetic, constitutes a music theory.” (Riddell, 2004. p.3) If this is the case, then analysis of this ‘theory’ is acceptable as essential to pop literature.

Riddell draws attention to technology interaction as inspiring a desire for formal definitions and relays John Cages philosophy of technology as esoteric and avoiding, “…becoming focused on any one technology to the exclusion of a broadly based creative curiosity.” (Riddell, 2001. p.4) Furthermore, Riddell maintains, “There are composers for whom technology inspires a singularly brief flourish of activity, where they focus on a creative issue that they hope technology, or at least technological thinking, might illuminate.” (Riddell, 2001. p.4)

To break from the technological aspects of pop, Georgina Born’s notion of music’s mediations as an approach to better understanding of contemporary music today, is discussed. Born maintains,

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27 See Guilford 1967.
Music is perhaps the paradigmatic multiply-mediated, immaterial and material, fluid quasi-object, in which subjects and objects collide and intermingle. It favours associations or assemblages between musicians and instruments, composers and scores, listeners and sound systems—that is, between subjects and objects. (Born, 2005. p.7)

Born’s primary concerns lie with music’s social, technological and temporal dimensions in the form of mediations and aims to build on works by Adorno, DeNora and Hennion. Her intention is to expand on the analysis of music’s mediations linking these concepts to theories of music’s changing ontology. Her paper begins by suggesting Lydia Goehr’s ideas of musical work does not pursue the importance of understanding the social, technological and temporal dimensions and further suggests that theories of mediation afford an approach to this problem. She further offers three related arguments that develop this perspective. The first argument cites music’s social and temporal mediation and its nature as a distributed object. Drawing on Alfred Gell’s Art and Agency (1998), Born maintains,

I use this approach to reveal music as a medium that destabilizes some our most cherished dualisms concerning the separation not only of subject from object, but present from past, individual from collectivity, the authentic from the artificial, and production from reception. (Born, 2005. p.8)

Born’s second argument concerns music’s mediations as taking a number of forms or, as she suggests, ‘assemblages’ and I feel this directly relates to the implications of the Internet. Born’s definition of ‘assemblages’ is a combination of mediations that aligns with characteristics of music culture and historical periods. Her third argument is that a theory of mediation, “…has value in highlighting shifts in the dominant historical forms of musical assemblage.” (Born, 2005.p.8) This has clearly become the case with the Internet and Born views these arguments as ‘tools’ to, “…conceptualise changing forms of musical creativity, which themselves evidence new music ontologies…” (Born, 2005. p.8) In this respect, music’s mediations may be admitted as tools for the methodological toolbox as suggested by DeNora.

Having evolved with Internet development, as have many others, I am compelled to address this subject and its many transformations as a critical component of the musical processes within this paper. It has been called, “…a cultural phenomenon, with an associated lifestyle that triumphantly asserts the ephemerality of the music itself…” (Hugill, 2005. p.1) Andrew Hugill provides an appropriate introduction and highlights some of the issues I wish to examine. His primary focus however resides with Internet music and some of the contrasting

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relationships associated with this medium. Hugill views the Internet as a conduit and in his view, a degraded one, as the format itself removes musical information, in the form of compression, for faster downloads.

An important attribute of the Internet for musicians is located with the ability to market themselves online, a commodity not previously available through traditional methods. Internet radios provide avenues for ‘unreleased’ artists and Hugill suggests they, “…develop their listener’s knowledge base incrementally rather than arbitrarily in the manner of, say the BBC.” (Hugill, 2005. p.1) Hugill is also aware of problems that the Internet has created through absolute freedom for musicians and maintains, “The lack of ability on the part of the notional creator of the music to control the listening experience of the notional consumer has led to a blurring of the distinction between composer, performer and listener.” (Hugill, 2005. p.5) The Internet as a distributive tool has become a contentious topic and Kembrew McLeod offers insight into how the Internet has given musicians an alternative means of circulation as a challenge to the hegemony of mainstream music labels. McLeod describes how distribution systems have evolved through modification of processes to what is now essentially a digital music distribution procedure.29

What is becoming clear is that analysis of pop requires alternate thinking and reformulation of methods in keeping with developing trends of musical production. Stan Hawkins has discussed the issues of textualizing pop in terms of musical code developed through pop identity that relates to links between the music and the artists image. Hawkins maintains, “The task of interpreting pop is an interdisciplinary task that deals with the relationship between music and social mediation.” (Hawkins, 2002. p.3) Hawkins describes the compositional changes of pop occurring in the early 1980s with technological development. Just as Simon Frith and Allan Moore have discussed ‘rock’ texts, Hawkins maintains, “When primary textual analysis of pop or rock texts is undertaken there is easily a tendency to prioritise procedures aligned to traditional musical analysis.” (Hawkins, 2002. p.4)30 The problem, Hawkins admits, is essentially connected to traditional attitudes and suggests, “As a result of their own conventional predisposition, many music pedagogues continue to exist in a social vacuum worlds apart from the majority of their students and pupils.” (Hawkins, 2002. p.5) Furthermore, Hawkins cites Joseph Kerman as, “a special landmark in the discipline of musicology…” (Hawkins, 2002. p.6), he suggests that Kerman’s critical approach, defining

29 I am referring to online music stores such as iTunes.

30 See Moore 2001 and Frith 1996
music in new heuristic ways, provided diversity of analytical procedures for a wide range of genres.\textsuperscript{31}

To begin a ‘stylised’ analysis, Hawkins asks the questions, what is being communicated and how Hawkins suggests, “…addressing the tensions that coexist in the text and the context lies in understanding the role of musical processes themselves.” (Hawkins, 2002. p.7) With pop, the question of what is being communicated is multifaceted and to reflect this Hawkins maintains, “My goal here is to suggest the signification of compositional design in song form by reading the various functions of musical process. (Hawkins, 2002. p.7) In many different ways deriving meaning from forms, styles and processes can offer the musicologist a springboard for concentrating on the equally difficult problematic of contextualisation. To elucidate this notion further, Toynbee’s notion of separating the voices and Hawkins analysis techniques, offer an in-depth means of interpreting pop. It would seem that pop and its meanings have become very complex with the advances of technology and therefore analytical procedures for pop must parallel this. Hawkins maintains, “…pop text is more than just the song…it is an entity of motion determined by the variables of sonic structure that link it together.” (Hawkins, 2002. p. 7) To this end, pop texts become based on subjectivity and perception of what is popular. The aim of analysis then is to extract the narrative by assuming a variety of standpoints. Analysing the interaction of elements within a composition based on social and technical gestures allows the artists musical agency to be decoded in relevance to their social construct. Hawkins maintains, “…for music to signify anything, meanings etc, it needs to be rooted in an organized system which exposes the traits of the author’s and reader’s identity through the texts purposive function.” (Hawkins, 2002. p.8) As pop is broken down into individual utterances, the assemblage of musical structure through the variables within it can fill in the semantic gaps. Images of pastiche, juxtaposition and irony are common occurrences in pop, it is through these processes that meaning is derived. Musical codes and their meanings are situated as intentional developments that emphasize sensuality, physicality and gender issues relevant to the listener’s subjective interpretation. Musical codes are never the same for any two listeners. In this respect, codification is never static and it possesses and transmits numerous meanings. Hawkins maintains, “Musical codes…are identifiable as auditory events in time and space. The implications of this for the music analyst lie in the task of code identification which involves a range of levels of acquired listening competence.” (Hawkins, 2002. p.9) From an aural perspective, musical sounds

\textsuperscript{31} See Kerman1985
transmit codes as the familiar and the unfamiliar. It is here that technology enters the dialogue as an utterance to be deciphered.

As artists embrace music technology through mass media channels, paradigms are formed and altered and in numerous ways are reflective of the rapid developments in a increasingly technological culture. Joel Chadabe compliments this idea with his belief that new and similar paradigms in music appear in all fields simultaneously, that innovations in any field are linked to new perceptions of how things should happen, an evolutionary process in a sense. Chadabe maintains,

…the two most important developments in the history of electronic music were (1) the opening up of music to all sounds and (2) the development of interactive instruments and both developments have reflected general shifts from old to new paradigms. (Chadabe, 1996. p.41)

Although this is a useful concept, I would categorically place the development of software midi sequencers ahead of the latter. My reason for this is quite simple in that without the discovery of computer software first, the latter of Chadabe’s notions would never have emerged. Chadabe offers the notion of the indeterminacy paradigm within electronic music and it becomes an intriguing prospect when considering creativity in pop especially with a novice user. The concept is that if composers view compositions as interactive process then performers interpret the work as such, designating autonomy to the performer like Cage did. Chadabe cites the work of John Cage as an example but the concept can be crossed over into other areas of computer music such as creative process.

I have discussed thus far various methods that I intend to utilise in this research that align with notions of adaptation of analytical models, musical mediation, interactivity and fluency. As this research unfolds I will integrate the works of other authors that have offered insight into the many components that construct pop texts. These works encompass the topics of virtual societies, the intangibility of the Internet, technological culture and human emotion within machine processed music. The topic I am engaging is vast and cannot be fully exposed within this research but what follows is effectively a cataloguing of the most influential elements as I see them.

CHAPTER 2

CLOSE ENCOUNTERS OF THE TECHNOLOGICAL KIND

In this chapter I discuss the effects of initial experiences with technologies relating to the influences imparted from devices that direct musical interpretations. I then discuss technologies that have performed influential roles in the history of music development.

2a Historiographical Encounter

When Thomas Edison invented the first device that enabled sound recording and playback, he may not have fully realized how this technology would eventually affect the dissemination of music. From this initial beginning, the meaning and value of musical appreciation of the time was altered dramatically, a new revolution and liberation of music had occurred. The ensuing encounter by the public was to permanently modify music culture and eventually musicological discourse. Philip Bohlman discusses the acceptance of the relationship of music and culture historically and maintains, “…the question that concerns me…is why so many theories and aesthetics of music resist that acceptance.” (Bohlman, 2003. p.46) Bohlman suggests further, “The historiography of music and culture begins with the moment of encounter.” (Bohlman, 2003. p.46) The aim of this subtopic is to discuss technology from the perspective of the ‘encounter’ between musicians/users and technology. While the initial conception of the phonograph may have engendered a new music culture, technology today is an integral component of the digital age. The process of encounter with technical music devices occurs in virtually every stage of our lives. Even newborn children are subjected to musical devices designed to put them to sleep or encourage mental stimulation and physical activity. This is perhaps, from a sociological/musicological perspective, the most unassuming time of our lives, when we experience music without having to really understand it, and it’s
associated elements. The gramophone would supersede Edison’s phonograph but the initial impact remains the same.\textsuperscript{33}

Early encounters with technology by musicians consisted of basic sound recording installations that were primarily soundproof rooms, although it was not uncommon for larger facilities to be utilised such as halls. In this period, a direct-to-disc cutting process made master recordings. Performers grouped around a large acoustic horn (similar to that of the phonograph horn) and the acoustic energy from the voices and/or instruments was channelled through the horn's diaphragm.\textsuperscript{34} The subsequent signal was inscribed as a modulated groove via a mechanical cutting lathe onto the surface of a master disc. The adaptation of technology by artists to work in this aberrant manner signified the initial encounter between human and machine. This would define the method toward recording culture and in turn, alter a musician’s perception of the process in terms of an ontological existence. The implications of Edison’s initial invention then, became allegory and within two decades the invention achieved global success. This developed into the commercial recording, distribution and sale of sound recordings that symbolized the beginning of what would become a dominant hegemony, in terms of music production, known as the record industry. Coupled with the development of radio broadcasting, this was to have further implications in later years and I will discuss this later. Popular music titles sales reached the millions by the early 1900s. New manufacturing techniques ensured cylinder recordings became consumer items in industrial countries and this format remained in production from the late 1880s until around 1910. The gramophone became the preferred medium at this point and signified the appearance of the ‘record disc’, however, this period frames the beginnings of a music/technology relationship and eventual culture, as we know it today.

Sound recording procedures were enhanced with the advent of electrical devices such as microphones (also invented by Edison), mixing desks, amplifiers and loudspeakers. These innovative devices altered recording procedures and technical interpretations by the studio engineers of the time. The record ‘producer’ transformed the sound of recordings into perceived market packages and became an integral element of the process of record production. This would influence consumer choices and hence create a commercial pop market. By the 1940s, the recording installation was well established and in the 1950s a pop recording culture began to emerge. Music culture had developed from the dominant sheet

\textsuperscript{33} By this I mean that with each new development, the initial notion of encounter remains.

\textsuperscript{34} More information can be found at http://history.sandiego.edu/GEN/recording/notes.html
music industry of the pre-phonograph era, to a technological society in a relatively short
time. The early encounters saw technology evolve as an important participant in musical
practices. This participation had also become highly influential and Basile Zimmerman
maintains, “…technology is anything but neutral, especially when it comes to cultural issues.”
(Zimmerman, 2005. p.53) Musicological discourse on the topic would not eventuate until the
1970s, but there was little to suggest that there would be a return to the ways of old.

The influence of technology on artists of the 1950s became apparent in the recordings they
produced. A mixture of social climate coupled with post-war optimism/boredom sparked new
ideas in relation to fashion and music. Identity within the music community/industry became
an essential requirement for success. Possibly more to the truth was that a new generation of
consumer taste was emerging. The music listening culture was experiencing a transformation
in social ideologies away from the pseudo-utopianism of post-war times. Musical change was
imperative and the demand for change was present. Furthermore, technology would provide
this in the form of the electric guitar. Gavin Carfoot suggests,

The guitar is a form of music technology through which dominant sociocultural
and musical discourses are frequently enacted and challenged. In particular, the
guitar has often played a part in challenging dominant discourses through its
ability to highlight the cultural boundaries between noise and musical sound.
(Carfoot, 2006. p.35)

Throughout the early to late 1950s, the electric guitar gained prominence in the emerging
genre referred to as, ‘rock n roll’. This converged exuberant youth cultures attention toward a
social-reinvention. The music industry acted accordingly through mass production and from
this point, music culture underwent several important changes attributed to
socio/technological encounter.

The first of these changes emerged due to altered observations by musicians and studio
engineers, of how technology could be used to create new sounds and textures. By the early
1960s, the sociocultural changes in the 1950s had influenced a generation of artists/consumers
and the 1960s became known as the decade of the ‘counter culture’. The term was used to
describe the antiestablishment social/political attitudes developing in this period. Musically
however, it signified an important disjuncture between record company ideology and artistic
integrity and freedom. Developments in guitar amplifiers enabled new sounds and expressions
to surface and the most obvious example of this is Jimi Hendrix. Musical groups began to

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35 Up until the invention of the phonograph, sheet music was the dominant form of music distribution.
36 See Shepherd. 2003
37 See Clarke 1995
experiment in the studio environment with innovative recording techniques. The term ‘making a record’ obtained new meaning. Some artists were experimenting with technology the same way as they were with psychedelic drugs. The Beatles with George Martin producing were attempting to recreate and in many cases did, their psychedelic experiences with technical manipulation. It was a time of interpretative encounter reflecting social activity. Clarke maintains,

…the new pop began to be called ‘progressive rock’. Pink Floyd, Moody Blues, Genesis, King Crimson, Emerson Lake and Palmer, Yes and many more groups composed meandering, pretentious and pseudo-philosophical music to get stoned by… (Clarke, 1995. p.496)

More importantly than this though, is that he verifies an era of encounter with technology. With the reference of these groups, another significant technological concept had emerged. The synthesizer had been in development for some years but had been restricted to studios that could afford them. Furthermore, synthesizers were seen as instruments not operated by musicians, but technicians. Eventually, Robert Moog created the first unit that could actually be played by pop performers. It has been suggested that ‘The Monkees’ were the first group to release a commercial album featuring a Moog. It wasn’t long before synthesis became popular among pianists and the sounds that could be created with these devices inspired new musical directions. Synthesizers ultimately became more advanced but perhaps the most fundamental element, in relation to this paper, was the introduction of a complex matrix system. This is what I consider to be the second important encounter: the interface.

The concept of interface can be regarded as virtually any interaction between human and machine, such as the car, gramophone, guitar amplifier etc. We are constantly negotiating the junction between what we want the machine to do and how it reacts to our interpretations. Up until the introduction of playable synthesizers, these intersections had been relatively simple associations within the musical perspective of the period. Robert Moog suggested,

Music-making requires both the musician and the listener to function at the very limits of their perceptive and cognitive capabilities. Therefore a musical instrument has to be as effective as possible in translating the musicians gestures into the sonic contours that he is envisioning. (Moog, Analog Days. 2002. p iii)

This statement defines the purpose of the interface as Moog perceived it to be. The interface was conceived as the gateway to the essence of technological advantage. Navigating the matrix, however, proved to be more difficult than first imagined. It would require a new relationship where the human would be required to incorporate an adaptation to the interface

38 See MacDonald 1994
39 1967 album Pisces, Aquarius, Capricorn, & Jones, Ltd.
and its design. Decisions relating to navigation were essential and this bought with it an additional interactive dialogue. Zimmerman maintains, “…any decisional conflict between the user and the decisions embodied in the tool becomes complicated to solve.” (Zimmerman, 2005. p.56) Although highly complex for the time, the ‘matrix’ depicted the beginning of an interpersonal relationship through which artistic mediations could endure.

These mediations however would become increasingly reliant on the interface designers in the future. Hence interface design would become a growth area within other technological associations. The need to communicate with technology became an obvious area of importance for designers and throughout the 1970s; synthesizer development ensured ongoing research and development. By the early 1980s, increasing demand for flexible musical/technical relationships saw the introduction of the MIDI protocol. This discovery allowed musicians to interface machines with machines and ultimately extended their creative boundaries. With this newfound technicality that enabled previously unobtainable levels of complexity with machines, the 1980s signified an alternative musical direction for many new artists. Progressive rock, punk and disco depicted the musical alternations of the 1970s but a tendency toward new ‘digital’ sounds were emanating from consumer preference. Fashion replicated these ideologies (see fig 2) with the image of digital power and music and musicians became progressively more dependent on technology. MIDI altered musical perspectives in that artists could experiment with communicative ideas between machines situated within the interface. This method of control allowed creative processes to evolve to a point but the concept of the interface was about to be fully realized with the advances of computer technologies and software. By this stage some artists were becoming aware that interactive relationships with any area of music making required a more efficient means of interpretation on behalf of the machine. In this respect the computer totally reinvented the interface and in many ways completely alienated musicians from its potential through expense

Figure 2: Duran Duran. Accessed 25/10/07 from http://images.google.co.nz

40 Companies such as ARP, Buchla and EML began development.
41 See glossary for definition.
42 The 1980s signified an adoption of all things digital.
43 Brian Eno would emerge as a leader in electronic music production. See http://music.hyperreal.org/artists/brian_eno
and the facility required to relearn music making. Software sequencers became a new growth area for manufacturers and musicians, and the complex interface presented a complete rethink of the methods of music composition. These developments would alter music and musicians in ways that Edison could never have imagined. The areas I have outlined so far involve have revealed technological innovations as critical components of our evolving music culture. I will now locate the final important section of discussion in relation to notable encounters - the Internet.

The notion of an interconnected network allowing file sharing started as far back as 1983. This network became public around 1991 and by 1996 was attributed worldwide web status. The idea of musical networks however was experimented with in around 1976. The League of Automatic Composers consisted of John Bishoff, Jim Horton and Rich Gold. (See fig 3)

Using a Commodore KIM-1 computer Weinberg maintains,

Each member of the group was able to send and receive data from and to his personal composition, which ran on his personal networked computer. The group named this new genre of music performance that allowed programmable and detailed musical interconnections “Network Computer Music.” (Weinberg, 2005. p.25)

Weinberg describes further how this group initiated new and varied aspects of networking such as mapping frequencies from one computer to generate notes in another. This procedure

Figure 3: Photo by Peter Abramowitsch. Accessed 14/5/07 from Interconnected Musical Networks, 2005. p.25.
The growth of musical networks lead to the eventual streaming of data on the Internet, moreover, the implications towards musicians coupled with web development began to alter drastically. It was soon apparent that the meaning and participation within musical societies would evolve along with perceptions of what constituted a music culture. The Internet today has become an interconnected mass of communication technologies. Adaptation, innovation and fluent interactivity are now keywords/phrases for musicians involved in music networks. Musical perceptions and more importantly musical contributions need to be supported by artists with a technological understanding of processes. The Internet has provided a sense of inclusion for many artists in an industry that was previously difficult to participate in. Public broadcast opportunities of ones music are readily obtained and large amounts of music are available for perusal, produced by other artists. Herein lays the crux of this research: The simplicity of music production, participation, autonomy and authorization today. What was once depicted as an elite echelon with limited access has been standardized to include the novice, deemed a musician by way of technology.

In the years preceding the invention of the MIDI protocol, music technologies were primarily related to recording devices such as multi-track audio recorders, mixing desks and external processing equipment such as reverbs, delays and various other sound altering effects. These technologies were the basis for improvements in audio quality and for some time remained exclusive to recording artists due to high pricing that were beyond the average consumer. These devices were key to the high production values of the commercial pop market. Standards ultimately regulated recordings according to sonic expectations, symbolizing commercial recording installations as expensive and therefore elite. This was a highly experimental period and explorations into the creation and manipulation of recorded sound represented an encounter with technological developments. It is difficult to create a case in point but as I have already mentioned, the guitar virtuosity of Hendrix is a good example of a multi-dimensional impact of encounter. Hendrix integrated two of the three suggestions for historiographical encounter. The first was his alternative technical approach to the instrument and second, his ability to interpret the guitar and amplifier interface like no other had up until that point. Hendrix’s foray into the experimental signified a change in musical perceptions coupled with cultural evolutions. Other notable guitarists have situated themselves historically through this initial process and this sequence of events has materialized

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44 The Counter Culture of the 1960s. See Clarke 1995.
throughout all aspects of music making. This can be described as the aspiration to be technically diverse and then, the negotiation of the musical interface texturally. These sequential processes were fixed primarily within generic band instruments until the practical introduction and development of synthesizer technology. I will discuss this procedure further in a later chapter. At this point though, highly encoded interactions commenced and a ‘new wave’ of technical advancement had begun.

The encounters I have suggested so far are not an exhaustive list in the accumulation of musicological topics. Within each area suggested, there remain many complex intertextual dialogues that relate to music making decisions. Bohlman maintains, “Encounter transformed music into a resource that fired the engines of modernity…” (Bohlman, 3003. p.47) No one could have predicted the impact of encounter with technology let alone positively suggest where it may lead. It can be said that though, that with every musical technological encounter there will be an alternate interpretation by independent users. This is a fascinating point unto itself but whether it increases the quality of music produced is arguable.

2b Music Creation Technologies

How can we evaluate technology from a theoretical position? Hamman maintains, “Critical theory of technology seeks to democratise the discourses and activities that determine how technology affects our lives, communities and institutions.” (Hamman, 2004. p.117) Hamman views technology, as immutable, that technical tools require an alternative interpretation of their use for highly creative moments. To effectively democratise technology, to make it accessible, designers must encode cultural aesthetic value. Furthermore, Feenberg maintains. “Technical artifacts propagate “technical codes” – ideological strata that “ invisibly sediment values and interests in rules and procedures…” (Feenberg, 1991. p.14) Feenberg’s critical theory of technology situates technology as autonomous, that it necessitates a reinvention of the “politics of technological transformation”… (Feenberg, 1991. p.13) In relation to this research, the interface becomes subject to such democracy. In consideration toward the implications of critical theory, one must also consider the accumulative processes

45 The establishment of a signature sound involves artists and producers. In many cases technological reinterpretations are responsible for these occurrences.
46 This was especially the case when Japanese manufacturers acquired U.S. design patents for synthesizers. Reiffenstein, 2006, discusses this.
encoded within the technology itself. Collaboration between user and machine is essential in the creative process and I will discuss this in a later chapter. What has become clear is that working collaborations are located with user interpretation of accumulative processes. Zimmerman maintains, “People’s decisions, choices, mistakes, whatever we choose to call them, are stored within the technology.” (Zimmerman, 2005. p.54) In this respect, creative choices are inadvertently influenced by accumulated data. The relationship/collaboration exists inside an ontological frame, enhanced by encounter and the editorial moment. Zimmerman further suggests, “Virtual collaboration will work so long as we “agree” with the people who designed the technology.” (Zimmerman, 2005. p.56) The subsequent dialogue contains highly encoded data that further necessitates the need of an appropriate methodology for de-codification. More significantly than this is the need to actually view this process as musical and to represent these actions/collaborations as indicative of future music practices.

With the development of music systems incorporating communicative processes between machines, the arrival of the computer signalled another influence for artists to embrace. Concomitantly, music software was developed for the Atari ST computer platform and midi recording and sequencing programs such as, C Lab Creator, presented musicians with new tools and production processes. Further integrations of SMPTE time code were included between computer and audio recorder to synchronise both machines that created a fusion of technologies to work in symbiosis. This was to become the beginning of what is commonly known as the Digital Audio Workstation (DAW). (See Fig.4) These initial developments and technological encounters were complex and to a degree elite due to cost. Musical groups such as Human League, Ultravox and Kraftwerk established themselves commercially as aficionados of these processes and effectively, these groups were the result of technological relationships. Interface negotiation, in this respect, became an art form and artists such as Gary Numan exploited these associations with commercial success. Synthesizer programming became a necessary proficiency and an essential form of interactivity for musicians to expand further the palette of sounds and hence genres of music.

DAWs were streamlined by the late 1990s from systems such as that depicted in Fig. 4 to installations that consolidated these innovations and the focus was primarily on an efficient,

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47 This is discussed in chapter 3a p.39
48 See Bakhtin 1981.
49 See glossary
creative workflow. Many DAWs utilise the computer as central to the design of the system. With the resurgence of software technology, many outboard elements, normally associated with studios, would eventually be integrated within the computer. The result was that the interface was changing to accommodate user preference. Faster flow preordained higher production output and in this respect, the authority given to mass consumers of what was once an elite section of music making, is a starting point for musicological problems associated with pop. The ‘synthpop’ movement was heavily reliant on technologies to create music within the genre. The diagram ‘fig.4’ depicts a signal chain of data interacting with various components known in this instance as a workstation. The sum of the parts permits a musical creation process through knowledge of the system.

Figure 4: Typical DAW signal flow

As digital recording evolved, developers created the ‘sampler’ as a new creative tool. The sampler represented a significant technological advancement for music and musicians, and with extensive impacts. While the synthesizer could create new sounds, the sampler can take a literal ‘snapshot’ of a sound source that can be played back in a musical composition. The Fairlight CMI (see fig. 5) was released in 1979 at a cost of £20,000. Ultimately more affordable products would supersede this example but the template for digital sampling practice was in place. Musicians and producers such as Trevor Horn initiated the advantages of this system into the various productions in which they were associated and sampling technology had cemented itself as an essential tool for electronic musicians. By the 1990s,

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50 Artists soon recognized the need for systems to work in a productive manner and so ‘workflow’ became a key word with regard design features of software applications.
sampling had become a problematic issue in regard to the borrowing of pre-recorded sound clips for use in new productions. The ‘DJ’ culture nurtured the sampler as an artistic tool that enabled them to create remixes of popular tunes through techniques such as looping.\textsuperscript{51} This procedure involved taking a ‘sample’ from a selected recording, setting start and end points of the sample and looping the result continuously. Hip Hop artists that exploited artists such as James Brown used this technique extensively. Other techniques involved restructuring samples to sound different than the original and equalization, effects and literally ‘chopping’ the sample into separate pieces and then reconstructing it for playback could achieve this. The sampler would evolve as an integral component within certain genres but ownership and authority issues relating to borrowed sounds and furthermore beyond the scope of this paper, would arise in musicological discourse.\textsuperscript{52}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fairlight_cmi_mark_2.jpg}
\caption{Fairlight CMI Mark 2. Photo from accessed 22/6/07 from http://www.obsolete.com/120_years/machines/fairlight/index.html}
\end{figure}

New innovations in production were developed through innovative technologies, such as automating parameters of outboard equipment via the computer. The ability to control the parameters of effects, synthesizers and drum machines in real time represented a vast expansion in music culture and these developments are responsible for the many genres encompassed within electronic music today.\textsuperscript{53} As computer platforms were improved, so too

\textsuperscript{51} See glossary.
\textsuperscript{52} Dames, K. Matthew, \textit{Sampling, Registration, and a Broken System}. \textit{Information Today} 24.1 (2007) 19
\textsuperscript{53} There are numerous genres of music today that are the result of technology. An extensive list can be found at http://en.wikipedia.org/wiki/List_of_electronic_music_genres
were software programs and their abilities to perform tasks such as audio recording and editing more efficiently. Sound effects were also included as integrated components of software programs (plugins) along with software versions of sound modules.\textsuperscript{54} While midi has remained an integral part of data transfer, further protocols have emerged, such as USB and Firewire IEEE, that offer faster transfer speeds of data and alternative connectivity protocols for the computer. Many devices for instruments such as guitar sound processors offer USB ports to connect directly to the computer for recording and or editing. Many keyboard controllers now offer USB as a way of inputting midi information into the computer eliminating the need for a midi interface.

The computer has also undergone major transformations to its position in the chain of creative events. Processor speeds, internal memory and storage capability have been increased. Along with these enhancements, the capacity to incorporate third-party components such as sound and video cards signify the computer as an essential tool for musicians today. Within this music system, software development has emerged as arguably the most important element of an electronic musician’s creative process. Nearly every conceivable area of the creative process has been technologised in one way or another. Even lyric writing procedures have been presented as software programs such as Master Writer, Chaos Poetry Generator and Lyricist. Furthermore, there are lyrical generation softwares like Paramind, Idea Fisher and Inspiration that offer alternate solutions to users in the creative process. A leading development today has occurred with the innovation of virtual instrument plugins that can emulate vintage synthesizers models.\textsuperscript{55} New forms of synthesis and sound generation are available where control of all parameters can be automated allowing vast possibilities of textural change from one position.\textsuperscript{56} Software samplers provide producers with banks of sound clips that can be recalled at any given time. These tools are often regarded as indispensable, especially in motion picture and advertising environments. Traditional production tools associated with audio production, such as compressors, limiters and equalizers, are now integrated as software plugins via mixing desks within a program. (See fig. 6)

\textsuperscript{54} Sound modules are generally MIDI activated sound ‘boxes’ that contain banks of instrument sounds.
\textsuperscript{55} See Collins 2003
\textsuperscript{56} Hardware controllers such as the Mackie Hui system provide control of parameters from a standalone surface.
For today’s musician, the initial use of these technologies requires a process of learning how to employ such tools and adapt them to an individual’s method of operation. For the novice, programs such as Garageband and Fruity Loops are designed to replace musical experience and encourage musical agency through copy and paste procedures for beginners. Sound clips are provided that contain professionally recorded samples from drum beats to horn sections and a literal plethora of ethnic and contemporary instruments are also catered for and assembled.\(^57\) (See fig.7) While these applications may seem inferior to the professional user, they can instil an interest towards more complex programs for the novice after a trial period. The dialogue between human and machine in this case exists with the computer producing song forms through loops and the human interacting with these samples. On a basic level,

\(^{57}\) This is another impact of technologies in that cultural instruments are authorized. The notion of utilizing Koto into a composition, for example, is problematic for authenticity reasons. It is beyond the scope of this paper however.
music can be produced through an atomistic process enticing the user into the world of music production.\textsuperscript{58} In this sense the accumulative data encoded into the technology directs the user in terms of musical output. Problems, however, often appear when articulations such as automation, are not employed and the subsequent music finds itself the topic of debate by experienced musicians, an issue outside the scope of this study.

\textbf{Figure 7: Screenshot of the Garageband instrument/loop bank}

To summarize, music technology that was once exclusive is now a commodity afforded by many. Aesthetically, organizing sound clips into three-minute repetitive song forms doesn’t give the analyst much to work with. As I argue though, these processes/voices are subject to pop culture trends that impress simplistic approaches toward song writing, production and consumption through mass media. The largest media of them all, in this instance, is the Internet and in particular the phenomenon of virtual societies that I will discuss in a later chapter. Moreover, our technological music society has become an institute of processes and procedures. Inherent in these concepts is the encoding of individual agency that requires logical methodologies to reveal the texts. As Toynbee has suggested, “…new artworks only emerge through the interaction of artists, co-workers and audiences. When interaction is intensely repeated, it may solidify in conventions that organize both the way the artist works and the audience responds.” (Toynbee, 2003. p.104) The audience in this respect is located as the Internet. Termed a ‘culture phenomenon’ (Hugill, 2005. p.1) it is self monitoring and reliant on participation to evolve. To this end, the Internet reflects our environment as relying on technology to communicate and in some cases literally exist and I will discuss this further in this chapter.

Software modelling is the concept of taking a literal ‘snapshot’ of sound sources such as vintage equipment. Earlier sounds can be digitally reproduced and performed with, in many

\textsuperscript{58} Atomistic pertains to learning through user interpretation as opposed to holistic where the learning process is interconnected via established knowledge.
cases, through a software program. This development has enabled consumers to access rare, highly sought after equipment characteristics into their productions. Available digitisations include guitar amplifiers, preamp/compressor/limiters, synthesizers and microphones. These algorithmic advances have also been imparted on DJ emulation (see fig.8), voice tuning applications, drum machines and equalizers. Since the introduction of this concept, a plethora of modelling devices have become available and included, in many cases, as ‘plugins’ within packaged software. Musicians are thus provided with devices that usually contain a number of preset sounds or recommended settings with which to begin. There is an issue in this respect to the authenticity of replication, but consumers often bypass this notion as the accessibility to, and consequent use of, digitised popular devices that outweigh possible negatives. What modelling has achieved though, is to enable all users to adopt the notion of working with expensive equipment imitations. The issues associated with voice modelling attract a negative processed stigma that often brands its users as inorganic. These are merely tools that are the result of progress and as with any tool, the skill of the user defines the meaning and value of the product. Figure 8 depicts a screenshot of popular DJ software that enables users to become involved with the concepts used in this music generation process. As well as being able to automate an entire editing event, the software models the physical attributes of a DJ setup in that it operates in the same way as hardware equipment. Furthermore, a mouse or other MIDI controller can then be customized to react to the users operating preferences can control the program. This is significant in that the notion of fluency is supported by the interactivity of such programs as a connected link from the user to the device. Customized workflow designed by fluent users arguably emits a more creative text by through familiarity and the ability to relay creative energy as music.

Figure 8: Screenshot of Native Instruments Traktor DJ software program
I have introduced an outline of impacts as I see them so far, and they are primarily related to decisions attached to the moments of encounter and reaction that will always occur due to the very nature of the process. The investigation must therefore continue below these surfaces and the following chapter discusses further links to the impacts of technologies on musicians. The notions of interpretation, adaptation and participation still remain but the realities associated with fluency will hopefully emerge as a primary element in the discourse of pop encodification processes.
CHAPTER 3

THE TWO WAY CONVERSATION

This chapter continues to investigate the intrinsic meanings that are manifested through technological encounters. I begin by discussing accumulated knowledge built into devices and this enables me examine the influences of this encoded data on artist’s creative processes, and the subsequent interpretive issues involved through interaction. The subsequent chapter subtitles are then revealed as resulting events of these initial experiences.

3a The Accumulation Process

The paradigm of accumulation within technology regards the creative humanistic element of ‘programming’ as highly influential. For a basic explanation, performance of technical devices is subject to human design and data input. In this respect, although a device may serve a purpose, such as music creation or playback, the procedures and outcomes are governed according to the encoded data. This is then subject to the decoding procedure of the user. This codification is present in virtually all manner of technical devices in use today. Tim Reiffenstein’s paper on knowledge transfer within the electronic music industry is an appropriate starting point for the discussion of embedded data. Reiffenstein explains, “Codified knowledge serves as the recipe for industrial learning. Codification is the process of inscribing information…” (Reiffenstein, 2006. p.299) Reiffenstein’s research frames the period between 1965 and 1995 as containing two profound shifts in the electronic music industry. He maintains, “First, the technological basis of the EMI [Electronic Music Instrument] industry shifted from analogue to digital sound synthesis. Second, the industrial advantage shifted decisively from the United States to Japan…” (Reiffenstein, 2006. p.300) Accumulation of data in music systems in this respect also engaged in a cultural reinterpretation of tacit knowledge. For the Japanese manufacturers, the initial acquisition of

59 This refers to the Electronic Musical Instrument Industry as discussed by Reiffenstein, 2006
knowledge could be arguably surmised as business acumen. Reiffenstein locates ‘knowledge conduits’ and ‘actor network theory’ as the means by which knowledge transfer occurs. In relation to this study, both propositions warrant their presence toward interpretation by the ‘end user’ and effectively signify a creative directional influence. Reiffenstein suggests, “A useful, though limited, approach to understanding spatial knowledge transfer is to consider the conduits (texts, people or artefacts) through which it is exchanged.” (Reiffenstein, 2006. p.301) The translation of codified meanings through any form of conduit is therefore subjective. Interpretation is then subject to the user’s accumulated knowledge and so a mutual relationship is engaged. Actor network theory on the other hand is possibly more pertinent to this discussion and direction. Reiffenstein maintains, “Central to this perspective is the idea of ‘translation’, or the notion that within networks, actors are forced to ‘take detours through the goals of others’…” (Reiffenstein, 2006. p. 302) As new electronic devices are redesigned and presented in their altered conditions, machines automatically employ fresh actors/participants into its contexts. Even though a user/actor may have a previous understanding of a previous conduit design, the re-codification of new information will transform into new texts/relationships.

I suggest that accumulation of knowledge within technologies from the 1960s has remained integral to an interactional experience.60 This is despite music electronics that were more simplistic in architecture than the complexities of what would eventually emerge. The prevailing musics resulted in paradigmatic shifts in music making procedures both physical and intellectual.61 These shifts constitute recognition of contextual translations between humans and technology and this reflects the concept of encounter procedure outlined in chapter 262. Prior to multi-track recording, effects boxes and synthesizer development, encoded transfer of knowledge systems in devices were situated as the first phase of an expanding codification process. Nonetheless, the physical and intellectual experiences of definition toward an interface can be seen as a constant entity. Constant in that the complexities of electronics knowledge may have increased but the experience of interpretation remains the same. Although most encounters with new devices can yield highly inspirational texts, these inspirations are interdependent upon the willingness and ability of participants to interact with programmed data. As I have already stated, the impact of the synthesizer matrix system became the user interface to the technology within the ‘black box’

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60 I am referring to interaction experiences with the first synthesizers matrix systems.
62 See chapter 2 p.22
This can be seen as the formative stages of ‘musical programming’. In the context of this research, programming involves the manipulation of interfaces to achieve a desired sound or texture. For example, Jimi Hendrix programmed his amplifier controls to produce his imagined tonal texture. Although these were relatively simplistic tonal alterations of frequencies, the concept of programming is relevant and became exclusive to his translations. What is important here, is that Hendrix was limited to the knowledge entrenched in those amplifiers and his guitar too for that matter. He was presented with the same set of parameters as everybody else, but his definition of that knowledge was unique.

To this end, accumulation of information within devices directs the user to adapt their knowledge and interpretative perceptions. The transfer of Electronic Music Instrument knowledge patents from the United States to Japan reveals a more impacting notion towards music making. Technological discoveries became culturally ambiguous through mass manufacturing processes by cultural interpretations of consumer needs. Synthesizer development shifted from the creative to the produced. I reiterate the point that music creation was the goal of new systems development. However, production procedures facilitated new actors by way of affordable instruments and the realm of privileged musicians would eventually break down. The paradigm of knowledge accumulation shifted dramatically from its musical roots to the business of consumer items and these changes signified a global impact in relation to the increased amount music creation. Zimmerman discusses accumulation and maintains, “…a greater accumulation of decisions has occurred, and more virtual actors are involved…” (Zimmerman, 2005, p.55) With the inclusion of more actors in a network, knowledge transfer denotes more meaning and therefore more impact over a wider spectrum. Artists are therefore required to participate with accumulated data because there are fewer alternatives. This brings us to an artistic mediation in terms of technical collaboration. Many mass produced instruments contain factory presets, something that I consider as highly encoded knowledge.

3b Programming versus Presets

The notion of the ‘preset’ dates back earlier than many may imagine and the concept spans a wide array of instruments. A preset is primarily designed as a starting point for the user, a
kind of introduction to the associated embedded code of that particular apparatus. The preset allows the user to immediately audition sounds, rhythms or effects dependant on the capability of the device. Factory presets can be highly influential for artists and contain accumulated data knowledge from research and development departments within the manufacturer.\textsuperscript{65} The differences between ‘programming’ a sound and incorporating a preset may seem obvious at first. However, the pending issue is how presets authorize consumers to be actively involved in music practises without formal training. This is perhaps linked to a view that ‘experts’ programme factory sounds and that these sounds are ‘professional’ and ‘user friendly’. Therefore, they must be acceptable as musical content, which in many cases they are. The alteration of these initial ‘starting points’ however, constitutes an artistic involvement on a higher level. That is to say that an innate editing procedure beyond the surface represents a more complex relationship with the accumulated knowledge. I start with a brief history followed by a discussion relating to the encoded meaning of the preset.

It is difficult to establish an exact starting point for this topic and therefore I will approach it from an influential locale. Musical presets arguably evolved when the first electronic instruments appeared. The ‘Telharmonium’ (see fig 9) was conceived in 1906. It utilised

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{telharmonium.jpg}
\caption{Telharmonium, accessed 23/7/07 from \url{http://www.obsolete.com/120_years/machines/telharmonium/index.html}}
\end{figure}

\textsuperscript{65} The term relates to the readily available programmed sounds created by the manufacturer for instant use.
“…modified dynamos employing a number of specially geared shafts and associated inductors to produce alternating currents of different audio frequencies.” (Castleman, 1996) It also set the sound design principles for the ‘Hammond’ organ company. The electrification of the organ/piano became commercially available between the 1930 and 1950s. This innovation altered the way in which artists interacted with the instrument and hence impacted on musical genres as well. In 1939 Hammond introduced the first analogue synthesizer in the form of the ‘Novachord’. (See Fig 10) It was capable of simulating a variety of sounds and the alteration of tonal characteristics were enabled through fourteen rotary potentiometers.

![Hammond Novachord 1939](http://www.obsolete.com/120_years/machines/novachord/index.html)

New models of pianos and organs were gradually introduced from other companies such as Wurlitzer and Rhodes. In 1956, ‘Sun Ra’ recorded the first electric piano track and in 1959 ‘Ray Charles’ recorded the first hit record with a Wurlitzer electric piano. These recordings set a new precedent in relation to electrified piano, but also introduced sound modification to waiting enthusiasts. These examples were the beginning of embedding ‘user friendly’ technologies into instruments for consumers. These companies were also responsible for creating sounds that would become the models on which future factory presets would be based on. Percussion instruments would also become integrated into the preset phenomenon. In 1967 the company founded by Ikutaro Kakehashi known as the ‘Ace Electrical Company’ released the ‘FR 1’ percussion module. This was the first ‘beat’ machine to feature preset rhythms. Kakehashi formed the ‘Roland Corporation’ and became a world leader in electronic instrument innovations. Manufacturers looking to distribute fashionable intellectual property also subjected electric guitars to enhancements. Vox built and released a guitar in 1967 called the Invader V262. It featured on board electrics such as a built-in E tuner, distortion booster, treble and bass booster, Wah-Wah, and repeat percussion. This seems an abundance of effects

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but, by offering consumers a product with everything as a package, it reflects an accumulation of knowledge systems.

Between 1972 and 1973, ‘ARP’ introduced a preset sound bank on their ‘Soloist’ model synthesizer. Adjustments could be made to the sounds but those adjustments could not be stored. The idea of storage, however, was first initiated in America with Sequential Circuits Prophet 5 (see fig.11) keyboards ‘patch memory’ concept. With forty memory slots in all, this allowed the user to store synthesizer parameter settings as a recallable patch. The Prophet 5 was also the first product to introduce polyphony into their keyboard range consisting of five notes playable at one time. The inventor, Dave Smith, was also a leader in the development of MIDI (Reiffenstein, 2006. p.331) and was the first to offer this protocol with the release of the Prophet 600. Prior to the innovation of patch storage, artists needed to reset their synthesizer sounds manually. In this period, manual programming of synthesizers was highly creative, individual and time consuming. There were also fluctuations in setting responses, which lead to inconsistencies in sound replication. The Prophet 5 marked the future of digital electronics by enabling the means to instantly recall a programmed sound. The increase of creative potential was situated with the ability to continually edit, save and recall. This effectively signified the notion of an onboard sound library. Further developments of sound storage were introduced as ‘floppy disk’ drives that enabled users to store their programmed sounds outside of the machine therefore liberating the internal memory of the keyboard. This allowed further sound sculpting to occur and cemented the concept of a sound library and positioned programming skills as individual musical difference.

![Prophet 5](http://www.synthmuseum.com/sequ/seqpro501.html)

By the late 1980s, the potential of digital electronics had become fully realized in that, along with new synthesis innovations, presets were an important commercial aspect of product manufacture. Riddell maintains, “The 1980s mark the period when digital technology

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67 This would signal the need for data storage devices
seriously entered the milieu, signalling innovation and a musical future for everyone.”
(Riddell, 2001. p.5) Through the abundance of available keyboards and effects modules, manufacturers were reliant on ‘the sound out of the box’ to initiate influence and in turn musical composition. For example, Yamaha’s ‘DX7’ keyboard sold around 160,000 units and was arguably one the most recorded synthesizers of the 1980s. The ‘DX 7’ introduced a new type of synthesis call FM or frequency modulation. An abundance of musicians recorded with it from Brian Eno to U2 but the ‘DX 7’ also unwittingly highlighted a negative attribute toward new technology. Programming it was a complex and difficult procedure.

With the introduction of computer software circa 1983, the creative capacities of musicians achieved new levels of complexity. The convolution of knowledge transfer also increased and more than ever before, technologies were influencing artist choice motivated by an embedded design based on accumulated knowledge. The computer became the platform from which to launch modern music making tools. High levels of data accumulation occurred with new designs and interfaces. Initial software programs were essentially MIDI sequencers designed to control and trigger external apparatus and this remained their primary purpose until the late 1980s saw the introduction of digital audio recording facilities.

The preset eventually emerged within software applications as ‘plugins’ that related to audio and MIDI effects. (See fig. 12) In this capacity, the preset also represented the interpretations of ‘expert programmers’ designed for consumer use. Consumers in turn are inducted into the belief that these tool presets reflect the ideals of professionals. In all probability they do to a point, the problems occur however with the realization that if all artists utilised these guidelines, then all music would sound the same. This is the case with novice users of technologies. Presets authorize them to participate at a certain level but the encoded meaning retains little complex structure. This relates directly to the musicological discourses surrounding pop music. Figure 12 depicts a screenshot of the menu available for a compressor pluggin. This menu categorises the various settings of the device so as to direct the user toward appropriate uses. Within each category, another sub-menu is situated, containing more presets and this approach to selection is apparent with most software devices. It highlights the ‘professional’ in that the categories represent various uses for the effect and are assigned certain settings based on the ‘experts’ recommendations. Alternatively, it proposes a consumerist approach linked to the notion that these presets offer the user

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68 By this stage the computer had become a central component of studio design and controlled most aspects of it.
professional results without the need for prior knowledge. This is a significant factor in this research. The assumption that acceptance through use, signifies issues of constructive criticism. To extract meanings from electronic music practises and furthermore, how we can assess their value.

Figure 12: Screenshot of compressor plug-in and its preset options

The act of programming a device to react to a specific set of needs reveals a more in-depth artistic knowledgeable approach to music creation. Programming can revolve around the intuitive desire to alter a sound or texture, this can transpire through simple modifications of equalization or decay of a reverb. Programming is, in this context, the act of encoding. Before the digital revolution, programming of devices was a highly skilled technique. Due to the encoding process, music by progressive musicians such as ‘Yes’, ‘King Crimson’ and ‘Pink Floyd’ reflect a high level of contextual complexity. This is not apparent in just musical terms, moreover, the textural collage and subsequent encoded music comes by way of programmed sounds. The motivation to alter a sound is linked to the notion of encounter discussed in chapter 2. U2’s ‘The Edge’ is well known for complex guitar sounds emulating from effects programming and maintains, “I find it very hard to get excited about guitar sounds that are conventional. They just don't interest me very much. I've always found myself more taken with guitar eccentrics…” (The Edge, 1997) This artist supports the notion of rethinking the conventional. This symbolizes creativity through translation; it further indicates the desire to go beyond the surface. Toynbee suggests, “…what is being recognized in the case of a ‘creative’ work is a particular relation to the stylistic norm.” (Toynbee, 2003. p.106) The stylist norm is this case relates to the use of a preset over the appeal of establishing musical identity through programming.

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69 Interview with Bill Ellis, retrieved 23/2/07 from http://www.macphisto.net/theband/interviews/inter10
So far, I have tried to outline an area of music creativity that has become a consumer necessity for music composition. My concerns are with the ease with which the novice musician can systematize sounds into songs by way of translation, or possibly the lack of it. This organization of pre-stored data into musical form, structure and style is linked directly to the ability of the user to collaborate with the device in question. The following excerpt is from an interview with Robin Lumley.70

Presets on more modern gear allow one to access the immediate sound area...even if the sound is not quite right. With most modern equipment, one can tweak further until satisfied. When I first started out, (1972) there were only two really usable instruments, the Mini Moog and the ARP Odyssey (otherwise known as the OAP Idiocy). Neither of these was polyphonic and neither had presets. I preferred by miles the MiniMoog as the fascia was laid out in a very logical manner. You could follow the signal path from left to right across the board and SEE what you were doing to it. In the early days, you'd get sessions that demanded flutes, French Horns etc etc. Very early on, I got some orchestral player pals to give me "samples" which I then played back into an oscilloscope in order to see what the waveforms looked like. Getting onto the minimoog, I then attempted to reproduce these waveforms using the 3 oscillators and thus found super flutes, horns, etc. Doing this, I sort of "cleaned up" on the UK session scene and established a reputation for getting "good" sounds!

Lumley, Robin. “Re: programming vs presets.” Email to the author. 27th Mar 2007

To this end, programming requires the willingness to participate with the encoded knowledge of the device. The results will vary from one interpretation to another. Furthermore, Lumley links the notion of programming as an ‘in-depth’ procedure required to obtain ‘good sounds’. The impact on both artist and audience is reflected by Frith when he suggests, “Technology of music simply refers to the ways in which sounds are produced and reproduced.” (Frith, 1996. p.226) In this case it is more the production, if technology is immutable as Hamman suggests, than it is by way of translation of how new sounds occur.

3c Collaboration

Interrelationships occur with virtually every encounter pertaining to the use of technological devices. The extent of this cooperation in creative terms is realized through the analysis of musical production. Analysis in this sense regards a deeper understanding of technologies and their workings as evident in the contextual meaning of the music. Zimmerman maintains,

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70 Robin Lumley is a British jazz-fusion musician. He was a keyboardist with Brand X from 1976 to 1977.
“…when applying today’s technology, one has to rely on the works of others, to collaborate with them.” (Zimmerman, 2005. p54) Just as initial encounters with technology can yield highly creative interpretations, meaningful collaborations will yield a significantly more complex text. This is achieved through bypassing the surface and exploring beyond the interface of a given instrument or device. The quality of the collaboration and subsequent music is subjected to the interactional process of the artist and the encoded knowledge in the tool. It is this very process that enables the artists to creatively construct meaningful musical texts. Zimmerman maintains, “Virtual collaboration will work so long as we “agree” with the people who designed the technology.” (Zimmerman, 2005. p.56) This suggestion situates the designer’s knowledge as directional influence. It also incorporates the notion of relationships based on mutual agreement. It further places the importance on interpretation through the collaborative process whereby stored knowledge is translated as musical creation.

The relationship between artists and their technological preferences contain many options positioned in both musical and social terms. Influential decisions are made when new technologies are auditioned, as new devices/methods require a rethinking of the creative process. In essence, the term ‘rethinking’ signifies a willingness to negate the interface. Technologies will only ‘work’ for the artist in a creative sense if relationships are formed with the device. An example of this is the ‘DJ’ whose generic tools primarily consist of the turntable, mixer, sampler and computer. To participate in this method of music making he/she must utilise a set of knowledge-based rules exclusive to that musical style. These ‘tools’ are subject to accumulated data. The difference between one artist over another arguably relates to skilled fluency but more importantly, a working interactional process between the technology and user. Creative processes are thus, products of interpretation. Toynbee maintains, “…new artworks only emerge through the interaction of artists, co-workers and audiences. When interaction is intensely repeated, it may solidify in conventions that organize both the way the artist works and the audience responds.” (Toynbee, 2003. p.104) Musical value and identity through these processes is accumulated. It is the constant nurturing of a machine/human relationship that establishes the artist and their style, a very complex interaction between the created (encoded device), and what could be created, and ultimately, the reception of it. Riddell maintains, “…technological interaction ultimately inspires a desire for formal definitions.” (Riddell, 2001. p.4) By this, Riddell suggests the directional influential role that technology imparts on the user. Definitions in this example constitute a creative style indicative of an interactive relationship. As electronic artists become increasingly dependant on technologies to authorize their existence in the digital age, it
becomes increasingly important that collaborations with technologies evolve. The fact that user interpretation is subject to accumulated data within devices signifies the importance of a working relationship.

In musicological terms, the paradigms of accumulation and collaboration are in a constant phase of change. The deeper meanings behind these concepts are situated further in the creative styles of music production that are connected with music systems. The notion of collaboration not only involves the artist and his/her workspace/tools but their social environment is a constant relationship containing influences and information. The digital artist today faces many more obstacles than their analogue predecessors. Individuality in an age where mass consumerism authenticates anyone with the budget to purchase technologies has become dependant upon intra-relationships with technology.

**3d Creative Styles**

Although technology has altered music making procedures, initial motivations for creation remain the same. Musically inclined people will write/perform music in any set of circumstances. In essence, all music making is a cultural production to some extent. In this way, the artist creates a dialog inherent to that individual. The notion of dialogue or utterances (see Toynbee, 2003) can be linked to music production on many levels. Toynbee suggests, “…the general principle of dialogism, particularly the notion that cultural production consists of the interanimation of social materials, is so cogent that it must lie at the centre of any theory of creativity.” (Toynbee, 2003. p.105) If we suggest that dialogue presented through works by artists contains many coded voices relating to the artist’s translational/editorial moment, we then in fact have an accumulation of knowledge in their works as well. This allows us to analyse their work under the consideration of what is encoded directly linked to their interpretations. Toynbee maintains, “…the authors work can now be understood as the identification of coded voices and their arrangement in meaningful dialogue.” (Toynbee, 2003. p.106) From this perspective, a creative style incorporates the many complex intricacies associated within an individual’s environment. We can view these as a set of voices/utterances that are inter-connected components.

Electronic musics and their associated technologies are subject to the design parameters that are within the device whether it is ‘software’ of ‘hardware’. Moreover, music styles created
with technologies can be considered as ‘intensional’. Moore discusses the its definition and suggests, “…it would appear to denote a music taking place within relatively rigid harmonic, melodic and perhaps rhythmic archetypes…” (Moore, 2001. p.22) Toynbee discusses this also and suggests, “…intensional development…is a method of creativity that involves ‘inward’ movement toward complexity along many dimensions.” (Toynbee, 2003. p.109) An example of this may be situated in ‘Hip Hop’, ‘Dub’ and ‘Trance’ and the inner workings that make them uniquely identifiable genres of music. They are ‘form’ specific and the articulations occur with textures predominantly altered with technologies. To this end electronic music can be described as intensional music. If this is so, then what are the implications for technologies within music and especially with regard to pop? From the examples I have given above it would seem that to some extent music technologies dictate artistic direction. That is to suggest that certain technologies and their sounds or facilities are more influential than others. Secondly, there is an element of fashion involved, especially regarding popularity or suitability of one technology over another. Finally, the social links for musicians and their technical environment are as complex as the musical content they create. Moore argues that extensional music is derived from score and is strictly adhered to. He explains it as, …a music built up from ‘basic musical atoms’ (for example, the discrete pitch, the discrete duration, the individual chord), and in which the performer is constrained by the notion of ‘fidelity to the score’ (the composer’s instructions). (Moore, 2001. p.22)

Moore utilises this description as defining the difference between classical music and in his evaluation, blues. What is in question here is the creative freedom within the piece. Performative development and thus encoded voices, locates the technological aspect of electronic music in an intriguing light. Performance in relation to this discussion mediates interactions, translations and represents a dialogue. It is my intention to view this dialogue as an assemblage of artistic notions. To view the production of music as score. This will place emphasis on the inner workings associated with user interpretation/translation as a score for analysis. This also allows the assembling of voices/utterances to be framed in a technical sense that is linked to the notion of programming. Moore maintains, “Musicians…are not free to produce exactly what sounds they might conceive, but are constrained by the technology they are working with.” (Moore, 2001. p.120) To this end, it is imperative that pop’s mediations are encompassed as an entity that requires its own set of tools/methods to evaluate it effectively.
CHAPTER 4

THE TECHNICAL AVENUE IN PERSPECTIVE

This chapter locates the issues faced by musicians in an evolving process with multiple implications in various areas of everyday life. I discuss the social, musical and distributive concerns that are apparent in contemporary pop music.

4a Social Issues

With the evolution of the digital age, numerous changes to musical life and the social implications of technology have become more apparent in terms of global music networks and self-promotion conduits. From a sociological perspective, two distinct directions have emerged in the examination of music’s social connotations. Hennion discusses these approaches to study and maintains, “…studying either “the art object sociologically” or “the art object as a social process”…One approach displays the mediators of art, the other how art mediates society.’ (Hennion, 2003. p.81) I suggest that both avenues for study appropriate technologies, mediations and conventions, although the latter is possibly more attuned to the content of this research. However we choose to view these social practises, they both constitute a culture production. Hennion suggests, “…culture is a facade disguising social mechanisms of differentiation, artistic objects being “only” means to naturalize the social nature of tastes…” (Hennion, 2003. p.81-82) Hennion argues from a sociologist’s perspective but the notion remains a useful path into this discourse. Technology has broken down the social barriers that remained exclusive for the privileged music makers of the 1950s and 1960s and has essentially elevated the awareness and authorization of music creation. In this context, technology assumes the role of the artwork itself.71 Artists see their devices as the channel to appropriation of social statements made with music. This is presented in several ways I will discuss them in this chapter. Through mass medias, music is subjected to the

71 Michael Hamman discusses this in his paper On Technology and Art. 2004. Refer to bibliography.
many ‘conditioned’ and ‘socialized’ communities that negotiate the latest technological advancements setting new precedents within genre rules along the way. In many cases, genres mentioned previously and their ‘rules’ have evolved through technological manipulations. This has impacted on the social characteristics of participants involved. Reinterpretations of the rules emerge as social code is enhanced via new technical developments.

Mediations in musical practises are socially multi-dimensional in that a large element of a musician’s creative being revolves around the amalgamation of technical circumstances. These conditions are negotiated through networks of interactivity and in this sense the development of the social environment of musicians thrives on multiple translations. Born maintains, “…there is no single privileged location of musical meaning, but that it may be distributed across and configured by the relations between its several mediations.” (Born, 2005. p.9) The importance of interrelationships in musical practise is becoming more evident. Inter-artistic social practises, which generate music productions that become more complex in encoded meaning as ‘communal’ relationships, influence artists and are then translated and reinterpreted. Ways in which musicians react to these conditions are dependent on an individual’s experience with mediating and interpreting information. The label of ‘social activity’ no longer applies to the digital artist as a means of explaining or understanding encoded meaning in emerging artworks. The complexities of an artistic existence have reallocated experience and meaning to a new position within the social frame. De Nora suggests, “…the content of musical works is shaped in relation to musicians working conditions.” (De Nora, 2004. p.41) The social and working conditions that contemporary artists face require the artist to appropriate meaning through conduits that involve many other musicians. This necessitates the need for alternate approaches by artists to gain identity within these environments. UK band ‘Arctic Monkeys’ is a case in point. This band redefined musical existence by reversing the polarities of music ‘downloading’ to emerge as innovators of these practises. The following is an excerpt from a review by Vincent Roccoforte.

It’s a testament to the following the Arctic Monkeys have gained that only 2000 people actually own a legally produced song of their’s yet they’re selling out gigs across the UK in record time. And here lies the key to the Monkey’s unbelievable fan base - relation - they are one of us.

This group linked the largely negative aspect of downloading music into a positive social encounter by creating demand for their live performance via their freely available music. As Roccoforte suggests, their relationship with their fan base constitutes an anomaly not normally associated with high profile artists. In the sense that they are perceived as ordinary people involved in the same networks as others and the availability of their music on the Internet makes them accessible. De Nora maintains, “…we need to move beyond an exclusive concern with “the music itself” and investigate the processes of its reception and use.” (De Nora, 2004. p47) In effect, the cultural texts that ‘Arctic Monkeys’ appropriated indicate a paradigmatic shift in musical practises; their success highlights the interpretivist sociology in pop music. The connotations attached to the responses of audiences also signifies a shift in focus by music makers. It would seem that the focus is no longer situated with music making per se but alternately lies within new translations of digital life relating to identity. De Nora maintains, “…we can observe a theory of musical meaning as located in the interaction between musical objects and music’s recipients…” (De Nora, 2004. p.47) De Nora’s constructivist methodologies further indicate the necessity to view music’s mediations as various dimensions associated with music creation.

Technological developments have instigated new directions towards social subsistence from a musical perspective. Frith discusses musical life and suggests, “But what is equally remarkable is the sheer amount of music making in which people are engaged, and my point here is not just that people do…but also that these musical activities are central to their understanding of who they are,” (Frith, 2004. p.100) In this regard, identity is self motivated through the social avenues that are at each users disposal. Aesthetically, this notion disseminates musical meaning as easily acquired and thus attainable through networks such as ‘My Space’. Communicative processes today represent the social conditions of musicians. What becomes noticeable is that artists can be involved in virtually any genre from within their own personal environment but defining ‘who’ they are is a complex array of procedures not reflected by their music. Due to the efficiency of communication conduits allowing mass participation, solidifying a presence within a network requires more that just music. To this end, the artist launches into the role of marketing and promotional aspects of the music business normally associated with record company A&R teams.73

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73 David Polemeni’s article, The Lost Art of Artist Development discusses this further http://www.musicbizacademy.com/articles/dp_artistdevelopment.htm
While new technologies have allowed artists to bypass the necessity to attain recording contracts and exposure through their avenues, the skills associated with these teams, has become an essential learning curve for self-promoting artists. David Polemeni is a music producer and personal manager, the following excerpt is from an article he wrote on the lost art of artist development and he highlights some key issues facing artists.

Now comes the freedom of music on the Internet, which is a blessing and a curse. Rushing a website and a CD release is not going to build your career. If anything it will hurt you because so many people can now see and hear you online. The competition is not so much the talent itself, but the amount of music occupying the marketplace. Believe me the labels will listen to your Mp3 and move right on to the next band site. That was your chance and you weren’t the best you could be.


Polemeni outlines the need for specialized promotional strategies on behalf of the artist and further how music technologies have created an abundance of music. He is further suggesting that without established standards and appropriate development of the artist and their music, they may go unnoticed. These new procedures that artists face are linked to the altered environment with which record companies were confronted when the illegal downloading of music became a social pastime. Polemeni further states,

The new A&R does not want to deal with potential. They need to find what is selling elsewhere and grab market share. Okay, if you’re a singer on American Idol with millions of fans already they will take the time to find you great songs and a great producer but that’s because you come to them with a fan base. So much of A&R today is reading sound scans instead of developing talent. A band sells a few thousand records in the southeast states and the A&R man jumps on a plane. This sends the wrong signal to artists and even shuts down artists who just sing and don’t have the ability to create a following.


From this excerpt, it is apparent that the concept of creating a profile is a principal requirement for record company interest. In reality, profile equates to fan base and so the cycle of perceived success begins. Therefore, artist’s social situations are dependant on technology as a primary tool for self-promotion. It can also be a tool for increasing the quality of an artist’s music, not the quantity and this is a key impact of music devices today. Software based music creation programmes can quickly generate product.
We can ascertain the position of technical fluency/agency as key to negotiating modern mediations of music dissemination. The comprehension of a social being in a hermeneutic capacity relies on alternate analysis techniques that encourage cognitive views of artists reflected by musical environment. If we are to establish musical meaning in the 21st century then we may need to relocate the musicological focus toward what actually denotes meaning for the artist in a musical sense. While technologies have opened up the globe in terms of authorization, the potential pitfalls for musicians are linked, among other issues, to the rising complexities of music communities and their subsequent navigation. John Shepherd maintains, “…musical life has always been characterized by complex patterns of cross-fertilization and cultural hybridity...” (Shepherd, 2003. p.75) Artists today are participating in and creating these complex patterns. The consequent social implications are evident with the amount of music available for download and perusal. It is also evident with the amount of social/cultural sharing within online communities. Shepherd discusses the sociology of music communities and maintains, “…musical practises no longer occurred just within the delimited geocultural spaces within which particular communities lived…musical communities in particular were created as a consequence of the transmission of music.” (Shepherd, 2003. p.75) These transmissions equate to the interactions of artists through a global interface. The navigational aspects are subject to a social coexistence coupled with the creative agency to deal with accumulated knowledge.

4b Virtual Societies

It may appear strange to speak of a “social movement” for a phenomenon that is customarily thought to be technological. However, I am convinced that the emergence of cyberspace is the result of an authentic social movement, with its leaders (young, urban, and educated), its buzzwords (interconnection, virtual communities, collective intelligence), and a set of coherent goals. (Levy, 2001. p.103)

In more recent years the social implications of technology in general has located global communication as the one of the principal components of our developing global culture. The Internet authorizes musicians to listen, create, participate in and watch music and has become arguably music’s most important mediation to date. This technology has altered the social aspect of our very ‘being’ in terms of associations and disassociations within music culture and has authorized and given an autonomy to users that was previously unavailable. This autonomy relates to an ability on behalf of the user, to freely distribute music to an audience
resulting in the phenomenon of file sharing on peer to peer networks. Transfers of copyrighted products alter ways in which consumers view and obtain commercial music and this has prompted record industry labels to redesign their presence towards consumer trends. These issues are all components of digital evolutionary processes that musicians experience today. Whether they are consuming, creating or distributing, proficiency is necessary to negotiate what has become an intangible domain.  

‘Digital beings’ are in a constant state of transformation toward ‘virtual societies’. Online networks and communities are the ‘flux’, providing transportation of ideologies and influences to portals around the globe. Robins and Webster maintain, “…virtual society is a pacified and managed space. “ (Robins, Webster, 2002. p. 253) While this may be true in a socio/political sense, the activities that take place inside these spaces reflect significantly on the lives of the participating artist, although in reality these ‘spaces’ are accumulating knowledge. To this end, users are contributors to an evolving intelligence collective that shows no discrimination to its subscribers. Robins and Webster suggest, “ In the new knowledge sphere, the bases of social division and conflict seem to be overcome: it is as if technological harmonization…translates directly into new conditions of social harmony.”(Robins, Webster, 2002. p. 237) The facility to participate and contribute with similarly influenced associates signifies a shift in social concepts. In essence, what artists must confront is the very nature of their social being in this environment. The reallocation of a physical existence to a virtual one breaks down the barriers associated with real life activities. Levy maintains, “…cyberspace, with its virtual communities, its image banks, its interactive simulations, its irrepressible abundance of texts and signs, will be the crucial mediator of the collective intelligence of humanity.” (Levy, 1997. p. 201) Musical mediations of digital networks/communities allow artists the autonomy of choice and ‘voice’. This is arguably the primary attraction, the authorisation to contribute without the need to be subjected to, or scrutineered by, critique from ‘experts’.

At this point, the intangibility of mass music in a virtual reality becomes an important aspect of how we correlate credibility and value with mass production. The shift from purchased CD to downloadable MP3 proposes agreement and ownership issues. The physical music product symbolized a high art form that was associated with elite appropriations. One could physically hold the product, look at the photos and read the information with a sense of

74 Maria Styven, (2007) discusses this notion extensively, refer to bibliography.
75 See Agres et al, 1998
76 Record companies have been viewed as elite establishments. See Frith 1990.
ownership having exchanged money for it. This physical ownership creates a personal affiliation between the product and the listener, a kind of concord, situated within the sociology of the ‘music fan’. Music distributed over the Internet, however, represents an intangible mass with no such structure. The digitisation and current online dissemination of music has disassociated ownership by way of removing the tangible product. Styven maintains, “Digitization of products leads to an increased abstraction…(and) may cause adverse reactions and beliefs that the content is artificial and not authentic.” (Styven, 2007. p.57) The virtual society maintains a series of constant abstractions through the intangibility of experiences associated with negotiations and translations. In this regard, the Internet becomes a terrain of services that promises much, yet its deliverance resides with interpretations by the user.

The online music community constitutes an important factor in the lives of digital artists. Levy maintains, “A virtual community is constructed from related interests and knowledge, shared projects, a process of cooperation and exchange…” (Levy, 2001. p.108) Arguably, the two most notable and influential for musicians are ‘My Space’ and ‘You Tube’. The fundamental nature of these sites is situated with association by participation and My Space for musicians represents a community where participants can network within the ‘space’ to generate communities within a community. Nearly all the major established artists have a My Space page that virtually anyone can access and can furthermore request the virtual friendship of that artist. The interesting aspect of this process is that by requesting the friendship of another artist, their identity label is added to your page and can be displayed for others to see. This is essentially how the community operates in that participants can acquire the ‘friendship’ of reputable artists identifying them as being ‘associated’ with that artist through ‘acceptance’. This procedure allows music enthusiasts to seek new artists by viewing the ‘friend’s’ list of established artists they admire and or relate to. A virtual collaboration takes place between established artists and those who request their friendship and this generates credibility through acceptance. This credibility may be artificial, but for musicians seeking attention for their music, My Space provides a vehicle from which autonomy in an evolving digital musical culture can be controlled. Robins and Webster maintain, “The cyberculture exists only in terms of self-referentiality: it simply communicates with and within itself; and it is the endless circuit of communication – of connections and interconnections – that provides the rationale for its existence.” (Robins, Webster, 2002. p.242)

This existence, however, performs more than just that of conduit to the mass Internet society. It provides a window of opportunity for artists to gain recognition of their music through networking the system in place. It is, to this effect, a constant interconnection of like-minded users all in search of the same result. As with most virtual communities there is an interface to negotiate that ultimately determines how one artist is perceived from another. The general layout for an artist page contains a media player, from which songs are launched and downloaded, general information areas such as personal and contact details, venues of performance, photographs, videos and lists of associated friends and their comments. Furthermore, the artist’s identity label sits at the top of a page and is displayed on all their networked friends pages as well and this serves as an identifiable and linkable avenue to that artist. It can be altered such as changing your picture and the consequent alteration appears throughout the system in real time. This signature image serves as the means of recognition within the space and artists can control their image through the various manipulations available such as animation. This control over one’s existence within the community highlights an important position that was previously unavailable to musicians and to this extent, the virtual music society generates authority and ownership of ones position within the space to a point.

The interconnectivity of cyberspace serves as the way in which artists can restructure their musical productions. The consistent critique of listeners can provide immediate information regarding how people are responding to musical creativity and therefore enables artists to respond to these opinions both artistically and verbally. While the advantages of a virtual acceptance of ones music by a virtual audience posits an encouraging disposition, Carlo Agres et al suggest, “It is possible that virtual societies will move toward greater isolation and less of a sense of community with physical people.” (Agres et al, 1998. p.76) Agres et al argue that while interaction in this domain allows users to seek out approval with others, the lack of a physical community raises issues of homogeneity. The social aspect of the virtual environment is constantly evolving as more participants become attracted to the prospect of an identity in a global sense, an identity that would otherwise be very difficult to realize without technological intervention.

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78 As the alteration is completed, the changes throughout the network are instantaneous.
4c Assembling the Voices

The core of this research discusses the impacts of technology on pop production today. I do not refer to packaged products mass marketed through commercial avenues; moreover, I refer to the musician that has technically evolved, far removed from their contemporaries of thirty years previously. The single largest phenomenon to challenge artists since this period has been the extensive development of technologies and mediations. I use the word challenge because for many people, technology can be a daunting yet highly influential prospect. As pop has progressed, its increasingly sophisticated sounds, images and identities, had kept pop exclusive for some. This exclusivity was linked to the recording artists associated with major record labels that had access to expensive recording studios containing expensive recording devices previously unobtainable for ‘ordinary’ musicians. Eventually, through a process of osmosis, these exclusive technologies and accumulated information’s became manufactured consumer devices.

Assembling the voices of pop involves a view of pop as an organic whole and for this research, the need to assemble interlinked elements/texts as they are received today through their mediations and contexts. As already suggested, our technologised musical productions extend beyond the boundaries of traditional analytical methodologies of inquiry. To understand pop, we need to see it as a multifaceted entity integrated with the intrinsic complexities of our evolving global culture. Musicologists have often discussed the problematic phenomenon of pop. Both Toynbee and Hawkins cite the work of Mikhail Bakhtin (1981) as a valuable theoretical basis that may be adopted for a musical analysis of pop. I reiterate at this point that pop no longer adheres to issues concerning the music alone; moreover, what constitutes pop aligns with social and political constructs that evolve rapidly. Bakhtin’s work, although grounded in literature, offers musicologists a concept of dialogism in the form of ‘utterances,’ or in this case, the ‘voices’ of pop. Hawkins maintains, “Bakhtin’s value to music theoretical scholarship can be seen as especially significant in that he brings certain paradigms to the surface, which are tied up in the discursive moments of intertextual exchange through dialogue.” (Hawkins, 2002. p.23) To construct a text for the impacts of technology in pop, we must view the dialogical field as a narrative of all associated components.

79 Simon Frith, Alan F Moore and Stan Hawkins for example. See bibliography
80 See Bakhtin 1981.
Figure 13 depicts a sequence of events that can be generally described as our modern technological environment. Each ‘cell’ contains interlinked associations, meanings, values, social implications and texts. De Nora describes music as a social process and suggests, “…focusing on how musical structures, interpretations and evaluations are created, revised and undercut with reference to the social relations of this activity.” (De Nora, 2004. p37) If we employ this approach and adhere to the concept of dialogism, we can objectively discuss pop and its contexts. Hawkins outlines seven criteria with which critical musicology should engage itself with. Postulate seven stipulates, “Explorations of the multiplicity of music’s contemporary functions and meanings, with particular emphasis on the evolution of new technologies within late twentieth century post-capitalist cultures.” (Hawkins, 2002. p26) From this perspective we can begin to unearth the texts in pop and decode meaning through understanding the encoding procedure relating to the environment from which today’s musicians emerge.

![Figure 13: The modern musicians digital environment](image)

From the diagram above, keys areas amount to various sections of this study. My primary concerns are situated within the layers of technology associations/collaborations by the artist. The cell containing the topics ‘compositional style’ and ‘creative processes,’ utilises technologies and connects inherent technologies for music production to the Internet, and is at the forefront of this research. As the diagram illustrates, many influences decoded by the artist are incorporated into their social being through the impacts of a technological existence. To view processes like this allows me to partition the voices of pop into coherent levels so that a

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81 Refer to appendix 5 for Hawkin’s list
cogent analysis integrating all attributes of pop increases the textual connotations via a
dialogical method. The point is to mobilise the pop text to include all influences as text-
worthy due to the dramatic alterations in creative conditions. Hawkins maintains, “…the pop
text becomes mobilised only through its contact with other texts. Only at the point of contact
between texts does the first dialogic stage of understanding take place.” (Hawkins, 2002.
p.23) What follows is a discussion of the individual voices as I have assembled them, to
display the cognitive interrelated traits of pop.

4d Compositional Style

A songwriting style is a highly litigious topic that requires consideration within the context of
this paper. Pop music in the post-digital revolution has enjoyed the benefits of technical
devices in numerous capacities and this is an issue for discussion. With the innovation of
software applications, how musicians compose has been altered in a number of ways. The
social being of adaptive musicians evolves with their environment. This environment impacts
on their creative processes and compositional style, and in many cases influences can be a
mouse click away. The primary advantage of music systems, revolves around the facility to
play back recorded ideas instantly and the benefits are paramount when making decisions
relating to music direction. Alistar Riddell suggests, “…it appears that the creative design of
musical processes might become an art in itself.” (Riddell, 2001. p.1) With this in mind, it is
feasible that even novice artists emit encoded data through their interpretations of music
software and I suggest that this encodification, at a novice level, occurs through the ‘copy and
paste’ phenomenon.82

The principal function of the first sequencing software applications allowed the recording,
manipulation and storage of performance notes as midi data. (See Fig. 14) This data contains
editable parameters that constitute performance attributes such as note length, velocity and
pitch and these parameters are indicative of the software facility.

MIDI data is edited by engaging the function of the editing window of the programme in use
and initiating the user tools provided. It is apparent from this view that data generation can

82 I call it a phenomenon because of the participation through design concept. This process is available on
virtually every software program
become a complex form of codification and signifies a unique set of circumstances transmitted in process through artistic decisions and fluent use of the software.

Figure 14: Screenshot of Apple Logic 7 MIDI editor

Figure 15 depicts the state of a sequence prior to editing in what is commonly referred to as the ‘arrange window’.

From this window ‘copy and paste’ procedures shape song forms through part manipulations. The copy/paste function enables sound clips/loops to be repeated over a determined period of time. This permits the user to create song forms quickly and essentially compositions can be constructed from a four bar pattern. This compositional style reflects in essence Gouzouasis’s concerns of a Garageband mentality where sequences of parts are organized into repeating patterns with little structural coherence and in many cases, little harmonic content. The process thus far is interlinked with choices and the varying degrees of informed knowledge and Riddell suggests, in this context, that we begin, “…thinking about musical composition as a sequence of events, behaviours, conditions and choices…” (Riddell, 2001. p.7) This raises additional questions about interactive behaviours, how they are formed and by what means. The answers to these queries are linked to social formations and we will discover artists, via the Internet, have the privilege of constant self-analysis. Audience response can be instantly decoded and then recoded into new compositions via a constant comparative process.

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83 It is generally the ‘window’ where the arrangement is composed.
The copy/paste function has positive and negative attributes associated with its integration into compositional procedures and is arguably responsible for innumerable amendments in pop music. One only needs to listen to any commercially successful electronic tune to realise that this editorial process is in abundance yet in highly produced songs ‘parts’ are subject to ‘deep editing’ to modify what may otherwise be considered banal.\(^{84}\) For the novice, songs may be produced according to sound and in this sense, sounds become objects. The correlation between music and a movable object signifies transcendence from novice to musician and in this context software applications transfer autonomy. The paradigm of indeterminacy reflects how an atomistic compositional style can emerge when confronted with minimal knowledge or experience. Such paradigms are present within computer music and Joel Chadabe maintains, “…as technology expands our powers to perceive and act, we develop new paradigms to understand what it is we see and how we should react to it.” (Chadabe, 1996. p.43) From a compositional perspective, the computer program derives content from artists by allowing them to input data not fully envisioned and permitting song form based on imitation and repetition. Input data may also initially, consist of available sound clips stored in libraries.\(^{85}\) The ‘loop’ portrays yet another discourse that is not within the scope of this paper. Moreover, application of loops for composition represents a fabricated song idea. The recorded clip emits certain genre and production codes linked to someone

\(^{84}\) I am stipulating editing processes as the differentiating point to highly encoded pop.

\(^{85}\) Refer to figure 7 in chapter 2, p.36

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**Figure 15: Screenshot of Apple Logic 7 arrange window**

The arrange window of Apple Logic 7 is shown, with various elements labelled for clarity:

- **Time line**
- **Tracks**
- **Parts copied and pasted**
- **Tools**
else’s performance. Although composing in this manner is mediatory for ‘machine and human’, this mediation is problematic with reference to discussing ownership and authority. Therefore, the copy/paste function in an editorial role permits quick music generation but the at the expense of actual performance that is linked to traditional methods of musicianship.

As suggested, compositional styles are subject to, and are manipulated by, emergent paradigms within computer music communities. The interaction paradigm suggested by Chadabe has materialized and remains in a state of transformation/expansion, although what is emerging from this is a strategy paradigm. Strategies for composing contain theoretical and technical implications, the hybridisation of old and new methods. With the quantity of technology that is available to the musician, it is feasible to adopt strategies with which to ensure composing benefits from these advances. Aligned with strategies is the interface paradigm that exemplifies the way in which musicians compose with the computer. The interface constitutes the territory between that enables artist’s intensions with the capability of the computer. Compositional style with technology is dependant upon comprehending how the interface operates to attain optimum results. Generatively, the interface represents the capacity to alter the determinism of technology into an interpretive frame whereby fluency aligned with knowledge enables the realization of ideas.

4e The Creative Process

The primary impact of technologies proceeding music is relevant to the encoding process. The creating of code is situated directly within an author’s creative process and these processes are exploited freely via the Internet. Technology creates more choices for authors to consider and small adjustments in direction can lead to large modifications of encoded material. In this context, musical works are not seen as the product of machines but as efficient knowledge systems. The dialectical nature of machine and human, results in the reformulation of concepts as a procedural element to creativity. Hamman maintains, “The computer provided the kinds of tools that allowed the composer to explore, more deeply, the very conceptual frames in which musical ideas might be imagined and realized.” (Hamman, 2002. p. 93) Computers alter creative procedures, production techniques and more critically, the code that we decipher. These elements have become conventional in pop music culture and Toynbee suggests, “…what is being recognized in the case of a ‘creative’ work is a particular relation to the stylistic norm.” (Toynbee, 2003. p.106) In essence then, what constitutes a point of
difference or particular relation? An answer may exist within the notion of fluency and the personal interpretation of technology.

Methods of creativity exploit processes that are borne of several interlinked regions interacting with social habitus. These regions relate to individual agency, social construct and the methods by which music is realized in the form of product. The process of visualizing musical ideas and then creating them are ultimately dependant upon factors initiated by the artist. These factors are seen as individual and autonomous from all other participants. As an artist constructs their composition/dialogue, individual agency is dominated by the social interactions surrounding the artist’s being. Influences and information engage with the individual’s constructed persona generating music within their abilities, expertise and preferred workflow. Technology presents the author with an array of decisions confronting a composer’s modes of adaptive reasoning. Michael Hamman suggests, “…technology overtly invites and includes the participation of humans in designing the representations through which domain-specific thought and activity is conceived, understood and realized.” (Hamman, 2002. p.93) Social implications associated with creativity are paramount collaborations; creative choices are made when new challenges are introduced to an author’s domain. At this point however, I will discuss the role of the interface in more detail as to promote an understanding of technological hermeneutics through interpretation.86

Creative processes are ultimately negated through interfaces and we are propositioned with this concept in many forms of everyday life. Beyond the ‘face’, experimental musical ideas emerge and are realized as coherent thoughts and individualised via fluency and systemized work processes. The empirical view of technological determinism in this case applies to novice users of software applications. This determinism is situated within cultural assemblages affected by mass media promotions throughout the commercial world today. Along with the conception of software tools in the mid 1980s, musicians were challenged to embrace or deny the rapidly expanding development of these technologies. In conforming to computer technologies, the contextual components of music, especially in regards to electronic music, have undergone transformations in terms of aesthetic value aligned with altered compositional techniques. Hamman maintains, “…the computer becomes a valuable tool for composers who view compositional technique itself as an end, not merely a means to an end.” (Hamman, 2002. p.94) From this stance, the commercial imperative of technology

86 See Hamman, 2002.
requires a performative approach thus dismissing the computer as subversive in a dialectical sense, by increased knowledge systems.

For the novice, such prospects can be overwhelming and could result in a stasis situation whereby differences in potentiality of machine and user result in unrealised creativities. The importance of the interface is relevant to this research because ease of use overcomes the limitations of users. The interface can provide an open doorway to creativity, choices are made in a type of ‘seek and find’ environment, the machine guides the user by way of encoded alerts prompting messages for actions that are incorrect or not allowed. Further streamlining of procedures are provided in the form of keyboard ‘shortcuts’ that present faster work conditions enabling creative/editorial moments and gestures to take precedent over physical interruptions. For many, technology represents a methodological approach to making music where results are guaranteed to some extent or another. The navigation of the interface symbolizes the willingness of the user to adapt to the domain with which he or she is working in and further enhance musical production based on experience. To this end, the interface requires careful consideration on behalf of software designers to ensure the experience is enhanced and that it fully reflects an individuals perceived ideas.

The creative process of the artist is essentially a communicative gesture and to this extent the deciphering of such communication resides in the cultural boundaries of the listener’s objectivism. Tanzi maintains, “…the evolution of relationships between cognitive processes, musical results and communicative practises mirrors the evolutionary model of information technology in its flexibility, pervasiveness and reflexivity.” (Tanzi, 2004. p.28) The integration of these elements signifies the developmental stages that artists of the twenty first century have to contend with. Creativity has become more complex, more enriched with utterances, gestures and encoded data. Mediations occur on many levels and are distributed through cultural networks and then retrieved again by authors to be re-examined, decoded and ultimately authorized.

4f. Music Production

The integration of components preceding this subheading constitutes the production of music and for the technological artist, a presence within a musical community. Production accompanied with visual media in the past was the route to recognition within the music
industry. The prospects of this have diminished in regards to the elusive ‘record contract’; however, technology has provided emergent artists with the tools to create an existence via the Internet and therefore self-promotion, monitoring and re-encoding become integral to processes of the technological musician. With regards to this research, music production and the quality of it becomes enveloped in interactions, cultural and genre specifics and interpretations of the methods faced by the individual to achieve this. In this respect, Toynbee suggests, “…creativity in music needs to be reconceived as a cultural process…” (Toynbee, 2003. p.110) To this end, music production represents a cultural phenomenon that has escalated dramatically with the inception of the Internet. Artists have the opportunity to present their works to a participating audience where the only requirement is that you participate. Problems with this concept relate to the notions of fluency and aptitude with technical actions and this is significant when one considers classical musicality. To attain credibility within the classical genre, a series of examinations and intensive musical training is a prerequisite. A repertoire is accumulated and performance skills are attained through physical practise, the rich encoding emerges from within the form and structure of the repertoire. Although production values of pop versus classical are relative to the musical content, pop has been guilty in some instances of undervaluing proficiency. My own observations as a performance tutor highlight a perforation between intension and ability. Pop production has inundated would-be participants with simplistic song forms and repetitive images. To this extent, pop production homogenizes technological developments and commercial procedures have anaesthetized audiences. Consideration of production texts involves genre specifics that may benefit from an ethnographic stance and De Nora maintains, “…ethnography’s advantage lies in its holistic focus and the emphasis on the emergent and the negotiated character of meaning within social settings.” (De Nora, 2004. P.46) From this aspect, discussion of ontology’s interrelated with components of an artists habitus could release details pertaining to their domain of interpretation and subsequent productions.

The 1979 hit song by ‘The Buggles’, aptly named ‘Video Killed the Radio Star’, heralded impending technical developments, a new era of video images portraying fantasy worlds to mass consumers. Production techniques were inclusive to these developments and many of the artists that Hawkins has analysed relate to this era. Music production and accompanying video has become increasingly uncomplicated to assemble and more importantly distribute. From a contextual perspective, audio and image are collective in their transmissions of code.

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87 I refer to the pop where image seems to take precedent over proficiency.
88 See Hawkins 2002
How we objectify these codes becomes subject to ‘toolbox’ methodologies and in particular, which tool(s) we can employ. The ethnographical approach renders suggestions of cultural background as semiotic to pop’s textual elements. Another method of textualizing pop and its interrelationships is in a syntactical sense, whereby elements of the sum of the parts are ordered according to participation and importance within the overall product. Bjornberg suggests, “…music video may perhaps be less interesting as a phenomenon in itself than as source material for an ‘empirical semiotics’ of popular music…” (Bjornberg, 1994. p.51)

While the video has become an integral component of the pop production, it has also signified technologies intentions of autonomy until users can control it. The Buggles first album called ‘The Age Of Plastic’ symbolized the premise of future developments and their last album entitled, ‘Adventures in Modern Recording” denotes implications of experimentation, discovery and limitless creation in the digital era. Literature regarding the cultural aspects of production and its effects has been discussed by Hawkins culminating in his interpretations of the texts of production from Madonna’s music. From this perspective an authoritative role within pop involves the participation of a producer and I will discuss this role in the next chapter. To this end, pop production is the culmination of many sources including fashion, identity, consumption, translations and interpretations.

4g The Internet

Although the Internet has been discussed to a point, it is necessary to examine other areas of this revolutionary concept. Its success is situated with a virtual authority given to users that enable them to navigate information, products and communities from their portal. For the music industry, this technology has created opportunities as well as problems in that while marketing music can potentially reach a larger audience, ownership and copyright issues of music are problematic. The Internet was seen primarily as an evolving information database in its early stages of inception that quickly transformed into a virtual world. Music business personnel realized that the opportunity to take their music catalogues global required an alteration of their marketing strategies to take advantage of this digital domain. Consumers, on the other hand, viewed this opportunity differently. Around 1994, digital software encoders were developed and released, these enabled audio to be converted to the new MP3 protocol and shared over a network. This ignited digital music sharing mayhem and when
Napster was released in 1999, the music industry realized that in order to control the ownership of their product, a review of their licensing structure was necessary. Ownership issues are now at the forefront of the music industry agenda in that every downloaded or broadcasted song over the Internet is a profit loss to the companies and the artist. The real problem is that mass consumerism ideology is a result of the continual marketing exploits of such companies. Consumers have been educated by mass marketing to opt for value in products and unfortunately for the industry, sharing rather than buying in the digital domain is too good an opportunity. In an effort to reduce the drain on profits from P2P networks, major labels began the Digital Rights Management scheme and encoded their products with various algorithms restricting consumer’s rights to that product. The repercussions of these events is that programmers develop software to strip DRM code from products and these applications are readily available for download over the Internet.

The situation today revolves around the perception that digital institutions such as iTunes, EMusic and Audio Lunchbox, are necessary for helping music consumers navigate what has become a digital haze in terms of available legal music for less cost. This is essentially done through a subscription procedure that enables participants to download music for a set fee. There are still licensing problems linked to this method of distribution but the digital music revolution in association with the Internet has revealed further problems in terms of music as art. Through the gradual process of replacing physical product with digital file, the value aesthetic of music becomes questionable. The physical experience associated with a physical purchase from a physical retailer retains more value than a downloaded file. Herein lies the problem with music as a file, the experience of ownership has moved from the organic to the technologically saturated. In removing the cover art, sleeve notes and emotion of ‘buying’ artists works, the artistic value to some extent has diminished. In this sense, music is disseminated further and the value of a recording is reduced.

For the artist, the Internet allows inclusion to a virtual music society where users generate content within communities. The virtual society will be discussed in an upcoming chapter, but this non-censored partaking in a rapidly expanding online culture, illustrates the necessity for a rethinking of related procedures. In this sense, the Internet presents artists with the

89 Napster was a file sharing service that paved the way P2P file-sharing programs such as Kazaa, Limewire, iMesh, Morpheus, and BearShare.
90 See glossary.
91 Programs such as Hymn, DRM Dumpster and QT Fair Use 6. Information on the latter can be found at http://www.engadget.com/2006/08/29/hymn-is-back-fairplay-on-itunes-6-finally-cracked/
92 Mainly refers to the ability to burn copies of the purchased digital download.
possibility for exposure to mass audiences and more importantly the facility to communicate freely with them. Thus, the Internet is an ever-increasing two way interactivity process.

Throughout the process of interacting in a virtual musical society, musicians are constantly provided with consumption ideologies through a decodification method appropriated via the Internet. It is a continuous and qualified procedure that requires the artists to anticipate consumer’s requirements through negotiations of opinions and developing trends in music business. New models of adaptation are emerging in today’s highly charged digital environment. Madonna has recently signed a recording and touring contract with concert promoter Live Nation. In a revolutionary deal, the monetary emphasis is situated with touring, merchandise and the Madonna brand. This decision signifies a turning point in the reliance on record sales; it further indicates a revived value of live performance over recorded media. It is essentially a progressive development of the Arctic Monkey model where availability of music created demand for performance. Other artists have also taken this route such as Prince who distributed 3 million copies of his new album in a London newspaper. Peter Wright maintains, “Prince has done this because he makes most of his money these days as a performing artist.” (Wright, 2007) A further development even more recently has seen the band Radiohead give consumers a choice relating to how much they pay for their latest album. This is done through an online music store as a digital download and effectively asks the question, what is the value of a recording? Radiohead plan to release a physical product in 2008 and will also offer a boxed set containing extra tracks, a vinyl copy of the album and a lyric booklet. This signifies a well conceived marketing strategy by the band and it should be noted that the digital download bit rate was only 160kbps.

These developments create the need for divergent thinking in regard to a musician’s navigation of a reinterpreted digital terrain. Fortunately, the tools necessary to do this are available but this in turn reflects on how musicians/artist define the employment of these tools. All these considerations impact on the artist’s social being, their reaction and ultimately their existence in the digital environment. It is difficult to evaluate what this progress will lead to in the future but I think consensus is that live performance will take precedence over recorded material to generate revenues in the long term. This is interesting for two main

93 See http://news.bbc.co.uk/2/hi/entertainment/7047969.stm
94 See http://news.bbc.co.uk/2/hi/entertainment/6899478.stm
95 This can be found at www.inrainbows.com/
96 Kbps stands for kilobits per second and is a measure of bandwidth (the amount of data that can flow in a given time) This is quite low for a digital download and reflects a degradation of sound quality. Bit rate can be as high as 1411kbps
reasons. The first is that live performance was once the main source of income for musicians historically. The second relates to the importance of live performance ability over recorded consumer perceptions that initiates wide-ranging impacts and in regards to this research may segregate novices from professionals. It will be dependant upon an individual artist/musicians use of technology to locate themselves effectively within these new precedents. These issues will ultimately be dependant upon continual interpretations, interactions and reactions but emphasis will need to be placed on defining ones locale in the spectrum. To this end I think that Figure 13 is an appropriate representation of the events surrounding the interactive artist today. It will require constant monitoring of the system to enable a presence in the virtual music society.
CHAPTER 5

PRODUCTION MATTERS

The previous chapters have outlined the impacts of technologies in a categorical capacity thus far. I now discuss how competent handling of these tools is revealed in a production text. This chapter locates aforementioned topics such as fluency as imperative to understanding pop texts. My aim here is to expose the complexities of technological use in pop.

5a The Role of Production in Pop Music

Record producers and their role in music production is an area of significant importance in the pop music industry. The producer has become an integral component of pop music development through assertion of an individual perspective from that of the artist on musical production decisions. These decisions concern elements of musical direction for an artist including their placement within a pop market, sound texture and on a commercial level, the development of a ‘chart single’. To this extent, collaboration between the artist and a producer forms an alliance toward the goal of creating music that benefits the artist with success and the producer with credibility. Gareth Thomas maintains,

The role of the producer…is an organic and often highly individual one. While some producers concentrate on the technical side of achieving the best sound possible, others take an active role in the creative process…What’s evident is that there is no clear cut definition of where the role of producer ends and that of songwriter begins. (Thomas, 2006. p.34)

It is difficult to locate the very first producers of music in this context although Fred Gaisberg has been cited as possibly the first exponent of production in the 1890s. (Moorefield, 2005) Throughout the big band era of the 1930s, John Hammond was attributed as responsible for producing artists such as Billie Holiday and Benny Goodman. At this time, the producer acted

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97 In commercial context, recorded albums usually contain tracks referred to as ‘radio’ edits. These are generally designed for commercial airplay.
as talent scout and in the role of A&R [Artist and Repertoire] and R&D [Research and Development] personnel, but these positions eventually transformed into separate branches within a developing record company structure.

The commercial pop song and its aural production processes emerged more fully in the 1950s. Jerry Leiber and Mike Stoller were a song writing partnership and were arguably most well known for their collaborations with Elvis Presley. As a song writing/production team they created, and also resurrected, the careers of many artists. The recording process of these times involved capturing live performances of artists that reflected their abilities as performers rather than recording artists. Virgil Moorefield maintains, “The aesthetic which governed early recording was one in which the concert hall experience was to be recreated as faithfully as possible. Real performances were seen as a necessity.” (Moorefield, 2005. p.3) These principals have again become more important today within professional circumstances insofar as capturing a ‘performance’ is still a primary element of the recording procedure. However, the lack of proficient performance can be replaced by a ‘fix it in the mix’ mentality. This is a direct result of technical developments pertaining to digital tools that can alter recorded material and perceived artist ability. While producers of the earlier period did not have such technological luxuries, their ability to recognize talent and song craft is a testament to the longevity of their recordings. These fundamentals still apply today but genre development and cultural diversification fuelled by global music expectations has seen the producer’s role evolve to become more of a pivotal point in the career directions of many artists. The producer is employed to maximise the artist’s creative abilities, a kind of supervisory role that manages to function at an artistic level while still retaining, ideally, the view of commercial success.

Phil Spector is famous for his ‘Wall of Sound’ production technique that became popular in the 1960s. This was achieved by multiple and varied instruments performing identical parts layered upon each other in conjunction with effects. Moorefield maintains, “Overall the technique was a celebration of sonic grandeur, achieved by both physical and technological means.”(Moorefield, 2005. p.12) Spector effectively redefined the art of production and this arguably represented a directional shift in pop fabrication. Spector’s artistic influence and vision for the pop song ultimately lead to the reorganization of producer participation and thus

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98 The Coasters, The Drifters amongst others.
100 I’m referring to a term used to describe technical alterations to a substandard performance.
illuminated an area of creative input not previously realized. With the realization of Spector’s production technique came the concept of a production sound that could be individualised and interpreted as artistic flair. Moorefield suggests,

To him (Spector), the studio was a musical instrument, to be tuned and practised on and performed with...listening to his recordings, it becomes apparent that what sets him apart from his predecessors and contemporaries is the innovative, unique timbre and feel of his productions. (Moorefield, 2005. p.14)

Spector had incorporated technical studio skills coupled with imagination creating a signature sound texture that others would embrace.

Technological developments in the recording studio enhanced the soundscape possibilities of producers in allowing them to experiment with new methods of achieving innovative sounds. Thomas maintains, “…the producer does have a creative role, and often songwriting is influenced by new technology introduced by a producer.” (Thomas, 2006. p.34) This is evident throughout the 1960s where effects and multitrack recording technologies emerged as a staple component of studio experimentation. Not all producers relied on studio manipulations however to attain new production standards. Berry Gordy created the ‘Motown’ sound in Detroit and the emphasis for his production approach was situated with a stylised mixing technique to maximize recordings audibility on an AM car radio. Furthermore, Gordy also focussed on well-written songs performed by talented musicians developing a new genre. Soul/funk music predominantly revolved around musicianship and performance that consequently did not overly emulate technological manipulations. Artists such as The Beatles for instance though began their careers with pop songs recorded in the traditional sense but their liaison with legendary producer George Martin reflected a collective desire to experiment further with recording techniques. This collaboration recreated and redefined the studio environment as an instrument. An example of their foray into experimentation is found on their 1966 album ‘Revolver’ in the recording of ‘Tomorrow Never Knows’.

Moorefield maintains,

The sixties were the beginning of the use of the studio as a true musical instrument. By the end of the decade the importance of the producer was something every professional pop musician and even a great many fans were aware of. (Moorefield, 2005. p.41)

The identity of the producer was secured as the motivating component of a partnership that connected the emotional talent of the artist to their audience. This lead to the creation of an

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101 George Martin and The Beatles are a good example of this.
102 The technological aspect of these recordings was not the most important component of the process.
103 Ian MacDonald discusses this.
independent position of authority within the industry of making pop music, a position that required further collaborations with record companies vying for an edge over one another. In this respect, the producer initiated the need for technological advantage and therefore was responsible for an objective stance toward artist development. Mayhew maintains,

A dichotomy is articulated here between the emotional expression of the artist and the technical objectivity of the producer. Within this dichotomy of subjectivity/objectivity those who use the musical technology intervene and shape the emotional artist into a meaningful product to sell, as well as to be understood by an audience. (Mayhew, 2004. p.157)

As technological developments progressed toward digitisation, studio capabilities and instrument sounds were altering artist and producer’s interpretations in a musical culture that was becoming increasingly consumer orientated. This placed further importance on situating the appropriate production sound that associated consumers with the artist. By the end of the 1970s, signature production sounds individualised music genres and artist direction that cemented the basic elements of radio edits and the requirements for airplay in regards to attaining the correct instrument mix. With the advent of MIDI and ‘automation’, a new era of producers would become known for their reinterpretations of the recording studio instrument. The 1980s heralded more than just ‘new wave’ music made with synthesizers and drum machines. The technological expertise of production personnel had increased through increased knowledge of system’s newer technologies to innovate artistic and genre development. From this perspective, the 1980s signature sound is recognizable for a ‘tight’ production sound manufactured with digital technologies that adhere to a perception of ‘hardness’ in aural character. More to the point however, is the obvious transition in producer role from artistic developer, to that of supplying commercial product in an increasingly competitive market, thus reflecting the current state of a techno-musical culture. By the mid 1990s through computer and software use, the producer was seen as imperative to evaluating the pop scene and creating fresh production stylisms. Artists such as Madonna have relied exclusively on technology driven mediations as a means to secure position in global pop and furthermore, as an indication to the importance of appropriating technology.

The producer has evolved with and pursued technical advantage; this has altered musical style and the social perception of modernity in the recording process. We can authenticate this by associating the various genre developments throughout these periods with producers who
shaped and created landmark productions.\textsuperscript{104} The producer has become the key figure in this procedure; the artist relies on them for influence, advice, direction coupled with the technical knowledge to record the perceived performative role of the artist. In this sense, the producer is a visionary who captures the essence of an artist to present to consumers in a produced conceived ideology. This role has evolved with a significant impact on pop culture but the general music consumer still only relates to the marketed image of the artist. It is this non-exposure that confuses the lines between songwriter/performers and their existence in pop culture. Music producers, in my opinion, are responsible to a large extent for shaping the social contexts of pop through the construction of texts in the creative process. Our perception of a music industry is driven by the technical interventions and innovations of those working behind the scenes.

\textbf{5b Body in Electronic Music}

The question of artistic ‘body’ in computer or electronic generated music’s has become the topic of scholarly debate with various authors.\textsuperscript{105} The argument primarily relates to the issue of human emotion in a recording that is made with machines and devices, furthermore, it can also relate to the location of the artist’s ‘body’ in the music itself. The notion of ‘body’ is difficult to position without considering several questions that can be linked to an experience of artistic quality. Firstly, how do we define this notion to ourselves? Secondly, what does it mean to us individually? And thirdly, what constitutes a lack of body in music? Ostertag maintains, “…virtuosity of some sort is a necessary element of almost any performance” (Ostertag, 2002. p.11) From this perspective, performance is still key to a musical experience and therefore comprises of some virtuoso artistic input on some level. Frith, on the other hand, defines rhythmic content as fundamental to how audiences define body and suggests, “The reason why rhythm is particularly significant for popular music is that a steady tempo and an interestingly patterned beat offer the easiest ways into a musical event.” (Frith, 1996. p.143) This then further locates another area of discussion in regard to this topic, the interrelation of genre and meaning to audiences, as differing genres retain differing stylistic beat patterns. One solution may be to attempt to stratify the genre layers from the multitude of music available and created today, so we can then appropriate more effectively the ‘body’ content of a particular style. I suggest this due to the fact that through the subjective nature of

\textsuperscript{104} Hugh Padgham is an example of this. He is responsible for the drum sound on the Phil Collins track, ‘In the Air Tonight’.

\textsuperscript{105} See Ostertag 2002.
this topic, it is therefore difficult to disassociate ‘body’ from any music without first comprehending composers interpretations. I am, in a way, suggesting a need to take into account genre rules that define the guidelines to which artists adhere. By taking this stance we have a greater probability of understanding and effectively discussing body in new music through a genre rules perspective.

From Frith’s point of view, the embodiment of music is situated with the rhythmical elements of composition and I agree with this opinion to a point. It is the pulse that allows us to enter the music and participate and it would seem that pop music is dependant on its ability to engage the listener in this way. I suggest, however, that there is more to this than a relationship with music through our feet and that a performance with embodied emotion can go beyond the rhythm. In fact, body in electronic music especially is a culmination of many human bodily functions. Virtuosity in electronic music occurs in the performance of the programming that creates the tracks, the subtle alterations of MIDI note velocities, the automated events that occur as playback is initiated and so forth, are all human gestural enhancements. It is difficult to deny these performance gestures as deficient of body because a technology is relaying it. It may reside in the extent to which these gestures impact on listeners as much as to what or who has more corporeal presence in their music. If one considers Hip Hop culture and its associated branches such as ‘beat boxing’ or ‘rapping’, the vocalisms involved are stored in the performers body and therefore are embodied in the music. The technology they incorporate will still perform its humanly programmed beats and sample edits with gestural nuances because the two elements, human and machine, rely on each other for a performance. They coexist because together, they are the body or the essence of that genre style.

I am not suggesting that all technologically created music has body because it is programmed and constructed by humans. Moreover, there are clear representations differentiating complex and simple programming procedures and, while ‘complex’ does not necessarily mean ‘better’, attention to detail generates an ethic that should be recognized. Frith maintains, “One common analytic strategy is to rework the nature/culture metaphor in terms of the simple and complex…” (Frith, 1996. p.132) This provides us with a direction towards appreciating music as an art unto its creative text. Essentially, contrasting music’s denote distinct traits of simplicity and complexity but retain their embodied gestures according to their set of rules. Frith states further, “…simple music is music driven by rhythmic rules; music becomes ‘complex’ when it is concerned with melodic and harmonic structure.” (Frith, 1996. p.132) If
this is the case, then it is feasible to consider that the notion of harmonic/melodic complexities can be reinterpreted and applied as a programming aptitude. Thus, heavily edited music’s such as ‘Drum and Bass’, still preserve the composer’s intentions and emotions and they are still acceptable performances, even if technology helps to assemble the product.

Human gestures are stored within the body and therefore virtually any attempt to manipulate a performance with technology warrants deliberation toward the current subject. What might be considered however is to what extent do these gestures authenticate the essence of body in musicological discourse? There needs to be a clear understanding of the interactive processes involved in producing the technical aspects of pop that relates to an ethic regarding production skills. These skills are situated as knowledge, experience, fluency and artistic vision, and all are arguably discovered through familiarity beyond the interface of technology. It is acceptable therefore to configure levels of ability and therefore depth of encoded material as an analytical process by way of deconstruction. Through this procedure we can layer the various artistic processes involved in creating pop music into categories (see Fig 16) for analysis and therefore assess the amount of body that is present. Within each category are further sub-categories that are assembled to represent the defining characteristics of the song.

![Figure 16: Graphical representation of layers within a pop production](image)

Arguably the most important of these groups is ‘artist performance’ and ‘production score’. The first is self-explanatory but the second revolves around the articulations and manipulations of human gestures with technology as a score that can be read and reproduced via conventional score procedures. I will discuss this in more detail later in this chapter. The ‘sounds’ cell contains implications of gestural nuances that are associated with alterations of sound textures. Technological and instrumental methods may be employed to achieve this and thus, textural advancements require a cognitive human interaction.

Assessing body in electronic music requires a rethinking of what constitutes a song performance and in this context the involvement of contributing process and procedures
embedded inside the finished product. The complexities of electronic music are situated in the mobility of programming gestures that are similar to that of increased melodic content. Just as the harmonic enrichment of content signifies an increase in analytical material, the attention to detail with regard to the use of technologies signifies an experience beyond the banal. It is the attention to detail that differentiates the novice from the professional and therefore this awareness in regard to technology warrants further consideration.

5c Fluency

High levels of fluency, integrated within the production of pop and it’s interrelated gestural nuances with technologies are responsible for how we as listeners engage with a particular genre of music. For example, the stylised components of Hip Hop music rely on configuring technologically recognizable traits as signifiers to suggest ‘this is Hip Hop’. The same can be said about any genre because each contains the ‘fingerprints’ of appropriation, a stylised specific set of rules that differentiate one style from another, even if closely related. It is in this context that the importance of fluency with music technologies provides a basis from which to launch imaginative musical ideas. Fluency in regards to music technologies can be conceived as exploring beyond the interface, to work beyond the presets establishing a personal method of defining creativity. A method that is the result of divergent thinking for which ingenuity, inventiveness and originality is a by-product. These are the traits of personality inherent to establishing knowledge of working systems. We can apply Guilford’s notion of Associational fluency towards working with digital medias as a key area to understanding this discussion. Gouzouasis maintains, “In digital media contexts, associational fluency may be considered as the ability to identify and recognize similar structures…” (Gouzouasis, 2005. p. 6) These structures can be represented for example, by a particular area of a software program such as editing processes inherent from one software program to another.106 It could further represent an ability to recognize software application similarity across different styles of programs and platforms. It is to this extent that a notion of fluency can be determined with music creators and producers. In a similar context, a degree of flexibility can be constructed to reflect a reaction to different circumstances that may occur in a creative moment.107 Gouzouasis suggests, “…flexibility may also relate to the notion of facility, the ease and speed with which a composer may shift between blending and

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106 Most music software programs tend to have a similar editing window and tool structure.
107 A familiarity with these similarities allowing adaptation from one program to another,
manipulating MIDI and AIF files in software programs such as Garageband.” (Gouzouasis, 2005. p.7) It is therefore important to identify these notions as codification practises in discussions of pop music.

Producers exhibit unique and stylised forms of fluency that integrate concepts of fresh sound scapes and transformations of technical knowledge that result in the foundation of production trends. Yasmin Kafai argues that, “…fluency connotes the ability to reformulate knowledge, to express oneself creatively and appropriately and to produce and generate information…” (Snyder, et. al. 1999. p.2) These notions of fluency are extended further to encompass the concept of ‘multiliteracies’ that are generally associated with fluency in information technologies (FITness) and fluency within arts technologies (FATness). Gouzouasis maintains, “…fluency within arts technologies seems to not only be an ability to reformulate knowledge, but to formulate new knowledge (i.e., novel ideas) in ways that enable humans to see, hear, think and express themselves differently.” (Gouzouasis, 2005. p.8) It is these differences, situated within heuristic tendencies that enable highly creative choices with music technologies.

From an educational perspective, fluency with music software is interesting, especially in regards to assignment marking where students may be required to compose a piece of music. The main questions relate to how non-music students cope with music software. Moreover, is the drag and drop, copy and paste nature of modern software applications really composing at all? It is difficult to say that it is not, due to the fact that composition can indicate many alternate interpretations. Traditional notation applications like Sibelius appeal to the classical music student but to this end, the editing functions associated with other applications are still available. It is therefore conceivable that traditional compositional procedures do not exist any longer in a conventional sense. It is further apparent that fluency with arts technologies plays an important role in our music culture today and that future successful artists of composition and production will need to amalgamate and adapt to the many variables associated with technologies in some form.

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108 This is a regular occurrence within music degrees.
109 Even though Sibelius is a notation application, copy and paste functions and so forth are still integrated to speed up the composing process.
One way forward in the debate of classical texts versus pop is to view the production processes of pop as a score in the traditional sense. This is problematic on many levels but the notion of stratifying the layers of pop music is a heuristic approach to textual analysis in a traditional methodology. By deconstructing the material into the sections of source data that makeup the eventual assemblages, I hypothesise that the advantages of interpreting the various elements more accurately are enhanced. In this section of this chapter I want to discuss this suggested approach as I see it. This is not an attempt to validate a theoretical hypothesis; moreover, I am attempting to propose a potential foundation for further discussion. The main purpose for evaluating pop in this way is to situate talent and skill with technologies as authentic analytical data in the codification process. Programming of rhythmic elements, textural design, placement of instruments and production decisions function in the same way as dynamics in an orchestral score. To this end, I will deconstruct the processes as I see them in a Shenkerian manner because this procedure is a means of incorporating western methodologies into modern music analysis. Incorporating the notion of western dynamics and performance marks into pop analysis creates a coherent line of enquiry that can be visualised and explained in the same way as classical compositions are. We can also unify this proposal to the notion of dialogism in that the voices or utterances of pop are separated to view them more clearly. Toynbee notes, “…the authors work can now be understood as the identification of coded voices and their arrangement in a meaningful dialogue.” (Toynbee, 2003. p.106) By arranging pop texts in this manner, we can distinguish the individual agency of skilled musicians as opposed to novices. This is not to say that the latter do not produce good music but in my view, good production standards are reminiscent of comprehensive knowledge to technical procedures. In this sense, the ability to read a production score merits the decisions of producers/artists as intended performance gestures.

Notable creators of alternate score writing include Karlheinz Stockhausen and John Cage whose innovation in the development of new compositional approaches and instrument use resulted in unique musical score for the pieces they created. From this perspective I incorporate Cages advancements for score writing as a starting point in this discussion for no other reason than my own interest in his work. Cage wrote his first piece for ‘recorded medium’ in 1939 for turntables and test records. This approach to composition established a precedent for new music’s in two ways. Firstly, the utilization of new and interesting
instruments into performance and secondly, the invention of innovative score writing procedures that allowed a repeat performance in the same way as traditional scores are read. Holmes maintains, “Cage was exploring the assembly of musical material using composition techniques for which the outcome was not perceived: composition that was indeterminate of its performance.” (Holmes, 2002. p.113) A general perception of this approach is the democratisation of tones in a serialist method, replacing a composer’s instinct for ordered music with the notion of serialism and twelve tone rows. Although Cages methods were similar to this concept, his induction of all possible sounds into composition ended these similarities and this was essentially related to removing composer taste from preconceived ideologies. Holmes outlines a common work process of Cages as presenting performers with scores containing numbers indicating choices within the number parameter.  

110 This concept could also be interpreted as a value relating to a specific parameter of a technical device used in the mix of a pop song such as the amount of reverb applied to a voice or the automation of an effect buss. Either way, Cages methods provide an insight into the use of score to reflect various parameters of performance.

Cages infamous ‘Williams Mix’ (1952) consisted of hundreds of recorded sounds edited together incorporating different splicing shapes to alter the envelope characteristic of the tape playback. A 192 page graphical score accompanied the piece and Holmes maintains, “…was in chart style and consisted largely of editing instructions…” (Holmes, 2002. p.115) Cages method for an aesthetic change toward compositional material and thus score development pertains to the interpenetrative impact of sounds performed through indeterminacy. Cage realized that silence allowed sounds to be heard and therefore scored together with the notion of unimpededness and interpenetration. 111 James Pritchett maintains, “Cage now saw his field of action as an infinite space of sounds that are completely interconnected, yet unique.” (Pritchett, 1993. p.75) Pritchett further suggests,  

…by subdividing musical form into the twin components of material and method and by allowing both of these to be either law or freedom elements, he had left open the possibility that, if both were disciplined, then the resulting form would be a law element too. (Pritchett, 1993. p.61)

This allows compositions to be viewed as directive negotiations pertaining to either ‘rules’ or ‘interpretations’ by the composer. This also authorizes the composer to create or incorporate a method for the instruction of procedures within the score.

110 Reference this to Holmes book and page number.
111 See Pritchett, 1993. p.74
Cages use of the ‘I Ching’ signified the introduction of chance into his compositional concepts. The ‘I Ching’ is essentially a symbol system designed to identify an order in what seem like chance events and this order was retrieved through the use of dice. More importantly, however, it revealed a system of altering performance roles based on diagrams and numbers. Cage began to modify the ‘I Ching’ into a more westernised structure and proceeded to appropriate a numbers to music chart cells to be performed in conjunction with other cells. This allowed each element of the chart to be equally possible at every moment. Cage’s method signifies an important issue in relation to this sub-chapter in that chart systems can be created to direct performers toward new and innovative techniques for sound reproduction. In this context, a benefit for production score techniques can be envisioned as a series of directives consistent with producer interpretations. If this concept can be incorporated as a readable chart of events, then it offers personnel involved with contemporary music education, for example, scope to compare commercial production values toward that of student recording assignment outcomes. It could further instigate a shift in the understanding of pop music codification processes and the impacts that music technologies impose on created music’s.

Production can be disassembled into its various components in a Shenkarian-like method and this enables us to visualise the overall structure of the piece of music as in Figure 17 below. It is important to recognize the components that are integral to a collective musical outcome as gestural nuances that effectively become score, as the combination of elements emerges to procure a performance. Like Cages charts for timbre, durations and dynamics, charts for timbre, mix and effects could be implemented toward a production score with pop music. This could signify much or little depending on the production extent within the music. Furthermore, there are various ways a chart system could be initiated to reflect the production
Figure 17: Depiction of deconstructed production procedure

score that utilises aspects of Cages number appropriation and cell use. The chart below (fig. 18) represents an example of this approach. Each horizontal cell relates to an effect/parameter that is subject to a number that corresponds with another chart specific to that cell such as the charts in Figures 19 and 20. These charts provide parameter settings for both numbered sets of cells in Figure 18. Further charts can be created for the other effects/parameters. By utilizing this approach, one can see the method engaged by artists towards placement, levels, effects and other technical information within the mix. This could be especially helpful for educators involved in marking contemporary music recording projects. It helps to visually connect with an artist’s production decisions that can then be cross-referenced with benchmark scores of other genres. This relates to the further understanding for academics of how music technologies impact on the outcomes of modern pop procedures. The process of interactive/interpretive evaluations goes beyond the heuristic methods of accomplishment in the commercial pop music industry.
<table>
<thead>
<tr>
<th>Instrument</th>
<th>Comp</th>
<th>EQ</th>
<th>Reverb</th>
<th>Delay</th>
<th>Pan</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drum kit</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bass</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Guitar 1</td>
<td>4</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guitar 2</td>
<td>0</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keyboard</td>
<td>0</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead Vox</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVs 1</td>
<td>5</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 18: Proposed basic production chart

<table>
<thead>
<tr>
<th>Setting</th>
<th>Threshold</th>
<th>Ratio</th>
<th>Attack</th>
<th>Release</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-20.5dB</td>
<td>4.1:1</td>
<td>9.5ms</td>
<td>210.0ms</td>
<td>0.0dB</td>
</tr>
<tr>
<td>2</td>
<td>-15.0dB</td>
<td>5.6:1</td>
<td>19.5ms</td>
<td>130.0ms</td>
<td>0.0dB</td>
</tr>
<tr>
<td>3</td>
<td>-18.0dB</td>
<td>4.4:1</td>
<td>0.0</td>
<td>92.0ms</td>
<td>0.0dB</td>
</tr>
<tr>
<td>4</td>
<td>-15.5dB</td>
<td>4.6:1</td>
<td>65.0ms</td>
<td>160.0ms</td>
<td>-7.5dB</td>
</tr>
<tr>
<td>5</td>
<td>-9.5dB</td>
<td>2.4:1</td>
<td>19.0ms</td>
<td>310.0ms</td>
<td>0.0dB</td>
</tr>
</tbody>
</table>

Figure 19: Compression Chart Example

<table>
<thead>
<tr>
<th>Setting</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Absolute Centre</td>
</tr>
<tr>
<td>2</td>
<td>9 o clock</td>
</tr>
<tr>
<td>3</td>
<td>3 o clock</td>
</tr>
<tr>
<td>4</td>
<td>Stereo pan hard left and right</td>
</tr>
<tr>
<td>5</td>
<td>10-11 o clock</td>
</tr>
<tr>
<td>6</td>
<td>1-3 o clock</td>
</tr>
</tbody>
</table>

Figure 20: Panning Position Chart Example

The charts above are not intended as exact replications of performance procedures, rather they offer an indication toward the inner workings of a mix scenario. There are other events that occur throughout songs that include programming of samples, synthesizer filtering and changes in timbre to different instruments such as drums. Many of these proceedings are automated with software programs and are the more detailed moments of production events. The diagram below (Fig 21) represents a series of sequenced events and each cell is
effectively 4 beats long, depicted by the four sides of the rectangle and thus the first line is a 4 bar passage. Incidental comments of progressive instances can be aligned to individual bars and further, individual beats. By incorporating this method, an overview of a song’s structure can be created and scored with performance marks that reflect the workings within the sequence of events. It is also then possible to notate other songs in this way and to then define performance moments that occur during the playback.

4 bar Intro

8 bar Verse

**Figure 21: Sequenced Events**

To demonstrate this further, I will sequence the introduction, verse and chorus of Roachford’s 1994 release, ‘Only to Be With You’. I will integrate the settings from the previous panning chart as numbers in parenthesis to indicate location in the mix. Further charts could be implemented to show reverberation and so forth but for the purposes of this example I will adhere to the panning chart to keep it simple.

**Figure 22: First 4 bars of 8 bar Intro**

The mix for the first 4 bars is, kick and side stick beat panned (4), electric guitar with mild overdrive panned (2), acoustic guitar panned (3) for balance and an acoustic motif panned (1). Bass panned (1). Overall texture is dry but retains organic warmth.

**Figure 23: Second 4 bars of Intro**

Texture and instrumentation remains the same but an electric piano (4) appears on the first beat of bar 5 for increased energy and continues until the end of bar 8.

**Figure 24: First 8 bars of Verse**
Rhythm section remains the same; both electric piano and acoustic guitar are removed from the sound scape at bar 9. Electric guitar is retained panned (2) and lead vocal is processed in stereo (4) and dry.

Figure 25: Second 8 bars of Verse

Acoustic guitar reintroduced at bar 17 and panned (3). An encompassing reverb is placed over drum kit and vocal at bar 17 that reveals the texture as more lucid. At bar 23 the acoustic guitar is removed and replaced by a second electric guitar (3) with a similar sound to that of guitar one.

Figure 26: Chorus

Snare is introduced to the beat; both electric guitars are retained and perform altering rhythmic and motivic sections of chorus progression. Acoustic piano (4) is introduced at beginning of bar 25 and backing vocals are panned (2) and (3) individually.

These are simplistic examples that I have tried to outline by adopting the adaptive methods that Cage pioneered to reinterpret a musical score. It is by no means exhaustive but it does in some way provide the beginnings to a means of ‘mapping’ the workings that are in question. This method also provides a pathway towards understanding the workings of music’s created and produced by experts in the field. By integrating the two systems suggested we could visualise the extent to which production becomes artistic. This is of course subject to genre rules but there remains a need to recognize and order differences between artistic uses of technology by those who are fluent and by those who use purely heuristic methods to achieve their results. Furthermore, while neither can be viewed as superior over the other, the benefits to those who need to understand technological impacts to assess credibility, particularly in educational services, is greatly enhanced.
CHAPTER 6

HIGHLIGHTING THE DETAILS

This chapter presents the findings discussed thus far in a practical application. I discuss the work of several well-known artists and establish the role that technology performs within their music. Moreover, I reveal how different interpretations of performative functions can alter genres.

6a Technology Montage, Contradiction, Irony and Juxtaposition in Madonna’s Music

In this chapter I discuss pop from a performative via technology perspective where technical manipulations constitute texts. Innovative producers creating montage through technical mediations and in some cases, contradiction and irony create these texts through editing, layering and equalization processes. As an exponent of technology, Madonna’s success as a digital artist discloses her intentions of utilizing the latest trends in music production techniques. Never one to be outplayed, Madonna’s conceptual prowess is second to none in the pop market. It is my intention to reveal technology texts as a highly encoded data within her works. This discussion begins with what is arguably Madonna’s third reinvention of herself as a pop star. Her 1998 album ‘Ray of Light’ was the result of a four-year hiatus following the release of the ‘Evita’ album. In contrast, Madonna’s music prior to this album unashamedly confronted gender and sexuality issues in pop culture (see Hawkins) and her reputation situated her within the dance pop market. Her collaboration with techno producer William Orbit however, signified a change in direction. ‘Ray of Light’ was initially considered a more mature and restrained offering through substantial alteration in lyrical content and meaning. Musically however, production advancements reveal this album as highly technical and complex. Consequently, Orbit’s production credits include Seal, The Cure, All Saints, Human League and Pink, to name a few.
The opening bars from the single ‘Ray of Light’ begin with an electric guitar with a soft tranquil tone that is then coupled with an ethereal pad texture. This sound is delicate yet encompassing and this texture signifies the immanent arrival of events as in a ray of light reaching us. The music proper begins with a sweeping filtered synthesizer (see fig 27) pattern that represents a technological arrival; the organic nature of the guitar disappears until the beginning of the verse and this lures the listener into a sense of space and dimension. The kick drum is soft and unobtrusive and this is represented by the lack of presence in Figure 27 below. Also indicated in this spectragram is the separation of musical content through precise equalization procedures characterized by the red colour. The kick is indistinctly situated at 125 kHz and the bass is represented by the yellow colour surrounding the kick. The overall effect is one of lightness and space that draws on the connotations of the subject matter. The precision executed within the mix displays a high level of production skill associated with spectral knowledge. While listening to this section of the soundtrack, programmed sounds establish their presence through alterations in timbre and effects thus preparing the track for the introduction of the vocal.

![Figure 27: Curve of filtering process that extends through to high-end frequencies.](image)

Madonna’s voice is processed and maintains an individual space through equalization and reverberation. The guitar is reintroduced to add an organic value to an already established surreal soundscape. The sweeping filter pattern retains its prominence in the higher midrange register of the mix with less intensity and morphs in unison with the tempo to determine thematic content has not been lost. The music symbolizes the lyric “Zephyr in the sky at night I wonder” as the thought of wonder is emanated and thus a journey begins. The final lyric of
the verse “For the call of thunder threatens everyone” is followed by an increase in intensity displayed by the frequency density in Figure 28 below.

![Figure 28: Graphic displaying increased energy after lyric](image)

In September 2000, the album ‘Music’, which was co-produced by the French producer Mirwais Ahmadzi was released. Ahmadzi is highly regarded within the French disco scene as an innovative DJ producer. Hawkins discusses the title track off the album and its complex editing and production tricks as inherent to Madonna’s perceived image. Hawkins maintains, …I would suggest that it is in the affected nature of the production of ‘Music’ that the pop aesthetic is fully manifested. Within the production process there is a repertory of technical processes that are moulded into the full effect of the sound.” (Hawkins, 2004. p.181) Hawkins further suggests that Madonna’s recordings are, “deconstructions of agency and desire… (Hawkins, 2004. p.182)

and that her performativity is the result of studio production processes. From the highly commercial perspective of her career this is especially true and indicates the impact of producer /technology roles. I therefore discuss the second single from the album called ‘Don’t
Tell Me’ as an attempt to comprehend the difference that use of technology has on the listener’s perception of a technological production and the way in which Madonna reifies this notion in new texts.

The album cover for ‘Music’ depicts Madonna in a quasi-western theme complete with hat, cowgirl shirt and coupled with the album name logo consisting of a western styled font with a rodeo image is where the contradiction begins. This image is integrated with technical constructions of an aural landscape representing vastness and similar to that of open plains. The introduction of an acoustic guitar instantly strengthens the assumption of a country direction but all notions of this disappear as the chord progression of D-Amin9-C-G is subjected to an incredibly complex editing process. The progression is literally chopped into segments and reconstructed as a syncopation to arguably expose the DJ influences of Ahmadzi. A desiccated sounding minimal bass pattern is introduced with the vocal and the sense of wide-open spaces is realized further as the edited guitar line provides rhythm until an emergent drumbeat begins accompaniment. The kick drum is compressed and punchy with a tight character that is equalized as a differentiation from the lower sub-tone of the bass. (See Fig 29) The snare is also tight and crisp, it extends beyond the kick drums occupied space and with the lack of subsonic texture from the bass, the mix emits a minimalist texture that reinforces the perspective of wide-open spaces. This theme becomes more apparent with the introduction of a string section that is produced with an expansive texture adding the perception of ‘air’ and thus balances the evolving sound. Madonna’s voice is highly articulated and subtle nuances are removed initially to clarify and strengthen the rhythmic element of the ‘chopped’ guitar line. Lyrically, the song conveys notions of nature with
reference to rain, wind, sun and animals but offsets these with the emphasis on ‘Don’t tell me to stop’ being myself. While the soundtrack content is contradicted by a contrast between the images of country life and the technology of recording processes. It further highlights the suggestive influences of technical applications and their uses as mediations that also bridge social texts with pop ideologies.

Three years later, Madonna’s 2003 album ‘American Life’ once again produced by Ahmadzi, implies a social revolutionary theme with album cover artwork that depicts the artist in the style of Che Guevara. The single ‘Hollywood’ considers the issues surrounding the social costs of living in this place. The lyric ‘Everybody comes to Hollywood’, outlines the exterior appeal associated with bright lights and the promise of opportunity. Reference is made to this through ‘The sun is shining like you knew it would’ but quickly levels the emotions with ‘How could it hurt you when it looks so good’. The soundtrack reveals a montage of sounds that are intended to reflect the many effects/illusions that Hollywood may communicate to people’s perceptions but ironically the texture is fairly light and unassuming. The track begins with tranquillity in the form of birdsong and then ushers in the acoustic guitar that is lush and natural and equalized accordingly in the low midrange area to reflect this earthy naturalness. (See fig 30) This figure reveals the sound as sections of frequency band that are selected and signified as a striped effect throughout the sonic spectrum. This highlights the use of a constructed outcome upon the mix that audible affects the listener’s perception of how they are receiving these textures. The introduction is preceded by the vocal and rhythmic accompaniment that consists of two kick drums mixed together, handclap and 808 snare and

**Figure 30: Introduction to Hollywood**

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112 An iconic revolutionary.
hats and a warm analogue electronic bass. The mixed kick drums coupled together emit a subsonic texture that also has ‘click’ and therefore presence but the overall effect is unobtrusive as far as kick sounds are concerned and yields an electronic quality consisting of kick on every beat and snare on 2 and 4. This is a standard disco model and provides an interesting backing to the concept of Hollywood life. The bass pattern is a stylistic constantly moving figure that weaves in and out of the drumbeat and follows the guitar chord structure root notes that are B-A-G-E. Madonna’s vocal in the verse is equalized, processed and edited and is situated above the backing and this is illustrated in Figure 31.

The track evolves with the introduction of new sounds, such as white noise, filtered synthesizer that parallels the bass line, and various effected samples. Madonna’s voice is also double-tracked, spread and reverberated to alter her authority in the mix. The overall result is precise and calculated and this denotes the sonic attributes of technical manipulations as a skill that alters sounds to associate artist image with commercial intention through contradiction. The revolutionary tendencies indicated with the album cover would suggest that the artist is protesting socially toward ‘American Life’ but the sound texture of Hollywood does not represent this. Moreover, the tempo of 126bpm coupled with the disco beat, grooving bass line and technical manipulations contrast the lyric and therefore create a sense of perplexity and this signifies the meaning behind Hollywood. Hawkins maintains, “…it is through filling in the semantic gaps that the variables of music structure achieve their sense of meaning.” (Hawkins, 2002. p.8) The compositional features employed by Madonna and Ahmadzi reflect the outlines that Hawkins suggests as essential to understanding the processes that construct pop. Through incorporating the subterranean aspects of technologically produced music we can reveal encoded data as another element of the evolutionary procedures situated as mediations in pop.

113 The Roland 808 percussion module is still a highly regarded piece of equipment that was first produced in 1980.
The final Madonna song I discuss is from her latest studio album to date called ‘Confessions on a Dance Floor’ released in 2005 and produced by Stuart Price. Throughout this discussion we have seen Madonna strategically reinvent herself through the use of technology and innovative producers. This album is no different in that the album cover image (see fig. 32) in placed firmly in 1970s disco nostalgia and the image is reminiscent to that of ‘Fame’.

Price has been credited for working with artists such as New Order, Gwen Stefani and Depeche Mode among others. J. Freedom du Lac maintains, “Price has his finger firmly on the pulse of danceville, and his artistic instincts have helped Madonna once again to sound relevant and smart.” (Freedom du Lac, 2005. p. C01) The single ‘Hung Up’ characterizes all modes of production that have been utilised by Madonna in discussion thus far and exhibits

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114 Fame was a television show that ran from 1982 to 1987. It depicted the lives of students attending a performing arts school in New York.
an interactive text full of studio production techniques that exemplify the tools available for today’s pop artist. The main difference between this song and the others discussed is the use of a sample from Swedish super group ‘ABBA’ that essentially structuralizes the resulting Madonna track. Sample lifting or borrowing is not a new technique but in this context, subjective analysis of the sample in it original state offers another method of dissecting musical meaning through its use in the original track and its denoted meaning in the new track. The question then becomes concerned with cross-referenced meaning by the same sample and more importantly; does the sample’s encoded meaning influence its position of meaning in a new context?

The sample in question comes from ‘Gimme Gimme Gimme’ off ABBA’s 1979 album ‘Voulez-Vous’ and in the context of this song it acts as a signifying motif that is introduced and reintroduced throughout the song. The sample is a constructed fanfare containing strings and flute that emanate confidence and exuberance over the top of a classic disco beat pattern. This is reinforced by the bass motif that is also reminiscent of early disco music (see fig 33) and becomes the stylistic pattern for ‘Hung Up’. While the production quality of Gimme, Gimme, Gimme is relevant to its era and technologically proficient, the possibility of an influence into Madonna’s song is apparent with the lyric not the production value. In this capacity, the act of borrowing is situated with the ability to do so through technology that further authorizes adaptations into new contexts and meanings. There are strong similarities however with the lyrical meaning of both songs and this is replicated through reference to time and space where the subject is concerned with waiting, yearning, hope and desire. It is difficult to ascertain Madonna’s intentions lyrically or to conclude if there was a predetermined motivation to write a similar theme but the analogous lyrical content of both songs coupled with the rhythmic imitation in Hung Up certainly signifies an influential use of this particular sample.

Figure 33: Rhythmic pattern for ‘Gimme Gimme Gimme’ sample

‘Hung Up’ begins with a ticking clock and the lyric, ‘Time goes by so slowly’ that is soon linked with the main rhythmic theme. The upper frequencies are filtered initially allowing
only the lower frequencies to pass through. As the filter opens, allowing the high frequencies to be heard, the impression of rising tension eventually introduces the chorus. (See fig 34)

The eminent impact of the full spectrum of sonic range emits a notion of release whereby the initial tonally subdued sentiment is replaced by renewed vigour. Once again Madonna’s voice becomes the focal point of the song through process and placement in the mix and has a yearning quality to it that further enforces the notion of time and desire. The space occupied by the vocal is represented with a widespread stereo effect that has an encompassing consequence; it almost places the vocal delivery as depicting inner thoughts as opposed to actually speaking to somebody. Throughout these discussions, Madonna’s vocal productions have played an important role in occupying certain spaces and this defines the functionality of technical procedures as imperative to the interconnective role that technology allows producers to create.

![Figure 34: Effect of filter being closed; Kick and bass energy reduced, high-end frequencies diminished](image)

As the song progresses, the initial salvo of a late 1970s disco sample, and its associated rhythmic values, never diminishes. The enhancements toward production depth through improved technical developments are obvious as depicted in Fig 35. These two spectrograms reveal important factors pertaining to the development of production technologies over nearly three decades. The most significant feature is the ‘fatness’ of the sound and this is portrayed by the increased energy levels, red being most intense and the noticeable increase in the audible high-end frequency range. Through these graphic illustrations we can clearly depict the width and depth of technical enhancements by considering the amount of yellow and red against the green background. Throughout ‘Hung Up’, numerous editing procedures, instrument layering and textures are represented in these graphical depictions. The productions I have discussed thus far reveal the importance that technology has in pop today,
in particular, its uses as a tool for the shaping and constructing of texts. These texts alter social relations but these alternations occur through expert knowledge of systems, fluency and

![Original ABBA sample shows lower production intensity.](image1)

![Madonna’s song, same sample with increased energy](image2)

**Figure 35: Comparison of ABBA and Madonna production content**

visionary concepts associated with technology. Hawkins maintains, “Madonna’s songs offer up an expansive plane for debating the many issues implicated in perceptions of music production and recorded performance.” (Hawkins, 2004. p.180) These implications are based on manipulations of socially constructed dialogues through the reconstructions of texts involving technical innovations. The skills underneath the outside layers of pop production incorporate subject matter and sounds accumulated through fluency and vision to reveal encoded data. Madonna’s continual use of innovative producer’s, display an appropriation of conventions toward dance culture and the mediations through which this culture is received. Technology can signify new connotations through its use and the subsequent meanings can blur the lines of reality through contradiction, juxtaposition and irony. Madonna has arguably become an expert at this and her production ethic can be applauded due to her belief in quality systems and authoritative personal that are able to manufacture and restructure pop texts. What we are noticing however is technology-informing art and this influences decisions made towards recording processes and outcomes.
6b Chaotic Editing Processes Thematic of Industrial Horror Music

Canadian three-piece band ‘Skinny Puppy’ released their debut album in 1984 called ‘Back and Forth’. Initially a duo of Kevin Crompton and Kevin Ogilivie a third member Dwayne Goettel was incorporated and this remained the lineup until 1995. Their music is categorized as ‘Industrial’ and to all intents and purposes this genre is reliant on musical technologies to create its pastiche of sound through complex editing procedures. The main differences in these procedures are located in the aural experience of listening to the generation of multiple utterances establishing mechanized milieu and in many cases horror. Unlike Madonna, Skinny Puppy located their production expertise with the manipulation of sounds that stimulate the listener into another aural dimension by creating and layering sounds together, altering samples and integrating controversial themes into sonic palettes and abrasive polemics. I first want to discuss an initial exponent of this style, ‘Throbbing Gristle’ who is an experimental group that formed in London circa 1975, to establish the undercurrent of meaning behind this genre. Throbbing Gristle formed their own record company named ‘Industrial Records’ and embarked on the musically abstract processes that made them unique. The following excerpt is from their website and positions their intentions well;

Industrial Records began as an investigation. The 4 members of Throbbing Gristle wanted to investigate to what extent you could mutate and collage sound, present complex non-entertaining noises to a popular culture situation and convince and convert. We wanted to re-invest Rock music with content, motivation and risk. Our records were documents of attitudes and experiences and observations by us and other determinedly individual outsiders. Fashion was an enemy, style irrelevant.


Throbbing Gristle clearly situate themselves in opposition to the mainstream categorisations of contemporary artists today and it is this positioning that enables them to experiment with the alternate uses of technology to achieve thematic voicing. The song ‘Still Walking’ off their 1979 album ’20 Jazz Funk Greats’ is a testament to their musical direction and noticeably incorporates technical manipulations that emulate distorted realities. The track opens with an oscillating synthesizer loop that pans continuously from side to side and is sequentially reverberated with a short decay. Stabbing distorted noises with metallic qualities that assimilate a factory production line unites this texture and is soon coupled with fabricated screams to complete the musical bed. This mechanical concoction becomes more intense as the piece progresses and lyrical content begins with suggestions of tiredness through walking. The music begins to replicate that of a delirious nature and more human voices from different
sonic positions in the mix are added that append to the confusion and it is evident that this is a nightmare as the sonic perceptions of the music increases through sporadic noises and rising tensions. Throughout the piece, the initial synthesizer loop prevails, adding to the oddity of the overall experience as one of perplexity and displacement of ones senses. The stylistic compositional methods of this approach require technical manipulations and visions beyond the normal songwriting processes of a mainstream vocabulary. The aim is to create replications and imitations of the dialogues of social ideologies as industrializations and in many instances under the artifice of social horror. Throbbing Gristle’s innovative method challenges aural sensitivity to interpret through experience of sound texture rather than succumbing to the stylistic compositional methods of commercial pop. The technical skills required are connected closer to experimentation than actual strategic events, but the visualised outcomes and reinterpreted uses of technology remain consistent.

Skinny Puppy’s work, however, represents new innovations in Industrial musings whereby complex editing processes are apparent to which montages of sound are achieved yet an underlying tone of darkness reinforces the guise of social ‘horror’. What sets Skinny Puppy apart from Throbbing Gristle is predominantly the sheer amount of sound layering and positional placement occurring at any one time. This requires instigating new methods towards the construction of thematic content further removed from altering synthesizer noises and thus becomes situated closer to the strategic event organizations of pop texts. Skinny Puppy’s Lyrical content adheres to social and surreal atrocities, coupled with dominant beats and chaotic sample clips, sonic palettes of primeval tones are formed to portray more effectively their intended message. The message is that of shock and awe and Skinny Puppy are noted for their live performances incorporating confrontational subjects such as politics, animal rights and disease to the fore through their music. Their 1985 song ‘Assimilate’ integrates angelic voices, dog barks, electronic beat, reverse gated snare and encompassing pads constructed in a manner emulating disturbance. Words linked to the musical track range from ‘Set the pace feel the rage’ to ‘In the trench of pestilence the bible screams’ and ‘Rot and assimilate’. These coexisting elements are coordinated to lock in a clear message of social unrest and furthermore awakening from a perfect world. The vocal tone is menacing and abrasive while the soundtrack is solid and unwavering culminating in a sense of uneasiness. Effected samples mesmerize and confuse and their placement in the mix is engaging and permeates an energy that can only be achieved through careful attention to detail. The resulting track engages the listener to conform and partake in what can only be described as a venture into a melee of uncertainty created through technological programming.
In 1989 Trent Reznor released a debut album ‘Pretty Hate Machine’ under the pseudonym of ‘Nine Inch Nails’. Time magazine said, “He is the lord of Industrial, an electronic-music form that with its tape loops and crushing drum machines, harks back to the dissonance of John Cage and sounds like capitalism collapsing.” (1997) While Reznor’s compositions for the album in discussion retain the chaotic editing processes of Skinny Puppy, the production sounds are more pop and the messages are not as shocking or brusque. The overall effect is that of a commercial ethic that allowed Reznor to go on to establish his reputation as a producer and mixing engineer with production credits with artists such as ‘Marilyn Manson’. The track ‘Head like a Hole’ off the aforementioned album depicts Reznor’s production style appropriately and this is reflected by the songs success. Jonathan Cumbee writes, "Head Like a Hole" is, to this day, one of Nine Inch Nails' biggest hits, and for good reason. It begins with the very Skinny Puppy-esque opening measures and turns into what will become a series of eerie and rich synth riffs, each one completely different and effective as the next.” (Cumbee, 2007) Cumbee’s evaluation is an accurate one but the sound textures are not as brutish nor the lyrics as horrific as Skinny Puppy. There is clearly an industrial edge to his sound but it is more commercial and therefore appealing. Reznor’s interpretation of technologies would see him in the top 25 of Time magazines most valuable Americans in 1997 but it his attention to detail, similar to that of SP, that situates his programming ethic as complex and essential for this genre of music. 115

6c Vocalisms as an Integrated Instrument in the Music of Justin Timberlake

‘Timbaland’, aka Timothy Mosely, has emerged as one of the most innovative and ‘in demand’ producers within the Hip Hop and R&B genres. Notable production credits include ‘Missy Elliot’, ‘Genuwine’, ‘Nelly Furtado’ and ‘Justin Timberlake’ as well as numerous others. One of his production styles represents a reinterpretation of percussive elements outside of simplistic kick and snare beats. Timbaland is also an exponent of complex editing procedures but unlike Skinny Puppy these complexities adhere to the commercialisation of sounds within genre rules. I want to discuss Timbaland’s production approach to Justin Timberlake’s ‘My Love’ off the 2006 album ‘Future Sex/Love Sounds and in particular, the vocal elements of the song that act as percussion and furthermore as mono-tonal linkages within the chorus. These vocalisms imitate percussive components such as hi hats, shakers

115 See http://www.time.com/time/magazine/article/0,9171,986206-17,00.html
and toms and are performed in the style known as ‘beat boxing’. Other vocalisms include imitation of bass lines used in conjunction with vocoders, turntable scratching and general human noises such as high pitch squeaks and laughing. Although a wide array of sounds can be produced from the human voice, used in the context of music they are usually employed to construct complex rhythmic components of songs.

‘My Love’ begins with a trance-style synthesizer progression that rhythmically sets the basis for the song. (See Fig 36) The sound is expansive and filtered as the opening chord sequence develops throughout the progression.

![Figure 36: Rhythmic pattern for opening pad progression.](image)

This progression is maintained for the entirety of the song and cements the harmonic content as Em-Bm-Am and this pattern acts as a link between the beat and the human hi hats. The beat is a basic hip hop pattern (see Fig 37) and the kick and snare sounds are dry. The kick drum is equalized to accent the lower midrange and exhibits a ‘cardboard’ like quality. The snare is short and crisp and these two textures together are simplistic and characteristic of the genre. The increased syncopation in the second bar of the two bar drum pattern signifies the rise in tension where in this instance vocalisms in the form of percussion fills occur along side programmed toms.

![Figure 37: Kick and snare pattern.](image)

The human hi hats (See Fig 38) are also syncopated to this rhythm and provide further rhythmic interest and by deconstructing this overall beat we can see how the groove works utilizing rhythmic displacement with alternate percussion sounds.

![Figure 38: Human hats pattern](image)

The effect is spacious yet complex and this due to the textural nature of the sounds themselves, as alternatively, this pattern could become ‘dense’ quite easily with other
instruments. This represents a production event depicted by the placement of vocalisms as important components of the groove as it evolves. The aforementioned percussion fills are a mixture of dynamic breath manipulations that resemble popping noises, squelches and emphasis on ‘p’ sounds and performed with alternating force. These ‘fills’ are placed alongside programmed tom toms and add an extra dimension as a hybridised drum fill. Throughout the track the constructed groove adheres to its formula of separation through texture allowing the lead vocal to meander over the top. More vocalisms appear in the chorus in the form of a sample of laughing that is ‘chopped’ rhythmically and the monotonal lyric, ‘So don’t give away’ that acts as another rhythmic element but also a supporting bass note. (See Fig 39) The mono-drone E note acts as a suspension beginning as I then becoming IV and finally V over the progression Em/Bm/Am.

Figure 39: Mono-tonal lyric coupled with chorus

The overall effect is the result of clever programming and textural enhancements that are situated within the producer’s ability to provide the dimension of ‘time-feel’.\textsuperscript{116} This is the groove element that is so important to this particular genre due to the instrumental nature of the music. Figure 40 depicts the interplay between beat, hats and lyric as a syncopated push and pull with the constant synthesizer pattern. From the graphic we can see how the kick drum occupies an open space while the articulations relevant to the snare beat show increased rhythmic intensity. This time-feel relates to the importance of fluency and more specifically, producer roles.

Figure 40: Components assembled

\textsuperscript{116} This is a concept that Bob Power discusses. See http://nylpug.com/wordpress/2007/05/07/nylpug-podcast-bob-power/
In this chapter I have aimed to amalgamate the issues involved with pop music analysis on a basic level in an effort to highlight areas beyond the harmonic content underneath the guise of image and commercialism. Each artist I have discussed portrays a technological existence within a music culture and their works are the result of interactive processes from the many dimensions that are involved. These processes go beyond the home recording enthusiast’s musings; they are the result of the evolution of recording and production technologies. Throughout this research, the importance of comprehending the components of pop has been discussed as the way forward for musicological development. We are witnessing the constant shaping of pop culture that has come to rely on the forces of new technologies to forge ahead with regard to redefining and individualizing new music’s. Pop ideology has become an increasingly problematic discourse by way of commercialism that, on the surface, reveals minimal harmonic content. The analytical content however, is that which lies underneath the image and pastiche. I have discussed how Madonna’s production ethic allows her to alter her image through the use of producer expertise and how Skinny Puppy use chaotic editing processes to communicate a state of social industrialization that emits a theme of horror. Furthermore, I have shown how intuitive programming and use of vocalisms can create a tonal palette that in turn creates a time-feel in the music of Justin Timberlake. All of these examples share more than one commonality in regard to their consequential outcomes. The interconnectivity of all the facets required such as technology and its use and production with its vision are essential to understanding the mechanics of pop and its participants. Thus, the notion of De Nora’s ‘toolbox’ is an accurate metaphor to illuminating the highly encoded texts that prevail.
CHAPTER 7

In this chapter I present my findings from the qualitative process initiated by Maykut and Moorehouse. Details of the surveys and interviews used to gather data can be found in the appendices.

Propositional Statements

Through a process consisting of online surveys and questionnaires I have assessed the data and constructed charts of propositional statements that link to the previous texts contained in this research. These encoded declarations represent an interpretation of views on the impacts of music technologies primarily by members of web communities and therefore signify a wide variety of musical interests. The questions were designed to extract comments pertaining to thoughts on influence, direction and impacts on pop music production integrating technology. The statements are organized into subheadings and therefore are relevant to each other under the subheading topic. All statements were retrieved from texts and constructed utilizing the Maykut and Moorehouse method. A summary will follow each category so as to maintain a clearer picture of technology impacts across the variable subject area.

Relates to the Marketing Strategies of Music Technologies

| Allows participation rites to a broader range of potential music enthusiasts |
| Conventional instrument interfaces are negated through a universal procedure |
| Is a cost effective entry into the music making domain |
| Alters the concept of what constitutes a recording studio |
| Is viewed as an enjoyable experience and therefore likely to be creative |
| Preset banks of sounds/instruments allows users to experiment with alternate genres |
| New technologies provide a vehicle towards future music’s |
| Production technologies are driven by Fashion |

Refer to bibliography
This group of statements situates the marketing strategies associated with music technologies as performing an influential role in music making procedures. What was once considered beyond the affordability of most would be enthusiasts, has become a consumer marketplace where competition revolves around ease of use and musical accessibility to online web communities such as My Space. Continual development and marketing of ‘all in one’ outboard equipment further alters the notion of what constitutes a recording environment and in many ways has lowered the integral value of this artistic concept. This is achieved by removing the aesthetic value of the recording procedure as an art form and replacing it with a notion of mass participation and this hereby creates problems with product quality and mass musics. On the other hand, this availability allows users to experience music creation tools that may lead on to further development through better understanding. In this way, standards are implemented via self assessed comparisons with a production from commercial outlets and this signifies to the user a set of production standards, in place, that are required for a commercial release. More evidence towards a ‘rounding down’ effect is that of the universal interface where interchange between devices permits multiple connectivity’s. While this has a distinct advantage for users, it further symbolizes the ability for technology manufacturers to mass-produce with minimal protocols in place. This can thus create an issue in regard to the quality of components as manufacturers compete for niche markets incorporating price orientated marketing techniques. Although this is a positive aspect for consumers, cheaper, lesser quality products have an impact on the value of music productions and therefore the acceptable commercial standards.

With the development of interconnectivity between devices, there has been an implication towards design and fashion amongst manufacturers that became apparent with participants in this research. Some believed that the notion of ‘fads’ played an important role in the marketing of and subsequent consumption of technologies. In an environment where technology can be portrayed as the ultimate in modernism, device design integrates both practical and ergonomic design features that act as an aesthetic standard. This leads us to the next set of statements that refer to authority and standards.
### Traditional Standards Retain Value

<table>
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<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>Traditional methods and disciplines pertaining to sound capture still retain high value</td>
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<tr>
<td>Older technologies retain an important role toward ‘benchmark’ quality</td>
</tr>
<tr>
<td>Traditional methods of composition still have high value</td>
</tr>
<tr>
<td>Recording industry standards remain exclusive from home enthusiasts practicalities</td>
</tr>
<tr>
<td>Overall quality is still prevalent</td>
</tr>
<tr>
<td>Quality and substance is still preferable to quantity and lack of content</td>
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These statements reveal, among other things, that principles based on early crafting of music with technologies, still continue to be an important influence. The invention of devices to enhance the recording signal i.e. pre-amps, compressors and so forth, set the precedent for future developers and users. As mentioned previously, mass production of musical technological devices has diminished the quality of signal processing and this remained an issue with those who submitted answers. The differences are primarily situated with components inside devices such as connectors, the algorithms of programmed software, electronic parts and details such as hand wiring. Essentially these omitted particulars are caused by economic contingencies that are needed to manufacture cost effective goods. Furthermore, initial production standards seen as ‘industry standards’ still remain the benchmark of attainment. Older vintage equipment has become sought-after for audio enthusiasts. This includes audio devices such as vintage microphones, keyboards and guitar amplifiers. Survey participants concur that the quality of components and attention to detail in the manufacturing process retains a specific sound that can only be emulated today. There are numerous software programs that emulate vintage equipment and this reinforces the desirability that these period pieces emit. There were some participants that viewed the impact of technologies as degrading to compositional procedures, particularly those pertaining to software applications. Issues were diverse and reflected an organic view towards the art of song writing where technologies were influential. Opinions were concerned about the ease with which composing was made with computers and software programs. While many situated these programs as tools there was sufficient objection to qualify this notion. What is apparent within this group of statements is the concept that quality in music productions is highly valued among a wide variety of participants. This is inclusive of the many variants of music making and warrants further discussion beyond the scope of this study. Music technologies can be stratified into levels of class and this further affects the way in which music producers view their worth. While an affordable device allows more users to
participate, the encoded knowledge retains a lower value in the areas of creating professional high-end productions. This is apparent when one visits a professional studio website and surveys the equipment list. It is therefore a dichotomy that while mass produced consumer technologies seem to offer more parameters and options in a smaller unit at a lower price, the quality of some older technologies still set the benchmark for production standards. We can therefore ascertain that while new devices breach the affordability threshold, an overall effect is that of reduced sound quality bought about by mass manufacturing and lesser quality components. This further detracts from the initial principles set in the early days of music production. While the positives are fixed with participation issues, the negatives affect quality and value.

**The Ultimate Tool**

<table>
<thead>
<tr>
<th>Music technologies have a ‘Swiss army knife’ stigma</th>
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<tbody>
<tr>
<td>Creates the ability to alter recorded audio</td>
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<tr>
<td>Allows composers to audition orchestral work without the need for actual players</td>
</tr>
<tr>
<td>Time effective editing procedures such as score and arrangement work</td>
</tr>
<tr>
<td>Provides immediate feedback of ideas</td>
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<tr>
<td>Tools for every aspect of the creative process</td>
</tr>
<tr>
<td>Increases the creative abilities of prospective composers</td>
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</table>

The notion of tool-based music technologies has an important role in the creative processes of music today. The statements above would suggest that many areas of these processes are covered by technologies and further more situate the increase of productivity through their use. My analysis resides with how music technologies have removed the arduous tasks such as manuscript writing, physical repeat performances of material and so forth with more streamlined and time efficient procedures. The consequence of these developments is one that crosses several boundaries relating to music creation and editing. For the professional musician/composer, improvements in these areas have become essential to maintain a presence in a commercial capacity. Fluent use, and therefore a high productive output, maximises time use in a commercial studio for example. The composer can also negate scores without the need for a human performance and furthermore there are large numbers of composers involved in film and television scoring that utilises sampled orchestral sounds instead of actual orchestras. All this productivity is a positive result for the implications of technologies, but negative aspects are also implied. The use and acceptance of sampled sounds over human performance impacts on employment opportunities that relate to the
improvement to attainment of a performance through technology use. Another negative relates to performance itself in that through audio alteration possibilities, what we are listening to may in fact not be a true representation of what was recorded. This becomes obvious when studio performances are compared to live performances. In many cases, the vocalist benefits from technologies such as pitch correction, vocoders and the ability to composite multiple vocal tracks together to achieve the ultimate recorded and produced track. There is little to suggest that music technologies have not been developed as tools for artists with the aim of simplifying and accessorizing the procedures involved in music making. From this perspective then, the impacts are immense.

To summarize thus far, music technologies are perceived in several capacities. These categories correlate with previous texts within this research and furthermore strengthen the links between the assumed participation of technologies and human interactivity as problematic in many areas. Although a tool-based software program can stylise processes, the need for a thorough knowledge of the inner workings may be more beneficial to creative outcomes especially in a commercial environment. Finally, The value of quality still retains a precedent over quantity particularly from a commercial standard.

The Inhuman Element

<table>
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<tr>
<th>Technologies can be seen as lacking heart or soul</th>
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<tbody>
<tr>
<td>Technologies cannot interpret human thoughts or emotions</td>
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<tr>
<td>Technology cannot compensate for talent</td>
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<tr>
<td>Technologies do not guarantee success, artistic quality or genius</td>
</tr>
<tr>
<td>Pragmatic musical knowledge cannot be replaced</td>
</tr>
<tr>
<td>Technology consumers do not necessarily produce quality music</td>
</tr>
<tr>
<td>Artistic content does not increase through new technologies</td>
</tr>
<tr>
<td>There is segregation between ‘electronic’ and ‘organic’ music communities</td>
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This qualitative research determined a valid concern for how technologies and users have become reliant on methods of creativity that result in musical gestures lacking emotion. This could be attributed to the nature of machinery and it is certainly evident that commercial pop tunes can emit a certain banality in structure and harmony. On the question of human emotion with machines, it is fair to suggest that the problems may be positioned with the user or in some cases the limited accumulated knowledge within a device. Furthermore, interface correlation once again conveys a problem with fluency and knowledge of technical
procedures or terminology. However it is discussed, there is tendency to situate technology as emotionless and I suggest that this is unequivocally true. However, the ability to create emotive and moving music can be greatly enhanced with sound generators, effects and editing. Most devices are designed to perform a particular task relevant to their category such as software sequencers, reverbs, delays, compressors and so forth; hence the problems occur with the execution of the task by a user in a given situation. Those who don’t care much for technologies could view some of the proposed statements in this category as opinions and this warrants further investigation into their concerns. I do feel at this point however that enough discussion has taken place to acknowledge that musical differences play a vital role in assessing these results.

There are several statements that link together the notion of natural human ability as a non-constructed series of events that cannot be replaced or substituted by technology. This might be referred to as talent. What is significant though is the view on pragmatic knowledge versus the machine but this further highlights the importance of fluency with technology. It is fair to suggest that any person exhibiting highly creative compositions retains a degree of skill and this is where the discussion becomes problematic. It further reiterates the need for a basis on which to ascertain technical degrees of difficulty that can be represented as benchmarks in technology use. What has become clear is that there are artists that do not use ‘tools’ to replace a lack of creativity in composition, but do in fact perceive these available resources as unnecessary to a point. This group may even in fact resist the inclination to participate and interact due to a deficiency of knowledge or maybe it is an ingrained belief that technologies do not equate to good music making. While the latter certainly qualifies as a valid proposition, the reality is that in order to contribute in a developed mass musical society today, an evident amount of technical terms needs to be overcome. It is from this perspective that problematic experiences can obscure the way in which people view technical use. While it fair to suggest that initial experiences with complex technical applications can require more consideration, the experience can be likened to learning a new instrument. In this light, technologies are in fact alternate instruments that present the need to negotiate their particular nuances in order to acquire results. The main obstructions, I suggest, are situated with interface design and the limitations of accumulated knowledge contained within the device. Furthermore there is a need to comprehend the nature of machinery and how one must coax a performance from it with the given parameters. It is true that some people manage to become more familiar or fluent than others at extracting creative gestures from machines. Their productions are genuinely emotional and are derived from their ability to negotiate the
aforementioned interface and reiterate their human gestures through technology use. This does not make them any less human or musical, it simply situates their comprehension of technical creativity as a diverse channel for musical expression. To this end, pragmatic musical knowledge has evolved to include a broader range of applications and experiences, and these include traversing technological boundaries.

More suggestions in this contentious area of human emotion and technology relate to artistic content and/or the lack of it. As stated above, productions through technical manipulation must be artistic in line with the definition of the word, but the ‘true art’ content must also be positioned with the comprehension factor. This certainly signifies the difference between forays into technology experimentation and in-depth editing. By this I mean dabbling as opposed to focussed knowledgeable intentions. This dichotomy brings with it the segregation of the organic versus electronic debate and all its arguments but there is little to suggest that either has the edge over the other. Historically speaking, organic methods have been realized for sometime now but this does not conclude any argument over value or art content. The fact that electronic manipulations are relatively new in comparison equates to the likelihood of new excursions into musical textures continuing to develop as a hybridisation of the two processes. In reality though this is already in abundance and proves the existence of musical communications as an interlinked series of processes where technology has now become a positive collaborator. There is also the further indication of encounter and the different meanings that become relevant to individuals as they experience technologies. The notion of an inhuman output may well reflect the mechanical mediations of devices where the novelty of inter-connected musical loops, part copying and preset sounds designates an inhuman approach to music making. It may in fact be realistic to concede that technologies do emulate a notion of mechanism through design.

**Musical Expression**

| Allows artistic freedom through interpretation |
| Different sounds/instruments inspire new musical ideas |
| Making music with computers is about new ways of thinking |

Expression has many meanings and connotations and musically, in particular, can emit notions of productivity that can be manifested as gestural nuances, experiences and interpretations. However it is viewed, musical expression is a highly personal version of events in any given circumstance. Participants in this research tended to associate music
technology with creativity or artistic freedom as a general view toward the contribution factor of devices. The first statement of freedom through interpretation requires further consideration as to what or how much interpretation realizes the artistic perception as such. While it is clear from previous discussion that engaging with any technical device can result in a highly creative moment, the dissociation between art and interpretation however, remains a constant point of discourse. It is therefore important that a definition of procedures qualifies any notions of artistic integrity from the technical perspective. By this I mean an evaluative summary of sorts that stratifies the various levels of technological aptitude by users. This must therefore adhere to some form of standards authority to associate random forays as exactly this and evidence of these levels may become apparent through a production score. I say this due to the increase in musical production and therefore available music through technology that has authorized users as musicians primarily through participation alone. This is the crux of the matter at hand and it is difficult to ascertain what exactly differentiates an artistic creative composer from an individual who experiments with technical applications. It cannot be said that musical expression shows favour within a set of parameters as such. Furthermore, we cannot conclude that any creative process lacks some kind of musical expression. When Jimi Hendrix was impressing his peers with a new style of virtuosity incorporating effects, it did not make Eric Clapton any less appealing to many music enthusiasts.

What Hendrix did achieve, however, was to alter the listeners perception of a guitar sound and this is possibly music technology’s greatest contribution to musicians. From the early developments of effects, synthesizers, computers and software, these technologies have redefined musical content through a constant process of discovery. From a genre perspective, alterations have occurred primarily through sound and specific equipment use such as the turntable in Hip Hop and the synthesizer in Trance for example. Each of these genres is represented by set of technological rules and it is interesting to note further that with these variations, modifications in structure and form have been amended. It may be the view of some to suggest that a reduction in these areas has occurred, that technologies have condensed the artistic qualities of music to reflect a simplistic form that does not warrant the label of ‘art’ as such. The fact that these developments have materialized is a direct link to the artistic nature of musicians and therefore must contain analytical content and this returns us to the very notion of a specific ‘toolbox’ for investigating new music’s. Within this category of statements there is the undeniable sentiment of technologies demanding new ways of thinking. How a user creatively interprets any device will involve an adjustment to
preconceived ideologies related to an established knowledge base. The computer especially forced users to adopt new philosophies in music making processes.

The Anti-Creative Complexity Phenomenon

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<tbody>
<tr>
<td>Software can be confusing and slow down the creative process</td>
</tr>
<tr>
<td>Keeping processes simple is the answer to music art</td>
</tr>
<tr>
<td>It can be harder to make music with computers as they require alternate skills</td>
</tr>
<tr>
<td>There are too many options. Limited sources of inspiration produce highly creative choices</td>
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</tbody>
</table>

This group represents those participants that chose to negate technologies possibly from a lack of understanding or genre specific rules and this reinforced their thoughts of the ‘anti-creation’ experience. While it is fair to assume that not all users will experience technologies in the way they envisioned, it must be stated that because technical devices are incapable of interpreting human thought, therein lies the problem. It could further be surmised that traditional methods of composition or sound creation are far removed from the pragmatic and systematic procedures associated with technologies. This group of statements does reveal, however, a trend of reversal against highly charged technological acceptance back to an organic simplistic and often procedural manner of music creation. There is certainly something to be said in regards to unsophisticated composition approaches but, even in the ‘tin pan alley’ era where the creation of music was akin to a factory line, the debate of artistic content still remained even though song content was quite sophisticated harmonically.

Generally speaking, nothing much has changed except for the music and the way in which people create it. Of course there is more to it than this but this research attempts to highlight the impacts of technologies on popular music and its manifestations within pop culture and to this end, the attitudes of certain groups will always oppose the others. Based on analysis of the answers in these questionnaires, there would seem to be a minority group of those who want to return to a 1950s or even a 1920s epoch in regards to music making. Realistically, the same juxtapositions between the known and the unknown were in abundance then as they are now. With the advent of communication channels that unite persons around the world with the transfer of ideas and opinions, there is little reason why anyone should challenge the advantages of these developments.

The sentiment of ‘less is more’ is appropriated from this group also and it reflects the opposition to complexity in music making further. In fact all the statements can be truncated
to reveal technologies as a possible hindrance or unnecessary to processes of creativity. The
suggestions of needing to ‘up skill’ or rethink ones procedural habits discloses an alternate
paradigm to the expansion that has occurred with music making methods. The suggestion also
of too many options is certainly a valid proposal when one considers the sheer amount of
choice one must negotiate in a domestic lifestyle let alone a musical one. For many
consumers, choice creates a problem with decision and herein lays the heart of the matter, as I
perceive it. The question must be asked, is it easier to dismiss the choices rather than
negotiate them? It is difficult to answer at this point due to the limited sample that was
surveyed for this study but the question does prompt a thought of human nature and its
tendencies to bypass the challenging. On the contrary, modern music creation tools have
allowed many users to access what was once an elite environment. Obviously this has also
created a problematic situation pertaining to the sheer amount of music that is produced and
readily available. Some participants referred to the difficulty of finding good music due to the
process of filtering through volumes of amateur productions.

This qualitative survey revealed areas of music that are dominated by technologies as having
interlinked problematic concerns for users. The resulting statements reflect this enough to
warrant further investigation into this paradox of creation and involvement and it is fair to
suggest that we are experiencing yet another revolution of the new music era. The difference
now however, relates to the volumes of music being created and by whom and it further
highlights the need for methods with which to construct meaningful texts that place value
over quantity. In reality, we have all experienced a total reorganization of the way we
negotiate musical concepts that relate to some technology somewhere in the chain of events.
However we perceive technologies, it is apparent from this small sample that there are
concerns on many levels that qualify for further research.
CONCLUSIONS

This dissertation began with an introduction to the issues surrounding the impacts of music technologies on an evolving pop culture. I stated that music technologies have a liberating effect on music, and through these revolutions, interrelationships are developed. The problematic task of situating technologies, from an aesthetic perspective within pop, has lead to my research indicating a series of collaborations, interpretations and adaptations through process as fundamental to how we assess their value. In chapter two, I discussed, from a historical stance, how initial encounters with music technologies have resulted in transformations of musical procedures and social ideals, and instigated further developments that in turn influenced other areas of music. It was argued that negotiating the border between human and machine produced alternate results through interpretation. Chapter two further reiterated the theoretical position of music creation technologies by establishing the immutable role they occupy. I also introduced the concept of music systems and their effect on compositional procedures. This related to software development and the commercialisation of stylistic processes through innovations such as sound banks and editing methods.

In chapter three I examined the accumulation of encoded knowledge from instrument manufacturers. The notion of the preset was also considered as well as the implications associated with predetermined sounds. This highlighted the need for individual interpretive notions by users as essential to extracting creative individuality from similar sources available to other consumers. The collaboration between users and technologies was also examined in this chapter. It was ascertained that an interactive relationship was essential and highly influenced by social habitus. These processes lead to a creative style inherent in the individual, and reflected their participatory role in this relationship. I therefore suggest that through negotiation of technology’s mediations, levels of musical value are determined and located through user perceptions of these mediations.

Chapter four discussed the social issues that have emerged from the impacts of music technologies on artists. It primarily specified the autonomy presented to musicians with innovations such as the Internet. The Arctic Monkeys were a case in point and I used their
reinterpretation of music downloading as a model for commercial success via creation of demand for their live show. Chapter four further categorised the various outputs affiliated with social practises via technologies. Among the topics to be raised were virtual societies as a mediatory conduit that imparts information on a global level. Also discussed was the assembling of the voices as such, which lead to a diagram outlining the digital artists social existence and the creative implications designated by social practises. These emphasized compositional styles, creative styles and music production affiliated with technologies as intertextual voices within social habitus.

In chapter five, I discussed the involvement of technologies in a production capacity by first implying their role in this procedure. It was established that producers were responsible for creating and maintaining the definitive texts that we ultimately analyse. This is done through the fluent use and articulations of device parameters that eventually become the technological pop text. I then determined the gestural nuances of programming as bodily functions in electronic music. These gestures are to be considered as performative dynamics that can be realised as a production score, leading to a discussion toward essential components of the processes considered thus far. The notion of fluency was ascertained to be a necessity with regards to constructing meaningful texts with technologies. From these perspectives, the notion of production as score was introduced, as an alternative method by which to evaluate pop content. I argued that, by combining all the various deconstructed elements outlined in this research, a method of incorporating technical aspects into analysis was possible.

In chapter six, I implemented an analysis of technological fluency within a selection of commercially successful Madonna songs. I demonstrated how technical manipulations in her production techniques were in fact musical gestures affiliated with producer roles. It further highlighted the need for accepting technical expression as the result of fluent programming. This fluency transcended toward the producer as musician and songwriter as in the case of Timothy Mosely (aka Timbaland). I also discussed the role of chaotic editing procedures as essential to Industrial electronica. I contend that technologies perform a vital function in determining genre rules and that fluency in these editing processes determine standards within the capacity they are utilised.

Chapter seven contained the propositional statements extracted from data that was collected from several sources. I put forward six categories that summarised the statements by grouping

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118 See page Fig. 13, p.63
similarities of expressed meaning by participants. I found that many of the concerns related to various components of this study and furthermore reflected the current technological climate. This climate, integrated with social structures, performs a specific task of mediating how technologies are utilised or considered in relation to individual perceptions. The surveys and questionnaires conducted, also depicted participant knowledge within a given field, and this is significant when assessing pop genres.

The interactive processes, which are fundamental to this research, must be considered as time and place processes whereby links between machine and human initially interact in an ‘organic’ fashion.\textsuperscript{119} The depth of this notion may only be considered through ‘fluency’ that is the result of knowledge of a process. The ability of the author to manipulate these technologies is thus paramount to any objective opinion toward the value of a creative expression with technology. In essence, what the human brings to the computer is largely dependant upon the human performer’s ability to decipher interactive codes, which may reveal a plethora of influential tools thus situating the machine as irreplaceable. Fluency, flexibility and originality are resultant from transformations and adaptations, processes of evolving developments where compositional paradigms shift when subtle changes occur in the computer environment. To this end, it is conceivable that pop is inundated with technical creative methods interlinked with social meanings, perceptions and trends. With process, the result is data, which in turn results in content. It becomes clear, in regards to technologies, that personalised music systems or customisation of processes perform a fundamental role in music creation.\textsuperscript{120} A shift has occurred in that musicians no longer rely fully on theoretical music knowledge to create music. In fact, it is fair to imply that music systems have become an important component of the creative artist’s life.\textsuperscript{121} From the musicological perspective, systems are integral to an artist’s creative output. Fluency, dialogism, emergent aesthetics and code shaping are all interrelated through animated interpretations of the chosen music system. The system is critical to the process factor of music creation. The ‘theory’ of a music system, however, can be deconstructed into the voices that formulate the system and can be seen as independent from the music as such.

The facility for computers to enact musical sounds modifies traditional instrument practises and new codes are created when programming occurs. Possibly the most complex aesthetic

\textsuperscript{119} A mutual agreement to collaborate.  
\textsuperscript{120} Some applications such as Logic offer users the ability to create individual key commands to personalise workflow.  
\textsuperscript{121} See Riddell’s \textit{Data Culture Generation,} 2001. p.5.
that the computer brings to the performer is the capability of the machine to create sounds outside of conventional means. Garnett suggests that this may lead to the greatest changes in performance paradigms. Subjective opinions of the computers involvement in music creation and performance may well be formed through a lack of education or even refusal to accept technology at all. On the other hand, objectively, I suggest that computers are a significant musicological area of dialogue. Their contribution ‘behind the scenes’ has largely gone unobserved and with the ever-expanding array of available software, musicologists of the future, in my opinion, will look to the performance aesthetics of computers within the pop context as significant to pop culture. The link between the very notion of technology dependence and Gouzouasis’s thoughts of a Garageband mentality towards music authenticate any discussions of this phenomenon. A provocative thought, however, has been implied. To what extent is technology providing the impetus for pop?

The Internet, in reality, is another of music’s mediations requiring closer examination of its effect, in this case, on pop culture. The instantaneous nature of the network enables artists and consumers alike to form subjective opinions within their own ‘space’. From this perspective, the Internet has radically altered music’s distributive mediation in this respect. In can also be argued that the Internet has altered many aspects of musical practises on many levels in that online virtual community musical mediations occur effortlessly and the impacts of this are not fully realised at this point. The ideals of fluency depicts musical agency as relevant to those communicative distinctions. To this end, aesthetic merits of Internet musics are discussed as interactive, communicative, shared and collaborative. For the musician, each developmental stage mentioned in relation to the Internet presents the creative musician with the task of encoding meaning in their music to establish an audience. What the Internet has bought to the musician is a platform from which to launch their talent and in turn download others for comparison. This outcome is a learning experience that was previously unobtainable and it further highlights the adaptations toward deciphering online content effectively. The problem does not exist within an inability to circulate one’s material; moreover, the problem is situated with establishing locale in a vast space. To this extent, pop’s mediations are far from imagined realities; they are in effect dominated by multiple realities pertaining to a virtual world saturated in autonomy, flexibility, opportunity, meaning and influence.

122 Examples of this are virtual instruments, fractal music and random sound generators.
124 See Gouzouasis 2005.
Accumulated knowledge in devices has created the need for heuristic practises towards the construction processes of music. Due to the immutable existence of technologies, these practises provide musicology with new analytical procedures that are specific to each genre. Such practises also have the tendency to align to certain creative techniques that are personalised methods born from a heuristic approach to negotiating the physical borders and boundaries of technologies. There is an apparent difference though between learned techniques from pragmatic experiences and talent. Those who are at the top of their field have proved this. While familiarity of technical procedures has an advantage in terms of encoded data over those who do not, there remains an element of innate definition that is difficult to explicate. It is present in the work of those producers that have been discussed in chapter six and their practises warrant recognition. Their productions are genuinely emotional and are derived from their ability to negotiate the aforementioned interface and reiterate their human gestures through technology use.

There was a significant outcome from the qualitative research that links the adaptation/interaction processes already discussed and further connects the notion of associational fluency with non-music students. Music students tended to hand in a more proficient music work, non-music students were generally more creative with software programs, experimenting with methods such as utilising alternate sounds over traditional. This relates directly to Toynbee’s concept of a field of production and bisociation or the fusion of unconnected components in a new synergy. Figure 41 indicates how this field operates in our lives. The thinly dispersed choices on the radius are often the most highly creative. In relation to my questionnaire, non-music students were confronted with new creation tools that forced them to make decisions beyond their field of regular choices. In this instance, transgressive creative acts yield unlikely sounds and structures that can be viewed as cues or countercodes. Toynbee maintains, “Bisociation is very much what is at stake further out along the radius as choices become more and more thinly distributed.” (Toynbee, 2003. p.108) Linking these actions together is that of associational fluency where non-music students still retain the ability to recognise system similarities that may be based, for them, in another application.

125 See appendix 2
There is significant evidence throughout this study that connects technologies with musical revolutions that occur almost at will. Technological impacts today have far reaching effects and alter cultural practises through experience and confrontation. The Garageband mentality that Gouzouasis predicted is a reality. It must occur for us to appreciate the outstanding contributions by fluent users in music today. The seemingly banal existence of commercial pop has caused much concern and rightfully so. Musical structure as arguably diminished through the need for a stylistic pop saturated in mass media fetishism. I would suggest however that the focus for musicology could be removed from the music as such. It is behind the images of pop that the genuine structures and performative dynamics exist. Utilising the concept of voices allows us to view the value of components in this way. While musicologists have discussed pop in terms of gender, style, culture, social and ethnographic definitions, technologies and their use can provide means for further excursions into the pop text.

Through technology’s immutability, the user must engage in order to create musical code. The code is as complex as any other style of music, and more complex in some cases (according to genre). Electronic interactions have, by default, administered many stylised processes that are critical toward evaluation of any parameter of pop. Musicologists have discussed how adaptation to a specific style requires alternate methods to assess value and it is therefore essential that electronic musics be discussed in this way also. Technologies demand new ways of investigating the music they are involved with. There are numerous impacts to this effect that require the stratifying of the layers of pop to first visualise then analyse. Only in this way can music made with technologies be effectively assessed in their entirety.
The notion of production as score is a key area to evolve from this study. The true pop text can be realised through the amount of technological manipulation occurring in the current wave of pop music. It is defined by transmissions of code from one source to another. One of these sources (technology) is essentially an integrated set of rules that can be altered by manipulation of its interface. The other (human) has no preconceived ideas initially and can change, learn, improve and ultimately compose interlinked meaning through continual familiarity and knowledge of working systems. This source can impart information through technical conduits and decode the information from other sources. Compositional process alters as new technologies are engaged and thus more transmissions are produced through interpretation and collaboration. The score from these productions is abundant in dynamics and these are the analytical materials that can be arguably more important that the music. They define the people who program them and indicate the many areas of their lives that must be considered when approaching pop. The social implications relate to their digital existence, which is a continual negotiation of constantly evolving information. Each genre has in essence, its own participants that generate new code for and through experimentation and alternate interpretation. As each new discovery or change is defined, it creates new directions and standards and thus the whole process is constant and enacted in real time. From this perspective, the impacts on pop are numerous.

What essentially started out as an exploration into the problems of composing with software by novices has lead to locating the many stylisms that are applicable with professional users. This is a positive outcome in many ways but moreover, it designates the expertise of others as how we should assess electronic composition. Softwares autonomies have provided us with the opportunity to locate programming intricacies in this discourse as critical to assessing creative work. However we choose to view these processes, there will always be an alignment to the reorganisation of musical concepts. It is the transmissions of codes and their mediations that are the new focal point in pop. This can be quantified when technological content is considered, and their roles depicted as voices within pop assemblages. To fully grasp their impacts, this method will be a necessity when considering analytical content.

Pop texts are more than just music and image; they are the result of cultural impacts coupled with technology. The digital climate has altered because of technical innovations. Future genre development and the constant search for musical individuality will depend on interactive proficiencies linked to collaborations and adaptations. While there will always be a
tendency for some participants to adhere to traditional methods of composition and music making procedures, technologies such as the Internet will still need to be negotiated in order to participate in a global music culture. This ultimately relates to choices on behalf of artists, that through the methods outlined in this study, can be identified in their music.


Hamman, Michael. “From Technical to Technological: The Imperative of Technology in Experimental Music Composition.” *Perspectives of New Music* 40. 1 (2002): 92-122


DISCOGRAPHY


**GLOSSARY**

**A&R**: The initials stand for "Artist and Repertoire." Historically, A & R staff would select artists to record music that they had also selected.

**Aiff**: Abbreviation for Audio Interchange File Format generally associated with the Macintosh computer platform.

**AM**: Amplitude Modulation, term associated with radio broadcasting.

**Algorithm**: An algorithm is a finite list of well-defined instructions.

**Amplifier**: Generally, an amplifier is any device that converts a small amount of energy into a larger amount of energy.

**Amplitude**: The scalar measure of a wave's magnitude of oscillation.

**Analogue**: Electronic systems with a continuously variable signal.

**Automating**: Converting a process to an automatic operation.

**Beat Boxing**: A vocal percussion technique associated with ‘Rapping’ and Hip Hop music.

**Bit Rate**: Refers to the number of bits used per unit of time to represent a continuous medium such as audio or video after source coding (data compression)

**Compressor**: A process that manipulates the dynamic range of an audio signal.

**Copy and Paste**: The process of transferring text or data from one source to another.

**Cyberculture**: A culture that has emerged from the use of computers and the Internet.

**Cyberspace**: A description for the non-physical terrain created by computer systems.

**Data**: Another word for information.

**DAW**: Abbreviation for Digital Audio Workstation.

**Decay**: In this context it describes the gradual decrease in effected signal.

**Delay**: A technology for producing delayed playback of an audio signal.

**Density**: In this context it relates to texture.

**Digital**: Refers to the inner workings of a device that uses discrete values.
**Disc:** An optical disc used to store digital data, originally developed for storing digital audio.

**Disco:** A genre of music popularised in the 1970s. Normally associated with dance club culture.

**DJ:** Abbreviation for Disc Jockey, someone who plays pre-recorded music for an audience.

**Dodecaphony:** A method of musical composition devised by Arnold Schoenberg. Commonly referred to as the twelve-tone system.

**Double Track:** Term used to describe the process of recording the same track twice.

**Downloading:** The process of transferring data.

**Drum and Bass:** An electronic dance music that emerged in the early 1990s, characterised by fast tempo broken drum beats between 160–180 beats per minute

**Editing:** The process of modifications, in this context, to sound files.

**Effect Buss:** A section within a mixing channel where effects are incorporated into that channel’s signal output.

**Effects:** A device used to manipulate the sound of musical instruments or audio tracks.

**Electronica:** Refers to a wide range of contemporary electronic music.

**Encoders:** A device used to change a signal or data into a code.

**Envelope:** In sound synthesis it deals with the variation of a sound over time.

**E Tuner:** A guitar tuner.

**Equalize:** The process of equalization.

**Equalization:** The process of changing frequencies in a sound

**File Sharing:** The practice of making files available for others to use.

**Filter:** A filter is designed to allow some frequency regions through unattenuated while significantly attenuating others.

**Firewire:** A name for a data transfer protocol.

**Floppy Disk:** A data storage medium.

**FM:** Frequency modulation synthesis, a sound-generation technique found in digital synthesizers

**Frequencies:** Relates to pitch in sound and most commonly subjected to equalization.

**Fruity Loops:** A software sequencing program.
**Garageband**: An entry-level music software program released by Apple.

**Gate**: A device that is used to control the volume of an audio signal.

**Global**: Signifies globally or worldwide.

**Gramophone**: A wind-up record player that reproduces sound from a disk rather than a cylinder record.

**Hardware**: Refers to the physical components of technology.

**Interface**: The means by which people interact with a particular machine, device, computer program or other complex tool. Can also relate to interconnectivity between devices.

**Internal Memory**: Internal components that retain data.

**Internet**: A worldwide accessible series of interconnected networks.

**Internet Radio**: A radio station broadcasting over the Internet.

**Kbps**: Abbreviation for Kilo bits per second. Relates to data transfer speeds.

**Key Commands**: Assigned procedures relating to a computer keyboard within software programs.

**Keyboard Shortcuts**: Another way of describing key commands. Software programs can contain ‘shortcut’ commands to access or edit quickly.

**Limiter**: A device containing an electronic circuit that allows signals below a set value to pass unaffected.

**Loop**: A sound that is repeated by technical means.

**Loudspeaker**: A device that converts an electrical signal into sound.

**Mastering**: A form of audio post-production that involves the process of preparing audio for mass production.

**Matrix**: In this context, an interconnected system.

**Media Player**: Usually associated with software plugins that playback media such as audio and video.

**Microphone**: An acoustic to electric transducer that converts sound into electrical signal.

**MIDI**: Abbreviation for ‘Musical Instrument Digital Interface.’ A protocol introduced in 1983 to allow the interconnectivity of opposing manufacturers electronic instruments.

**MIDI Controller**: An external device used to input or control MIDI data.
**MIDI Sequencers:** An external (hardware) or internal (software) device that arranges MIDI data into song structures.

**Midrange:** The middle frequencies of the sound spectrum.

**Mixer:** A device for mixing signals from multiple sound sources.

**Mixing:** The process of manipulating the sound sources. In a commercial context, it is a highly skilled area of the production procedure.

**Mixing Desk/Board:** See Mixer.

**Module:** In this context, a device that stores instrument sounds.

**Moog:** A synthesizer invented by Robert Moog

**Morph:** The process of changing from one image/sound into another through a seamless transition

**Motown:** A record label originally based out of Detroit, Michigan also known as Tamla-Motown largely associated with the genres of R&B and Soul music.

**MP3:** An audio encoding format that utilizes a compression algorithm.

**Multi-track:** Relates to a recording device that can record multiple tracks at one time.

**Music Production:** Involves the processes of producing music. Can relate a stylised approach within a specific genre.

**Network:** An interconnected series of computers.

**Networking:** The act of working within the network environment.

**New Wave:** Term usually used to describe music produced by electronic devices in the 1980s.

**Note Length:** Refers to length of a MIDI note in a sequencer.

**Note Pitch:** Refers to the pitch of a MIDI note in a sequencer.

**Note Velocity:** Refers to the amplitude of a MIDI note in a sequencer. eg; the note can playback louder of softer depending on its velocity.

**Online:** Refers to the participation in a network such as the Internet.

**Online Community:** A group of people that interact via a network, also known as a virtual or E community.

**Oscillator:** An electronic circuit that produces a repetitive electronic signal.

**Outboard:** Refers to physically movable devices in the recording environment. (Effects)
**Pad:** In electronic music, the term pad is used to describe a sound (timbre), which is a harmonic background sound.

**Panning:** The process of placing sounds in the stereo field from the mixer.

**Parameter:** Term used to define certain characteristics of systems or functions.

**Phonograph:** Another word for gramophone that generally played discs as opposed to cylinders.

**P2P:** Abbreviation for ‘peer to peer’. Term associated with networks where users are connected with each other as opposed to a central hub or server.

**Piano roll:** In this context, a term used to describe the image of piano keys in a MIDI editing window of a software program.

**Playlist:** A list of songs.

**Pluggin:** A computer program that interacts with a host application and in a sense is plugged in to be utilized.

**Polyphony:** A texture consisting of two or more independent voices/notes, as opposed to music with just one voice/note.

**Portal:** A point of access to the Internet.

**Potentiometer:** A variable resistor usually associated with a sliding mechanism or rotating knob.

**Preset:** A previously constructed example denoting the capabilities of a particular device or application.

**Processor:** A programmable digital electronic component.

**Progressive Rock:** A genre of music that is synonymous with the late 1960s onwards.

**Producing:** The act of producing music in this context and relates directly to producers.

**Programming:** The process of writing information for computer software or in this case, the manipulation of sound samples within a device.

**Punk:** Genre of music that emerged in the early 1970s.

**R&D:** Research and Development of an artist by a record company.

**Rapping:** A stylistic vocal delivery associated with Hip Hop type music.

**Recording Installation:** Another name for a recording studio.

**Repeat Percussion:** A device designed by ‘Vox’ that takes a sample of your initial input source and repeats it in a percussive manner.
**Reverb:** An effect that places a sound or texture within a defined space.

**Sampler:** A sampler is an instrument, it can record different sounds, and then play each back based on how the instrument is configured.

**Sampling:** The process of recording sounds into the sampler.

**Sequencing:** Term used to describe the arranging of MIDI parts within a software program. To literally place parts in sequence.

**SMPTE:** Stands for, ‘The Society of Motion Picture and Television Engineers’ and relates to a time code protocol to synchronise moving pictures with audio.

**Software:** A term used to describe computer programs

**Software Instruments:** Computer programs that emulate instruments.

**Sound Clips:** Small segments of recorded sound to be used as loops or to be triggered from a sampler.

**Sound Engineering:** The process of manipulating sounds for a recording project. It is a qualified skill.

**Sound Library:** A literal library of sounds to choose from. May contain presets.

**Sound Sources:** Can refer to anywhere that emits some kind of sound, Generally refers to modules.

**Spectrogram:** A spectrogram is an instrument that converts received time-domain waveform into a frequency spectrum.

**Splicing:** In this context, the joining of audiotape.

**Streaming:** The delivery of media of a network.

**Synthesis:** An integration of two or more pre-existing elements which results in a new creation.

**Synthesizer:** A kind of electronic musical instrument, or electronic device capable of producing or manipulating audio tones, such as musical notes, through audio signal processing.

**Synthpop:** Term used to describe a musical genre from the 1980s that incorporated synthesizers.

**Studio:** A place where audio is recorded.

**Technology:** A consequence of science and engineering that results in new tools for whatever area they reside in.

**Third Party:** A hardware or software developer not directly united to the principal product that a consumer is using.
**Timeline:** Depicts a sequence of events over a period of time. Can relate to audio software in seconds, minutes and hours.

**Toolbar:** Generally refers to the place where the accessing of available tools within a software program occurs.

**Trigger:** The activation of sounds by an external or internal procedure.

**Turntable:** A device that plays records.

**USB:** Stands for ‘Universal Serial Bus’, another data transfer protocol.

**User Friendly:** Generally refers to any device or software that can be readily implemented by the inexperienced.

**Virtual Community:** A community of users with a commonality that exists on the Internet.

**Virtual Instruments:** Software instruments that emulate vintage or expensive instruments.

**Wah Wah:** A type of guitar effects pedal that sweeps the peak response of a filter up and down in frequency to create the sound.

**Wave File:** A waveform as a file.

**Waveforms:** A term for an audio format used by Microsoft and IBM.

**World Wide Web:** A system of interlinked, hypertext documents accessed via the Internet.
APPENDICES

Appendix 1 – A questionnaire for research into impacts of music technologies
Appendix 2 – A questionnaire to Otago University music technologies lecturer, John Egenes
Appendix 3 – A questionnaire to Otago University music technologies tutor Leyton
Appendix 4 – Online music community questions and answers
Appendix 5 – Stan Hawkin’s seven postulates for critical musicology
Appendix 1

Questionnaire for Research into Impacts of Music Technologies

Ethics Approval Reference 06/042

David

Questions:

1. What are your primary thoughts on production technologies in popular music? Specifically computer software programs, instruments and effects.

Computer assisted production of popular music has become an integral part of the industry. It allows more comparative freedoms that analog productions lacked (such as wave form editing, effects processing and mastering techniques).

2. How important is computer-based technology in regards to your compositional process?

I use sequencer based loops and drums for the majority of my backing tracks interspersed with real vocals, guitars and bass. Perhaps 50% of my compositional ideas come from these backing tracks.

3. What types of sounds do you have preference for?

Percussion, drums, synthesizers and wav samples.

4. When you compose, is the composition fully envisioned and then relayed or built up from separate parts?

Separate parts.

5. How important is environment/surroundings to your creative process when composing?

Not particularly important. I have a laptop and can potential compose wherever I feel like it.

6. Please list your positive and negative thoughts of music technology
Positive:

The potentials are unlimited for creating new material.

Negative:

I find that often there can be a lack of feeling in pop music when the technology overshadows the songs (such as gimmick type songs e.g. T-Pain’s use of automation)
Faye.

What are your primary thoughts on production technologies in popular music? Specifically computer software programs, instruments and effects.

I prefer live music, but software programmes (eg garage band, or audio logic) can be useful for a sound recording to edit out mistakes and improve the sound of a recording. Sound Effects can be fun but probably do not exist in a live stage setting unless its one of those fancy keyboard thingies. Sibelius is really good cause you can write out an entire score and it will look really good and easy to read.

How important is computer-based technology in regards to your compositional process?

not important at all. it can help but i prefer to work out things using the help of my friends who can play other instruments. sometimes computers get a little confusing and can slow down the creative process. especially when it comes to small things like getting the sound to work etc.. live music is better

What types of sounds do you have preference for?

acoustic sounds.

When you compose, is the composition fully envisioned and then relayed or built up from separate parts?

usually i think of an idea then build up parts around it. eg; come up with a good idea for a chorus then think of the rest later. or have lots of multiple ideas which are changed and switched around and all put together in a song.

How important is environment/surroundings to your creative process when composing?

not hugely important. but as long as you're relaxed and not being distracted by other things it works then.

Please list your positive and negative thoughts of music technology

Positive:

useful for editing a recording. you can loop a track and change ti as it loops to get it perfect. sibelius is awesome cause it makes your written music look really professional

Negative:

computers are frustrating inventions and there's always seems to be something going wrong which can be pretty frustrating
Matthew

1. **What are your primary thoughts on production technologies in popular music? Specifically computer software programs, instruments and effects.**

   I think digital production technology is great, as I have the equipment and gear on my computer to create a reasonable product for a few thousand dollars, rather than $50,000–100,000 it would have cost to get the same sound in the 1980s. There are now great drum programs available that simulate human error, meaning that for people who don't play drums their drum track doesn't have to sound like a robot. Programs like logic and reason are great, as they give a plethora of classical instrument patches, which is most useful for someone who doesn't want to hire an orchestra to produce a film score.

   I also like the fact that I can record a guitar clean, and then use a program like amplitube or ampfarm to change the the tone, and that it is not set in stone until the final mix is bounced to cd. This is the same with effects. Previously the only way to do this would be to have outboard effects units on a mixing desk.

2. **How important is computer-based technology in regards to your compositional process?**

   Very. With Sibelius, I can hear what I am writing, and if I can hear it in my head, or hum the tune, then I can work it out step by step with Sibelius which takes much of the guesswork out.

   Also, there have been many times when writing midi drum tracks that I have decided I wanted a roll, and auditioned one, and listened back, altering it slightly till I was happy with the result.

   Of course loss-less production is also great, meaning that when I am doing a solo, the tape doesn't start to sound worse and worse the more times you try to record.

3. **What types of sounds do you have preference for?**

   I am a guitarist, and mainly have a preference toward standard rock sounds- drums, bass guitar etc. I also do some film composition, so have an interest in classical instruments too.

4. **When you compose, is the composition fully envisioned and then relayed or built up from separate parts?**

   have done things both ways, although more often it is partially thought out and during the recording process I hear something in my head that I think could be added to it to make the song better.

5. **How important is environment/surroundings to your creative process when composing?**

   I find that if you say "I am going to write a song today" it just doesn’t happen. Its only when
I'm in a relaxed environment and usually noodling around on my guitar that I will find something I like and build from there.

6. Please list your positive and negative thoughts of music technology

Positive:

Today creating a quality/semiquality product is now in the hands of everyone, not just the super wealthy. It allows me to write a song and take it to the band as a finished product, rather than tell the band I've written 3 chords and a lyric, and try to convince them that my finished vision for this song is good.

Negative

My thoughts are that a lot of albums released today are majorly over produced. Digital recording is great, but certain programs like autotune and vocaline have removed a lot of the talent factor from popular music. What many engineers and musicians would see as terrible use of these programs (using them to make up for a lack of talent rather than using them to correct minor mistakes), has become the accepted sound of pop music, as the industry becomes more and more focused on the video, and how the performers look rather than whether or not their music is worth listening too. By over using such technology we are taking the talent and artistry out of being a performer.
1. What are your primary thoughts on production technologies in popular music? Specifically computer software programs, instruments and effects.

I believe they are a blessing and a curse at the same time. I believe that they have made musical life increasingly easy, and that they increased the abilities of the prospective composer / mixer etc. I also believe that by making some things easy often means that less thought and effort is put in by the user, for example perhaps many more people are relying on EQ for recording, when they should be more wary of recording techniques such as mic choice / position, or the sort of sound they creating they are creating before the mic’s are even put down. And I also have suspicions that forward movement in production technologies are often driven by fashion, and fashion has a very bad record (vis a vis hula hoops, big guitar solo’s, leopard skin clothing, big hair, and awful 80’s synth).

2. How important is computer-based technology in regards to your compositional process?

Not particularly, I am more of a trad songwriter – guitar, pen and paper – but there have been moments that that technology has come in handy for composition. Certainly arrangement wise computers help to audition parts for the rest of band.

3. What types of sounds do you have preference for?

Trebley guitars (Television), heavy volatile guitar tones (Neil Young / Marc Ribot), big rich landscapes (Bowie’s “Heroes”, Brian Eno and Daniel Lanois stuff, ‘The Bends’ album by Radiohead dense sound), raw trebley sounds too (stuff like early Chicago blues).

4. When you compose, is the composition fully envisioned and then relayed or built up from separate parts?

Generally fully envisioned, but not always, composition is hard to pin down, I don’t have set practices.

5. How important is environment/surroundings to your creative process when composing?

I don’t think too important. I think most important thing is just sitting down whether you feel like it or not. Though morning seems to be a productive time.

6. Please list your positive and negative thoughts of music technology

Positive:
Ease of use
It is getting so anyone can do it
Able to create almost any sound in your head if you have the patience
Able to indulge greatly in own imagination

**Negative:**
It is getting so anyone can do it
Fashion driven
Almost confusing so spoilt for choice
Wesley

1. What are your primary thoughts on production technologies in popular music? Specifically computer software programs, instruments and effects.

-I feel that computer software programs have allowed anyone to record without loads of money and equipment, the quality is great and there is so much possibility. I use keyboard guitar instead of really guitar because I can't play the guitar well enough and it's not too bad. I personally use a digital 8 track recorder not a computer, but I think that with the right software, I could do a lot of stuff with the new programs available on the computer, and there are of course endless sounds and effects available as well now for any style of music.

2. How important is computer-based technology in regards to your compositional process?

I use a BR-8 8 track digital recorder so computer based technology is not important to me at the moment, though I have used a computer based recording system before which produced some really high quality sounding stuff, better than what I am using now.

3. What types of sounds do you have preference for?

I have a preference for dreamy, spacey keyboard sounds as well as strings and pianos.

4. When you compose, is the composition fully envisioned and then relayed or built up from separate parts?

-when I compose nowadays, usually I try to have the basic structure for how the whole song will be before I record anything, and therefore have it pretty much fully envisioned before the serious recording takes place. Often though parts of the song will be written at different times, ie. The verse one day and the chorus another day.

5. How important is environment/surroundings to your creative process when composing?

I have tried writing in different situations though not to a great degree, I think it is an area to explore, but so far it appears that my environment and surroundings do not really make a difference to the creative process. As long as I am in a place where I am comfortable to play an instrument out loud then it seems to be okay. My home is the preferred place though to write music.

6. Please list your positive and negative thoughts of music technology

Positive:

-it is growing in a direction which makes it easier for anyone to produce great stuff
Negative:

-it is perhaps putting more emphasis on quality/production and less on the song itself.
Appendix 2

Questionnaire to John Egenes. Music Technology Lecturer at Otago University

Is there an impressionable qualitative difference between students from within the music department as opposed to those outside of the department relating to assignment content eg,

1 a. an ability to grasp technical concepts

1st year level (Musi 132): The classes are larger and there are an equal number of music and non-music majors in the class. Many are taking the paper simply to fulfill an academic requirement, though most seem to have a genuine interest in learning about music technology.

The technical concepts relating strictly to music (ie: not just general computer proficiency, etc) seem to be better grasped by those who are music majors, especially with regards to music notation programs such as Sibelius. This is no surprise, as a non-musician would have little or no reason to have used music notation programs before enrolling in a music tech paper. Further, the quality (and quantity) of work in notation programs (Sibelius) produced by WAM (classical) music students is generally far superior to that produced by contemporary (rock) music students. This, too, is not surprising.

Contemporary music students seem to have a slightly better grasp of computer programs dealing with sequencing and audio recording than do classical music students and non-music majors. This is only a casual observation and is by no means completely representative of all music tech 1st year students. Among the non-music majors, computer technology and IT majors seem to have a good grasp of the music tech.

2nd year level & above (Musi 232, 445, etc): Smaller classes, with most (but not all) students being music or related majors (visual communications, theatre, etc). At the 445 level, virtually all are music dept. students.

Less distinction upon whether or not the student is a music major. Students here are in the course because of a desire to learn about the subject. Many will go on to take higher levels of music technology. At these levels I don’t see a tremendous difference between music and non-music students. They have already learned to use the basic tools and are introduced to new theory and concepts, covering topics such as acoustics, studio engineering, and recording and mixing processes. It is too early for me to say how the non-music majors will fare compared with the music majors, but I don’t really see a dramatic difference in their abilities at this point.

As for postgraduate (445) students, those who have come up through the 145-345 rock ensemble courses seem to be much more comfortable within the recording studio environment that those who have taken the classical music training path. Most have not had any real recording session experience to speak of, so are starting from scratch, learning the recording
process. All, however, seem to grasp the technical concepts readily and show signs of being able to implement them correctly.

**1b. ability to implement these into assignment structures**

**1st year students**: Again, there are basically 3 types: music majors in the contemporary field, music majors in the classical field, and non-music majors. Other music students would be those studying ethnomusicology, music business, and other academic music papers, though I would tend to lump them in with non-music majors here.

Music notation programs and technology (Sibelius, etc): classical music students stand out here. Those who scored highest on notation tests were mostly classical music students. Again, no surprise. Classical music students usually have several years of prior training before coming to university. This isn’t necessarily so with contemporary music students, and certainly isn’t so with most non-music majors. Among those scoring high with Sibelius assignments were non-music majors who (I believe) have a background in music training, probably classical. Contemporary music students, overall, scored lower, and were on a par with non-music students. It must be noted, however, that overall, test scores on music notation were very high, and the work produced was, on average, very good.

**2nd year & above**: Music notation is not taught at these levels and so doesn’t enter the equation. It is strictly about using sequencing, audio recording, and computer movie software. There are some who don’t grasp technical details, such as file management, import/export of file types, and other “left brain” activities. Some of the worst examples of this were from music students, but overall, I see little difference in the technical quality of work by music vs. non-music students.

The creative aspect, however, might lean a bit more in favour of the music student. At 2nd year level the student has learned that she is encouraged to step outside the box and be more creative in what she does, and is not so inclined to be afraid to do so. It seems as if the academic environment (ie: music dept, science dept., etc) plays a large role in how the student views herself, and what creative contributions she sees herself making. No surprise that a music student or a theatre student might apply a more creative feel to work than would a history or science student.

**At the 445 (postgrad) level**, the creative aspect becomes more subjective, in that each student works on individual projects, with no real creative requirements in common. I see no real differences between classical and contemporary music students here, with regard to assignment structures, etc. It boils down to a work ethic, which has more to do with the student’s general background than with their musical background.

**1c. ability to explain technical concepts**

**1st year**: Sometimes non-music students are better at grasping and explaining general technical concepts. This doesn’t necessarily include the ability to actually put them to use, but it does include the ability to conceptualise and explain how things work in the music technology world. While a non-music student might not be able to explain what all the different notes, key signatures, and technical instructions are on a Sibelius document’s page, he might be better equipped to explain how the page setup itself was accomplished, how to output the sounds to a sound card, or how to save a file in PDF format. This doesn’t mean that
non-music students are better at this than are music students—just that they are probably on equal footing here.

2. In terms of fluency of work submitted, are there any noticeable trends pertaining to student background?

I was surprised by the creativity of non-music majors, and of those with little or no apparent musical background. Some of the highest levels of work done in the class were by those from outside the musical world.

3. How would you rate the musical output of students in terms of creativity with the technology?

Again, the most creative seemed to be those who were forced to use the technology to meet creative ends. This was done by combining “found” sounds with other recorded sounds, and often produced surprisingly creative and “musical” works. Recordings of cars, slamming doors, whistles, and other things were very interesting. Those who relied heavily on the technology for creation of their music tended to be music majors, or musicians of some sort.

4. What percentage of students edit to a high level as opposed to just importing a loop and altering the volume or panning?

A rather small amount do this, even at 200 level music tech. When using loops, most seem to just rely upon using the loop as it is, rather than editing and changing it. I don’t know the percentage of those who edit, but it must be smaller than 10%.

5. What is your evaluation process for technical fluency with student assignments?

With recording (audio) software, I generally lay out certain criteria, then assign weighted values to them for the project. These criteria generally cover the following areas:

- file management (saving project correctly, etc)
- required number of tracks, length of project
- proper use of bus sends and inserts for effects
- automation (pan, volume, fx, etc)
- recording & use of microphones and DI’s (levels, quality, etc)
- balanced mix, no clipping, creation of stereo file (MP3, WAV, etc)
- Aural/Musical cohesiveness (if appropriate)
- Logbook/Notes (if appropriate)
Appendix 3

Questionnaire to Leyton. Music technology Teaching Fellow at Otago University

Is there an impressionable qualitative difference between students from within the music department as opposed to those outside of the department relating to assignment content eg,

1a. ability to grasp technical concepts

I haven’t seen this EXCEPT for quantise and historical exposure to technical elements eg if someone has heard of “efx buses” before.. then they will grasp the concept faster...

1b. ability to implement these into assignment structures

AS above and more important cognitively… though music students will often do more “musical “ things with a concept.. eg transitions/efx/editing

1c. ability to explain technical concepts

don’t know as they are not tested on this ability (something we need to change)

2. In terms of fluency of work submitted, are there any noticeable trends pertaining to student background

The music students (or students from other dept. but with musical knowledge) will often turn in a musically more proficient work than the non-music students. I don’t see technically that one group struggles more or less than another in the actual fluency of the software they are taught. The best fluency is the “we will do what is outlined for us to do in the guidelines” which both camps of students struggle with in terms of either not reading properly or not understanding (though I don’t see how I could be clearer-honk)
Then of course the have to be able to implement what they are asked to do which again doesn’t depend on their musical ability but cognitive ability to follow lecture notes or lab work. Some non-music students still manage to get highish grades by fulfilling specific competencies.

3. How would you rate the musical output of students in terms of creativity with the technology.

Unexciting
4. What percentage of students edit to a high level as opposed to just importing a loop and altering the volume or panning.

Not very many. but my definition of a high level is very high. midi input is encouraged and editing explained. audio editing is also a markable competency in 132.. the majority don’t do any editing of audio or audio loops…

5. What is your evaluation process for technical fluency with student assignments.

Listening and looking at their projects and comparing them to a marking sheet of specific competencies. Students are aware of the competencies they are being tested on. The evaluation process is very lacking at the moment and needs to be improved.
Appendix 4

Online question at www.dunedinmusic.com

What do you think about pop music today?

It seems to have become so depressing and obsessive on depression and to me it's sad because it used to be about having fun and enjoying life

Yeah all this sad "woe is me" music gets old fast

I think pop music in general is kind of crappy. I went through my whole boyband phase in the 90s and I don't enjoy much pop now. There are always exceptions. Mainstream music is....okay most of the time until it's overplayed. Then I get tired of it. I've given up one the radio for the most part

A find that a lot of 'pop' artists are pretty good, except for their most popular songs. Certain bands/individual artists just always suck, but pop is evolving, I think. A lot of what used to be alternative is now considered pop, like Goo Goo Dolls etc., and I like that kind of music...I like a lot of different kind of music. Pop in general is not something I like--it just lacks depth. But there are some good trends along with the bad. So there's hope.

When I think pop I think upbeat happy songs that use more piano/keyboard than guitars

when i think "pop" i get horrible images of boybands and girlbands singing some realy bad songs!!!!!

I dont think this new generation feels (bubble gum) music. Realisiticly , I think teens are angry, growling people. Music needs to be an outlet for all emotions and pop music just doesnt get it

I have never cared strongly for pop music . . . I feel bad about the current state or rock music though. It seems like the rock now is really bad compared to the rock of the past (excluding Eighties rock, for the most part). Maybe it's just of a different kind than what I like or am used to, but the lyrics seem to be too simple and always about either sex or sadness (in a very straight-forward manner); the music seems to be not very good at all (it doesn't sound good, at least to me); and the artists seem to come and go much more frequently than in the past. It's like rock music has become pop music now. It used to be cool to listen to rock. Now it's completely mainstream.
Online Question from www.Sputnikmusic.com

I am interested to hear about how musicians perceive the importance of technologies such as computers, software etc when songwriting. Does it affect the way in which you compose and are you completely reliant on it to do so?

very helpful. Otherwise I would not be able to record out of my basement. Also, very helpful for listening to a compositional idea that I can't just put out in front of an orchestra. Midi allows me to take what I think could sound good and confirm it by writing it in notational software.

I like it, but it costs too much. It is very helpful.

I love to mess around with Garageband; great for composing stuff.

I don't really use a lot of technology when creating or recording music. I write down all my music on paper with a pencil, and I record onto a TASCAM analog recorder (8 tracks). I do use an old 1980's drum machine that my guitar teacher gave to me for recording, since I can't actually drum very good. The most advanced piece of electronics I own is probably my BBE Maxcom (compressor limiter noise gate sonic maximizer type thing) or my Zoom505II pedal. I make very oldstyle sounding music (usually just a piano, bass, guitar, organ, harmonica and my voice..along with a drumtrack) and I don't use computers or software at all. However, I do love listening to electronic music and having musicians use any sort of electronics/effects/software doesn't bother me in the least bit. I just prefer to create my own music using just an instrument and a mic...no software. I always like to be changing and improvising new parts for my own songs...so having like a set computer backing track and stuff doesn't exactly work for me because I might add time or key changes and change chords and stuff.

in my case I find it essential, though I voted so that all can make music.

But back to my situation.. It allows me to have a complete orchestra without the need of an orchestra, as long as you can find the correct soundfonts that is (check my other thread hehe) - plus, I use Line6's Toneport for my guitar, bass and vocal recordings.. Without it, I would be doing computer microphone recording.. And many of us know exactly how horrible that is. An example is.. It is horribly difficult to find people to collab with that play violin, cello, etc. - but with Fruity Loops and the correct soundfonts, I can create all of these instruments virtually, exactly, how I want it played.

The problem with this, which is why I of course prefer real instruments, is that it lacks heart.

if it lacks heart, get a midi controller. I have a keyboard midi controller. Every piece of music I write, I'll play it on piano... I feel the music and therefore it has the soul. Much better than the static midi tones.
I think it's definitely helpful, especially through my gcse music course, programs like sibelius are fantastic. However i also think it's important to make sure you do not become reliant on technology, as technology can not always percieve things the way as you do. Going to back to sibelius as an example, i tend to start off using it, and it normally ends up a completely annotated sheet of music, explaining thigns in words that the program does not have the facilities to do. So basically i find technology very helpful, but only for basic stuff (this is referring to the composition side rather than the recording side.

Composing aids like Sibelius are helpful purely for saving time. Rather than have to completely re-write a section for a wrong note or so on I can simply edit it using the computer. This has to be a good thing. Also, however nasty the MIDI sounds, the playback function can be very useful.

I can tell that it is massively helpful (although some programs may have limitations, as already said), but me not having the right software/hardware means that I've got absolutely no idea of how to do it myself (other than fairly simplistic stuff)
Discussion Topic; “Making Music with computers is cheating”

In many ways it can actually be harder to make music using computers. . . as far as i know, when you strum a guitar, it sounds roughly like a guitar, even if you can't play. when you make a sound on a computer (assuming you get that far) , chances are it will sound like a piece of shit. It's easy enough to tap in a melody using your keyboard, but the real skill in electronic music is playing about getting good sounds, and making all the good sounds fit neatly together. ..

the magic of havin a computer and a microphone is that u have literally a studio!! cool az man i really dig makin music on the computer- but if yr going to jump on people who do.... wat about dj idiotic keyboardists who jst need to push a key, to make a monster beat, and backing tracks, and then play sample vocals over n over and yes im talkin about u moby u f*#@n pillick!!! (oops) 'excuse me'

For real its less time consuming, yes true a studio right there & its talent if you can really suss up some good phat beats. But still that can be nothing compared to the good shit that a great band can produce. Its all for the layzie but transparent musical producer & if you can do your shit right using a pc then why not as long as its not so talentless when you hear it. You can truly make up some mean stirring beats but bottom line is that it can never beat the real shit of talent that a musical instrument player could do.

The computer becomes an instrument in the hands of one who treats it as such. If this way of creating music means that genuinly musical people such as Manuel Bundy can create the ish he does, then it's gotta be good. Same as turntables, I used to think that they were a waste of time musically until I saw dj's who treated them as instruments, and in turn added to the sound of a group. Technology for all it's pro's and cons has now allowed the musical soundscape in which we live to be enlargened. As a bass player, it sometimes gets frustrating realising that I ain't gonna get called for a session if they can do it on the MPC, but a music lover, I get excited to see how people use these new mediums to put across their musical ideas.

I think your views are biased by the kind of music you're trying to make using a computer. I would suggest that most electronic producers use electronic means because they like the results, not because it's easier. (although, as I started out saying above, so what if it is easier?)

I've never heard a drummer who was talented enough to sound like a tweaked out series of clicks and pops slowly shifting in pitch until they become a bass rumble. I've never heard a singer that was talented enough to sound like waves of static slowly becoming more and more jagged and shaped until they become a rhythm. I've never heard a keyboardist that was talented enough to sound like a choir of insects rising through the atmosphere.

I don't understand why you have to be technically gifted to be a 'real musician'. Nigel Kennedy and Michael Houstoun don't even write their own music, so perhaps they're cheating as well. Hell, Kiri Te Kanawa doesn't even play an instrument.
I don't think it's cheating to focus on your performance and technical prowess, just as it's not cheating to use a computer as your creative outlet. The whole "cheating" debate seems to boil down to this idea that people that write electronica don't work up a sweat during a live performance.

I think electronica is fantastic because it opens up the musical landscape to a whole lot of brand new ideas - aphex twin, the most obvious example, is writing stuff that's unthinkable in the context of two guitars, bass and drums. I wonder how many electronica gurus started by playing "real" instruments, and moved onto samples and computers just because they felt restricted by their instrument of choice?

So why are people saying electronically it's easier? I find playing a guitar hard cos my hands aren't used to it. They don't stretch that far. Computers can be just as confusing, especially since you're using all the instruments and not just one. You're playing all the instruments you want and need. You need some sense of rhythm to start with. So why is it easier?

And who started the argument that most complex music is better? One of my fav songs is "Angel" by sarah mclaughlan - and it's relatively simple. And honestly, if you're looking for complex, then why is mozart, bach, mendelsohn and such not still at the top of the game. Now THEY are composers of some phenomenal talent. And there are many who love it. So what do you pick? I think "best" is really a personal term.

If i was consumed with feeling when the sounds I tapped in on the computer hit me, that would be music. end of discussion o.k.

Music is Music whether it's on a computer or a guitar or drums or whatever. The important thing is that it started in someone's head and went through whatever medium to get to the outside of their head and into other people's heads via their ears. I assume you all know how that works. Whether you like it when it gets there changes from person to person. I personally will give anything a chance but have found the only electronica I like is drum and bass and fast acid jazz type shit. Then it's the timing that's interesting, not what note or what the sound is.

How many pop hits come from acts using FL or Garageband, though?
I don't think the democratisation of these kinds of tools has a direct impact on the charts any more than the prevalence of 4-track tapedecks in the 80s and early 90s. Of course the range of production options is much larger with a computer setup, but that doesn't mean you can make a commercial TV hit. Well, OK, you could make something that sounds about right, but it's still not how the industry works.

Only exception I can think of is that song 'I Could Never be Your Woman' by White Town, which the guy wrote and recorded in his bedroom. As for Adorno, it's all good, but his idea of acceptable music is pretty unacceptable to most! Doesn't he champion composers like Schoenberg, Webern et al as the figureheads of modernism and seriousness? Seems really ignorant of the many functions of music to me.

Isn't music about self expression? When you talk about that "Computer music HAS enabled lessor skilled musicians to make make music" and then say "it's all only about sales is'n t it??", you're not really hitting the same point. Music as I see exists on 2 major levels - those that do it for money, and those that do it for the love of it. Of course there are some lines blurred between the two, but the categories exist.
Schnapi, and the Spice Girls (while valid forms of art (although definitely not my taste)) are not made for people like you or me - BUT they weren't made by some amateur musician either - which is the sad part I guess. Some of the best music I've ever heard has never been released - this has been music made by people in their own homes - music that could probably never have been produced so well if computers were not available. In fact it would be fair to say that the majority, and that's a large majority, of music being made today is not made by professional musicians - professionals are the people who have managed to secure a market share, and are able to generate cash from their art - and they are a small subset of all the musicians in the world.... I say YAY for computers!

I used to use an 8 track to record my music now I use the computer, I just plug in my instruments (well my parents) however and the computer has helped alot. I dont see anything wrong with making music on a computer, there are some pretty damn talented people out there that actually put alot of hard effort into their work. There are even songs out there that composers have created in only 15 minutes without the use of any computers and man do some of these songs suck!. sorry no offence to anyone thats my opinion, and yet I find people creating songs on computers that spend days, weeks and even months to pull off such beautiful music. I am a listener of all kinds of music whether it be made by computer or not. To me if the music soundz good, then thats all that matters. :)

Readin through this board i see a lot of interesting views, the concept of music being made on a computer as being 'computer generated', the inseparability of music made using computers and 'dance' music...
The fact is that computers are one of the most versatile tools for any creative output, and indeed for making music. I am a bedroom guitarist, and have also spent quite a bit of time making music on my computer, from both self-recorded and premade samples. I do not see any difference between the music i come up with for guitar and that which i make on my computer.

The only thing is that it is indeed easier to make a sound on a computer than on an instrument, and to put together entire songs... you can do that by yourself without any fancy recording equipment (or any at all) and end up with a reasonably professional-sounding result. Because it is easier to make music on computers there are a lot more people doing it, and some doing it terribly. It's an individual thing, and some people have taken music to wicked places with the help of their computers. To those people who are all about the "oh computer generated lame poo wank dance dick" maybe you should get hold of some music software and have a go. You never know, you might come up with something you like. making music with computers is exactly the same as with real instruments - if you don't have good ideas in the first place, it will sound crap. Its all about the quality of your ideas, not the quality/type of gear.

making music with computers is exactly the same as with real instruments - if you don't have good ideas in the first place, it will sound crap. Its all about the quality of your ideas, not the quality/type of gear.
computer is just a technology! it might be a instrument or it might just be an aid to create music. i play bass, guitar and drums. but recording drums in my home is expensive...you need atleast 6 mics and mixers and stuff, so i simply programme the drums in frootiloops and add bass, and guitar tracks later. is this cheating??

computer is used in some part in any kind of music, even bebop jazz played live are tweaked with computer fx...no music goes with the use of computers these days. in rock music for example, people didn't have effects pedals or anything in teh 50s then in 60s analogue stompboxes came...then later came digital fx pedals (digitech, zoom, korg)..they use microprocessors (which technically are computers) ...recently apple is promoting using effect processors built in computers...i think that's how rock music is going to head to...

so how is making music with computer is cheating?

Computers should be used as a tool to making / creating music, they should never take over the art of playing music .. as in being able to download samples, mix them as you want etc, samples are fine, but when it comes to Laying the track down .. get real musicians in if you can to play the different parts, there's no substitute for the real sound of someone playing for real .. especially something you've written or your creating, you can then use what ever technology you have at your disposal to play around with YOUR sound if you know what I mean.. even adding a few computer generated sounds too if needs be. Ever heard of a composer called David Arnold ?? ( I know he's not kiwi but .. ) he's a mix of old and new.
Online question from www.dunedinmusic.com

What do you think about pop music today?..is it getting better or worse...new and original or banal and regurgitated....

Pop" music is for "Pop" (who's now dead and cremated   ). "Popular" music just means you're making more bucks outta it We all know that 99% of the "pop"ulation has no idea what good music is! That's why we listen to Radio 1 or Inferno! Ahhhh the thought of Ritalin or the 2Fats on Classic Hits FM!

I still enjoy the odd Pop song. Theyre just catchy little bites for the mass audiences to enjoy. Just the other day I was bouncing along to Miss New Booty by Bubba Sparks. Doesnt mean its a great song. Doesnt even mean I particularly enjoy it. But its simple pop music with a catchy hook and we cant deny to ourselves the simple enjoyment we can get from music like that. Then us more cultured fellows dig a bit deeper and find music that truely stimulates the senses.

thats the worst thing about pop music is that is is so "piddle salad" catchy. Like at work the radio is on whatever station. I don't care. I don't even listen to it, but these little catchy ditties get stuck in your head and by the end of the day you're humming the "spooof mungs". That's what radges me off aboot pop. Lately I've been listening to Capdown a UK skacore band and their songs are catchy and "fudge farking" amazing. So when I get an annoying pop song stuck in my head I just start to hum a bit of the ol' Capdown and so long pop.

I think Pop is in a lull where there are a whole heap of different musical styles, none of which a particularly new vying for attention. There is no movement of anything fresh which has a large following, just a whole heap of seperate scenes.
For all of the different styles which are doing the rounds there's nothing really innovative or refreshing which really floats my boat.
Sucks

Yea, I agree, theres nothing much in the way of truly innovative music on the radio or TV, because the music mainstream keeps regurgitating itself. It seems to move in cycles between the pseudo-futuristic (remember what the nu-metal kids of three years ago would have to say about classic rock, or anything made before the mid nineties for that matter), and the overly retrospective (its good to take influence from the bands you love listening to, but there are alot of bands out there right now who produce nothing more than a pale copy of various past trends).

Follow up question

Do you think this is because there is such a mass amount of music around (because anyone with a computer can write music) or people are just not coming up with new ideas? And why?

I think it's a variety of things, but it's not to do with the fact that anyone can create music these days. If anything that should help get more interesting and original music out there, but the thing is, the vast majority of people out there aren't listening to this stuff, because they are content with an endless stream of "pleasant" and/or unchallenging noise in the background.
The older you get, the more important a constant stream of 'pleasant/unchallenging' music is. A few years ago, you would have had me attacking anything unchallenging. Now I have far too much on my plate to want to be challenged from all quarters. Of course, my idea of 'pleasant' is vastly different to most people's, and I'm a little deadened to 'challenging.' I make softer music these days, but they still don't play it on mainstream radio. Maybe they would if I was good looking. Or sent it to them.

Why worry about it anyway? Just go out and produce. You'll never change the mainstream opinion by whining. Only by offering your alternative.

What I mean by "pleasant, or unchallenging" is not necessarily softer music, but the stuff the average person on the street finds easiest to digest, some of which I actually find pretty abrasive. Oddly enough alot of music that seems quite accesible to me, is probably hard to listen to for alot of people, so it all comes down to taste as well. Anyway, even though I might complain about the type of music that's all over the airwaves, at the end of the day the mainstream doesn't really bother me. I just think it would just be nice for a slightly larger group of people to be exposed to the interesting AND new stuff thats out there. A lot of people are under the impression that innovation in popular music died in the 80s (or earlier), when there is actually modern stuff out there that might interest these people which for some reason remains obscure.
Online question from www. Digifreq. com

What does the Internet constitute to you as a musician?

Well It ain't a gig and it's not a party. Great place to snag info on using computers to make music though. It's not quite the same as a sharing tapes back on the bad ol' days. But it is what it is. Good bad or indifferent. You can make connections with people all over the world though. That is not a half bad plus. And yes you can debate the differences in gear, technique, plugins, what have you. You can share music, pictures, patches, help, soundfonts, and the like.

It's a bloomin distraction. I spend too much time on the net and not enough recording. Unfortunately I think the internet is becoming a must have for musicians/producers these days. So much stuff available for download, if you need a sample and you haven't got it than a couple of clicks and you have.

Well for a young lad like me, i should be very happy... but the internet and special Messenger steals much time, that really bad.... But internet give you musical connection in an other way that before... you can also get pro review on your songs easiere that way... so its both bad and good thing with the internet

think the Internet has been a huge development for all musicians. It hasn't quite totally leveled the playing field between independents and majors, but that may still happen. What it has done is provide everyone with the ability to showcase their music to the world. With the right focus, a good live act, or even a solo act, etc. you can now make a living as a musician by selling music. The Internet helps to build a fan base and keep the fans happy by providing content on a web site, etc. And for the me... the Internet played a big part in starting my writing career. And of course DigiFreq and NewTechReview wouldn't even be here without the Internet. My books probably wouldn't be as popular either because without forums and web sites, I wouldn't be able to converse directly with my readers.

The Internet has made a huge difference in many ways to many people.

the internet has helped me greatly, being able to ask questions related to recording and getting answers from experienced people got me going a lot faster than fumbling around on my own. no matter what difficulties arise it seems there is always some-one who has the answer. the availability of guitar tab is another huge bonus. and yes it is a huge distraction as well

I usually tell people it's a lot like real life in that every known diversion/perversion is available. And like the boob tube if ya want to waist a few hours ya can with bells on. And yet it has a real potential to be the most educational tool known to man. With that said I prefer the later for my interests. Let me elaborate. I started school/public in 1958. And like the song goes I was stuffed with everything I had no interest in. As an adult I can pick and choose my learning. And set the pace to suit. Does it get any better.
It's quite simply, a blessing for me. I get to showcase my musical works, find answers to important questions, learn learn learn, and keep informed. It is a distraction, but a great one, much better than television, in my humble opinion!

Just lights and wires in a box No contest there at all. TV was to be more but has fallen short. And if were not carefull the internet is subject to the same thing. It will be under attack. And to some degree is now. Those with money want control and the free flow on information on the internet regardless of who you are is in jepordy. Write or contact you representitives. As it stands now the flow is blind. No one gets preference. Power and money want to change that to something very different. And you can imagine how it will come out if they get there way.

I think it's wonderful. It opens up a whole new opportunity that we never had before. It's truly made things "Global" as opposed to local. Now its no big deal to be trading / chatting with someone in Maylaysia just like he was next door. You can trade info and music /tech talk with others, and find out things you never could from any book. Not that i dislike books -I love them! (esp. Scott's books, wink & a nod) But there are times, when you wanna hear someone elses take or thoughts on something. The amount of information available can be overwhelming, BUT- I'm very glad to have the choice. It's become an indispensible tool -to me anyway. Just sayin is all,

Like the others have said, I see it as a blessing. It's a way to get your music out there on your own terms. It's an excellent way to hookup with other musicians. Ultimately, for musicians, I see the web as a way to get your music out there to a world audience, without having to rely on large corporate media conglomerates.
Online question from www.Digifreq.com

How important is music technology to your creative process?

Most of my stuff takes shape with a guitar and a pen and paper, so music technology isn't that important to my creative process. Saying that though it does allow me to record and edit my stuff at a level that was previously unattainable, and it is a lot of fun to mess with some of the technology out there, but if there where no computers i’d still be writing the same stuff and singing into a cassette tape.

For me technology is extremely important. I always use some kind of music gear when doing anything musical... that includes composing. I like to have that immediate feedback so I can hear exactly what I'm creating. They pretty much have a tool for everything now. Want to write song lyrics? There's MusicWriter. Want to create drum tracks? There's Jamstix, EZDrummer, BFD, or loops from Groove Monkee, Smart Loops, etc. Plus, I can't really improvise in my head. Meaning, some of the stuff I come up with by just fooling around at the keyboard. I couldn't do that without being in front of the keyboard. And not only that, but different instruments inspire different ideas. In the studio, I have pretty an unlimited palette of sounds, so I just dial something up and start fooling with it. Don't like it? Switch to something else. Eventually, I find a sound that inspires me and allows me to come up with a melody or riff, etc. I do, however carry around a small pocket digital voice recorder for those out of the blue inspirations that hit me when I'm out somewhere. In that case, I just sing what I hear in my head as best as I can and then try to translate it into real music later.

I do think that no amount of technology or training can compensate for talent. i know most folk could sit down with some of todays technology and knock up a rough song or musical piece, but at the end of the day a good tune is a good tune because it somehow manages to connect with the listener on an emotional level and the magic ingredient which makes this happen is TALENT. it's certainly heaps of fun for many people to have access to this technology but it isn't going to turn them into a musical genius.

Rock'n'roll is a garage kind of thing And if memory serves me right was poopooed by the cultural elite? Classically trained musicians. I not advocating anything here. Just making the observation. It's influence in the beginning was Blues music. Which is by it's very nature different? It's music but not in the classical sense. Structure and timing were slurred. Like Jazz syncopation? Did jazz cop this from the blues? Or did the Blues cop that from Jazz? I think the Blues is an oldist form/style? Either way something happened. Somebody copped a few lick/tricks and the rest is history.

i feel there has always been an "elitist" element in music, and anything new can easily be dismissed as "not real music"

Even the classical greats (Mozart, Beethoven) had a large group of detractors in their day, because these guys where the Elvis Presley's/John Lennon's/Roger Water's of their time. Guys with enough talent to be discontented with plodding away at the same old formula's and push the boundry's of what was acceptable and expected, for which, i am extremely grateful.
I've run into acoustic purists that turn their nose up at anything with samples or synth sounds, as if that isn't somehow a real instrument. For me, filter tones, effects, wild envelopes, all fair game for creativity. I guess that is the point, creativity. That's what comes first. Apply that to anything to make music and if it sounds pleasing, that's real enough for me. The classic sound of the Caribbean, what is that, hitting trash cans? It was a poor street sound. I know I sure like using a word processor rather than a typewriter. The same goes for a hard disk multi-track over a cassette tape. Printed scores on a laser printer, how can you beat that. Digital storage of music, awesome. I'm still amazed I can burn CD content and afford to do it at home. I sure do love what Sonar 5 can do. I agree with Scott, changing off on orchestration on the fly is very inspiring. One instrument might yield little and then you switch to another and it's magic. I sure wouldn't want to give that up and go back to blank score sheets and a pencil.

Every era had limitations. That set the tone for the music that came from it. And yet it was just those limitations that caused some vitally great music to be made.

One thing puzzles me - greatly. Now that home recording is so easily accessible and more folks are creating their own music than at any other time in history, how come there isn't a corresponding growth in the quantity of worthwhile, original music? I mean, have you HEARD some of the stuff people post to music sites? I hate to be unnecessarily cruel, but 99.999% of it is unoriginal, embarassing, feeble, tripe. I've heard the occasional piece that's been technically well-recorded, but I've NEVER heard a song that's made me shiver and say "Good grief - that person can write better songs than Ray Davies/The Beatles/Bill Joel...!" I'm not disparaging their (my!) efforts - they're totally valid insofar as the activity brings an awful lot of pleasure to the creators; and writing, playing and recording your own music is an amazingly enjoyable experience. But why hasn't some true greatness bubbled to the surface? Where are the bedroom nascent Bowies? The amazing technology can only facilitate - but it hasn't facilitated much so far. Discuss.

I have to disagree with that, alltogether. I've heard some absolutely amazing original music on the web that people never would have heard were it not for the web. You just have to find it. I'd recommend checking out the links to peoples sites who post at tapeop.com Granted, some are not so pleasant to listen to but you'll inevitably find some wonderfully creative gems that you'll save in your favorites. A lot of it is home production that certainly equals anything George Martin ever tracked at Abbey Roads. No disrespect intended; purely prop's for the guys producing themselves. Today's home artists are producing some genuinely exciting homebrews

I'm in a studio. One of those big ones with a budget. The gear room reads like a who's who of equipment I wish I had. With me are a select group of well qualified musicians and engineers just waiting for the moment. I bounce something off the bass player the drummer kicks in, everybody in that live room can stand alone as a musician. Knows his chops and nothing is left to chance. If I want vocal back up it's a phone call away. OK I got your attention. If something magical does not happen I'm wasting time and money. That is what happened. And it's not hard to understand how some great music got made. Now a lot of years of practice and grunt work went into that moment. All before any machines got turned on. And if for some reason you didn't make the cut along the way you could not be there at that moment. This
process culls the pack. Not the best survive. Just the most determined. And from that music is made/recorded/refined/enhanced and a record is made. It is not the best of the best that made the cut. But what comes out of that live room is the best each can bring to that moment. The process was not intended to be perfect. Just to make money. And from that all we hear as music. The soundtrack to our teen years and all the memories that accumulate.

I think you are correct about your perception Skyline. In a way, it is good news. Would we want anyone and everyone to be able to make Beatles albums with ease? That would dilute the value of the Beatles substantially. Of all the cameras that people suddenly had after the turn of the century, 1900, how many of those pictures taken by the throngs were works of art? How many great movies have been made with all the videocams people have? How many great books have been written on word processors that have made writing so much easier? Thank God it is hard to put together everything right so that something really special results. As for music recordings, I think it shows just how difficult it is to get this right. A lot of the greats were genius in some way. Great talents. Notice how often even the greats end up copying something special though. Right now, there doesn't seem to be organized way to bring home musicians and recording engineers together in a way that creates a Motown. Maybe Scott might think of how to try and do this. Drive and synergy seems to be lost by the internet approach. Most home musicians and particularly home recording engineers work like they are mad scientists, alone. That's a big part of the problem. The Beatles with the 5th Beatles show this, as alone, none of these people did anything in comparison. Well, that's my take on this at least.

Well put. I suppose the answer to my conundrum is that nomatter how many more folks start making and recording their own music - facilitated by the advance of the technology - the pool of special talent doesn't in fact grow in proportion, like I thought it might. Those 'Pop Idol' programmes support the point: after trawling across the whole country and sifting through thousands of people THAT'S all they come up with? Those with special talents come through anyway with or without the aid of technology (or contests..) Like Idol, we see the same phenomena with recorded music. All these people, the singers on Idol, no matter how horrendous, or people that share their music recordings, also often horrendous, all think their stuff is superb par example of excellence! To tell them anything else and you see how these people act on Idol, angry, abusive, defiant. It's the standard that is sought that is the issue. Is Idol really looking for the best singers? Are all these people being expected to live up to a quality standard, I think so. You point out the difference you see between commercial quality and almost all homespun music recordings, and it just doesn't make the quality standard cut, you and I at least agree on this. Others seem to get upset about this kind of thing even being discussed I've found. The question comes up all the time on music making forums. How could it not? The mistake though is to then say that the current incredible technology opportunity is the problem. It's not. To me, the potential for awesome new music is enormously greater with the new technology. What we are seeing is that almost nobody has the genius to seize the opportunities provided and do something incredible. We are seeing in the commercial world though moments where the new technology is coming through with great promise. What is to be comprehended is that only the surface has been touched with what we have now, and more is coming constantly. If humans manage to survive war and global warming and we have a thousand years of music technology growth, sometime in the next thousand years, people are going to tap into the potential and the future of music has never looked better for the human race. Check back on this in the year 3000.
the quality of audio and the convenience with which we are able to produce it has never been better and i'm sure will continue to improve at astonishing rates. this however as mentioned does not necessarily relate to an increase in quality of artist content.

record companies are there to make money and are happy to stick with tried and tested formulas, and for a long time have dictated the artistic content of modern music and the medium on which it has been presented.

the advancement of technology has now allowed artists to break away from the constraints of record companies and be 100% artistically free for the first time. i know that there is literally thousands of artists promoting their "stuff" independently these days, and that the quality of a vast majority of that stuff is questionable, but i have also heard some top rate material produced in peoples bedrooms etc. we can't expect the quality of artistic content to increase just because the means of producing that material is more readily available to the general public. there has has been a large hit to miss ratio, why would this change?

i actually believe that as artists we've never before had the freedom of today to produce original music and that although it would be easy to get lost in the vastness of web promotion, there is a lot of good stuff out there, we just have to look a lot harder for it sometimes.(better than being dish fed by record companies)

i also believe that anyone who produces something "special" will shine through as it usually doesn't take too long in these days of high speed communication for word to travel.

Idol is unique this is of course is an entertainment industry construct. Fabricated from the ground up. And as such does not represent reality? Each contestant is selected precisely for entertainment value? And with reality TV catching on The one thing that seems to stand out is what reality are these producers reaching for? Viewers. And with viewers ad dollars come streaming in. The old adage cream rises to the top does not apply under artificial circumstances? Because you vote for contestants but you do not choose who will be on this show and who will be excluded. Drama and pathos bring viewers. Comic relief anyone? I wonder how B. Dylan would have done on Idol. That's one weird thought It's not that the contestants are not real, they are. It's the way everything else is manipulated for entertainment value. But it is what it is. As close to real life as reruns of I love lucy TV has almost always played to the lowest common denominator. It can't do real as people won't sit and watch that. And the viewers the ad dollars are chasing are in effect prime lcd? Substance has an enduring quality. It's not that flash in the pan thing. I doubt many will even remember the show once it's run the flash point. But it's the talk of the water cooler now

Dylan would have been put in a laughs segment of Idol. They would have thought his voice comical most likely. Neil Young wouldn't have done much better. Of course, none of us think either of these guys can sing well, but we like them for their song-writing abilities. We get used to them and accept them for what they are, great artists and bad singers. So maybe neither should have a chance on Idol. Now Idol is manipulation and just about making money, no doubt about that, but here and there they capture typical moments of musician egos that are typical and classic in their type. The behavior of those twins that had criminal records and got tossed off the show, anyone that has been around musician types knows these guys. They were entertaining too! What can anyone expect from Fox? It's not like Fox shoots for high quality art after all. The voting is skewed to the South and rural areas. Let's have an Idol show where the voting can only come from NYC and see how that turns out. What we don't see right now is R & D gurus that find the internet treasure free from money motivation. It's odd that hasn't emerged. There is no reason why a great new record label dedicated to quality and new artistry can't happen with the internet. It just hasn't for some reason. I guess it will. One
would hope. There should be 10 great internet-only record labels, purely created by the new communication capability of the internet. There should be a roster of great finds by these labels, complete unknowns that are great. None of us have the time to search full-time for greatness, but these record labels, new ones, should be able to do that. There would be huge money to be had when the money is just a byproduct of finding and promoting quality. It's kind of interesting though to consider that maybe there really isn't that much talent in the world. Maybe that is it. Idol seems to argue that in their initial turnouts. As I said before, maybe this is a good thing though. Real talent stands out and is special. I was thinking also about how everyone copies somebody else, but even the Beatles did that, so that doesn't stop originality after all. With the 5th Beatle, the Beatles were technology just as much as the songs. Let's remember that. It argues against those that think keeping it simple and basic is the answer to music art and technology is in the way.

What was put on the radio had been screened very carefully for quality, unless it was a novelty song, back when the Beatles were together. Later on, you had the same kind of quality selection being done by DJ's on FM radio when they started to play longer cuts and deep album cuts. In all of that, somebody was there doing the work of selecting quality and presenting quality. For all of the democracy of the internet, we don't have this happening. As Skyline pointed out, there is mostly low-quality cuts out on the internet, and tons of low-quality stuff to sort through. So it isn't a simple matter at all to find quality. It's not as simple as hearing something and liking it or not, the problem is finding the quality and being exposed to high quality recordings. The listener now is expected to be the R & D person, the DJ on the radio selecting the quality. These are full-time jobs. Who has the time for that? The promise of internet music is that it can bypass the money-oriented big labels that have sold out on quality, but it hasn't happened so far. There are though a few groups that have become known directly through the internet. The potential is there. Is there an internet radio station that has a great DJ playing internet found great music?

I have found some gems on the Internet. And I make allowances for the noobs who are just getting started. I do like to be exposed to both. This part is different for me. I actually enjoy hearing others explorations in music making. Keepers are rare though. I know this will evolve, as it should, but I'd like to keep that feeling of exploration. Cause once it's been filtered by someone else's idea of what's good and what's not it simply becomes radio like it used to be. This has it's place, not everyone want's that option, I do understand your point. The best should rise to the top o' the heap. It's just a natural evaluation. New or different does not always imply good. These little gems posted on the net will take on a life of their own if they have something enduring. A quality that has always been hard to predict. Ask any producer who's the next big thing? They will tell you based on their own set of filters preset and fixed. Before the Internet everything filtered through the guys at the top. Pay to play was the norm. I like the choice myself. I'd like to catch the Beatles while they were still in Germany, Before the record contract. Still a bit raw and before G. Martin smoothed the rough edges off them.
Appendix 5

Stan Hawkins seven postulates that critical musicology needs to engage itself with.

1. Social, political and cultural processes that inform the arguments surrounding musical practise within a new historical context, by avoiding teleological assumptions attached to meta-narratives.
2. Aspects of critical theory necessary for the analysis of the values and meanings that are linked to the musical text.
3. Issues of class, gender and race in music by addressing the dimensions of production, reception and positioning of subject.
4. Problematics of canonicity, universality, aesthetic hierarchy and textual immanence, with reference to the binary divide between the classical and the popular.
5. Studies of different cultures in terms of their own specific and relevant social values with a focus on the diversity of musical forms.
6. Questions relating music to political, anthropological, philosophical, psychoanalytical and sexual discourses in an attempt to recognize meaning as intertextual.
7. Explorations of the multiplicity of music’s contemporary functions and meanings, with particular emphasis on the evolution of new technologies within late twentieth century post-capitalist cultures.