1-1-2003

# Imaginary Soundscapes: Electronic Music Culture and the Aesthetics of the Virtual

Sara Wei-Ming Chan
*Ryerson University*

# Imaginary Soundscapes: Electronic Music Culture and the Aesthetics of the Virtual

by

Sara Wei-Ming Chan
Bachelor of Administrative and Commercial Studies, 2000
University of Western Ontario, London, Canada

A thesis

presented to Ryerson University and York University

in partial fulfillment of the

requirement for the degree of

Master of Arts

in the Program of

Communication and Culture

Toronto, Ontario, Canada, 2003

Author's Declaration Page

I hereby declare that I am the sole author of this thesis.

I authorize Ryerson University to lend this thesis to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this thesis by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

Borrower's Page

Ryerson University requires the signatures of all persons using of photocopying this thesis. Please sign below, and give address and date.

| Signature | Address | Date |
| --- | --- | --- |

Imaginary Soundscapes: Electronic Music Culture and the Aesthetics of the Virtual

Sara Wei-Ming Chan
Master of Arts, Communication and Culture
Ryerson University and York University
2003

## ABSTRACT

This study is an exploration into how dance music cultures (better known as "rave" or "club" cultures) find ways to straddle the divide between human and machine through their incorporation of both of these oft-competing elements. Electronic dance music and its digital composition methods represent what Mike Berk calls "a new sonic paradigm." The different modes of production, performance and consumption within this paradigm require alternative ways of thinking about originality, creativity, and authenticity. While I do look briefly at issues of consumption and performance within dance music cultures, I focus specifically on how electronic music producers are bound by a unique vision of musical authenticity and creativity, borne out of their own "technological imagination" and the sonic possibilities enabled by digital technology.

To use the concepts employed within my paper, I contend that dance music cultures make evident what Michael Punt calls the "postdigital analogue"—a cultural condition in which the decidedly more "human" or "analogue" elements of felt experience and authenticity coexist and converse with the predominance of the digital technologies of simulation and artifice. Dance music cultures are an emergent social formation, to use Williams' term, revising and questioning the typical relationships understood between digital and analogue. This postdigital analogue manifests in a number of ways in the cultural, aesthetic, and technological principles promoted by dance music cultures. In terms of production in particular, signs of digital and analogue coexist in a form of virtual authenticity, as the sound of the technological process engaged to make electronic dance music bears the mark of musical creativity and originality. This study reveals the unique manner in which dance music cultures incorporate both analogue and digital principles, bridging a sense of humanity with the acceptance of the technological.

Acknowledgements

The pages that follow are the product of an arduous but rewarding research and writing process. They would never have materialized in their current form, however, without the support and encouragement of a number of people. Words can hardly convey my gratitude to the following, each of whom has made an indelible mark on this study in one way or another.

First and foremost, I must express thanks to my supervisors, Monique Tschofen – for your encouragement, patience, your thorough editing, and your penchant for "birthing" metaphors (which functioned almost *too* perfectly); and Jody Berland—for your invaluable knowledge and insight, and for making me think things through at every step. And to my "unofficial" supervisor and mentor, Edward Slopek, whose guidance and steadying encouragement, both personal and professional, were indispensable to my completion of this study and my development as a scholar.

I must also extend my gratitude to my interview subjects for taking the time to speak with me and whose commentary formed the foundation of this paper. I hope I have represented your vision and your craft truthfully and faithfully. Additional thanks go out to the TRIBE magazine message board community, whose collective belligerence and tenacity provided me with more than enough discursive terrain to wade through (not to mention hours upon hours of procrastination to log).

Sincere thanks also go to my friends and colleagues whose personal and/or academic support was overwhelming, particularly my writing group Erin MacKeen, Etoile Stewart, Nick Taylor, and Monique Twigg ("all of these points point out" how amazing you all are); as well as Mike Bickerton, Liz Kaminsky, Sara Martel, Mark Pytlik, and Sarah Sharma, without whose friendship and advice I surely could not have coped. Special gratitude goes to Steve Gilbert, for the companionship, the kindness, and "the feelings."

Finally, I am obliged most of all to my family, Ron, Bea and Matt Chan, for their unconditional generosity, love, and encouragement through all of my endeavours.
This is for you.

Table of Contents

## Introduction

> There is a great struggle going on at the moment about what we do with our humanness, what we do with our virtual selves. When do we give up our humanness and simply accept the machines?
> -*David Toop* (Shapiro 2000)

Toop aptly situates a central dilemma posed by our contemporary cultural moment: as technology becomes more and more a part of daily life, we find that our sense of humanness is increasingly at odds with our technocultural landscape. Often, as Toop's question illustrates, this tension is put in terms of a struggle between the binary oppositions of human and machine, as if we are forced to make a choice between the two. However, as technology becomes more a part of everyday life, one is tempted to resist the necessity to choose one over the other. A more balanced viewpoint would instead recognize that if we are indeed being swept into an age of the "virtual self," as Toop implies, there might be strategies that enable us to negotiate between these two poles. Examining these strategies first involves locating the complexities of these binaries and how they might coexist within specific cultural practices.

Cultures of music have always in one sense or another been dependent on technology, for as Alan Durant asserts, "the history of musical instruments is always... a history of technology" (Gilbert and Pearson 1999: 112). This history has notably been characterized by a series of anxieties or tensions in response to the increasing industrialization or standardization of musical practice, typically falling along the same lines as Toop's remarks above. The encroachment of technologies upon music-making has initiated a long-standing series of debates concerned with maintaining or preserving the principles of musical authenticity, creativity, originality and humanity in the face of music technologies that tend towards artificial or disembodied constructions or reproductions of these principles. These tensions persist as digital technology becomes more entrenched in the production,

performance, or consumption of music, demarcating a discursive and critical landscape in which several competing responses to music technology converse and negotiate. Particularly prevalent are frictions between the "analogue" and the "digital"—pertaining to technologies as well as the conceptual attachments and associations each of these terms have produced in musical discourse.

Situated within this landscape are contemporary dance music cultures (better known as "rave" or "club" cultures), whose electronically produced music is relies upon the digital technologies of deception and artificiality, but whose cultural principles and practices suggest a devotion to the organic, natural, or human tendencies supposedly threatened by digital music technologies. By employing Raymond Williams' (1977) framework of *dominant*, *residual*, and *emergent* cultural practices with regard to musical practice, this study explores contemporary dance music cultures as an emergent social formation whose practices articulate new ways of envisioning the relationship between human and machine. More specifically, I contend that dance music cultures are an emergent formation whose musical values are underpinned by a type of *virtual authenticity*, and so signal new ways of explaining the relationships between the technological and the human as they might be framed outside the rubric of struggle or opposition.

The pages that follow are the product of a dual research process, comprised of two parts. One is an extensive literature review that introduces the reader to the cultural and musical practices associated with rave culture as well as the debates and tensions surrounding music technology, particularly those which pertain to the emergence of analogue and digital music technologies. This portion of the study, contained within the first four chapters, identifies and expounds a series of cultural and artistic shifts that I believe are occurring on the

basis of the increasing predominance of digitally generated expression. The other is a case study[1] of six artists who are active members of the Toronto rave and club community in their roles as both DJs and producers of electronic dance music. My in-depth study of how these musicians experience their work in Chapter 5 uses *Grounded Theory* to reveal a set of practices and values that provide evidence of aforementioned shifts and present a new way of envisioning authentic musical expression. By employing this twofold research strategy, I explore the possibility that this new set of cultural practices challenges our conventional conceptions of human, machine, authenticity and artifice, and the relations between them.

**Research Questions**

In a world that is increasingly "technological," how do we, as subjects of Western postmodern culture, negotiate between notions of the "real," the "authentic," or the "human" in the presence of their allegedly rival forces of artificiality and technology? This question, which resonates strongly in our contemporary moment, guides my study on a general level. Examining a musical culture that encompasses both ends of the spectrum presented by this inquiry can look beyond the binaries of "authentic" versus "artificial," or "human" versus "machine," to reveal a more complex set of relationships than those often perceived between these concepts. Studying how electronic dance music is experienced in its production, performance, and consumption provides insight into a culture that I believe embraces the technologies of artifice as much as it values the reality of felt, human experience. My study looks at all three roles of producer, performer, and listener within dance music cultures, but specifically focuses on the production practices of electronic musicians.

The key questions of my research situate dance music cultures within the broader debates regarding music technology and its influence or effect on musical practice and

authenticity. To begin, what are dance music cultures? How are they distinct from other musical cultures? How do they, as I claim, span the bridge between human and machine in a unique way? In order to assess dance music cultures within the debates that I have mentioned, it will also be necessary to trace the contours of these discussions and examine their origins and complexities. Thus, after describing dance music cultures, I begin my analysis at the discursive level. What are the differences between "digital" and "analogue," and how have we arrived at our current conceptions of each? How have these conceptions and tensions between the digital and the analogue been constructed through vernacular and critical discourse, and how do these ideas inform the ways in which digital technology is viewed or understood?

Following the establishment of these issues, I return to dance music cultures and position their rituals within these theoretical debates. What kinds of musical practices are being forged through the employment of digital production technologies, and how do they differ from previous practices? How do contemporary dance music cultures signify fundamental shifts in the way musical expression and authenticity are made and perceived through their engagement with digital technology? In what ways do these practices meld elements of digital and analogue technologies and subjectivities in order to constitute a culture out of which new ideas concerning community, technology, sociality, and authenticity are surfacing? Considering the ways in which electronic dance music is produced, are we witnessing the espousal of new musical standards in which authenticity is based in simulation and artifice? If so, on what basis do participants of dance music cultures determine meaning, expression, or authenticity on the virtual or real level? What is the new "language" of dance music cultures? Through my research on dance music cultures in general and my case study of

electronic music producers specifically, the preliminaries of this "new" language, based on virtual authenticity and technical knowledge, are introduced.

**Objectivity**

It is appropriate here to note that I take more than an academic interest in this topic. As both an amateur DJ and a participant in rave and club culture, I feel it necessary to address the issue of objectivity and potential bias in this study. While I do attend raves and clubs and socialize with a number of members of "the scene," I have always considered myself more of a fascinated observer than a true "raver" (though the meaning of such a term is already elusive). I believe this distance is largely a result of timing. I was never enculturated into the scene in my youth—rather, I only became interested in electronic music culture when nearing graduation from university. As a result, I have always maintained as much of a critical distance from the entire experience as I have thrown myself into it. I believe this balance will be beneficial to my study, as I can observe the culture and interact with its participants as an insider, but also maintain a unique and objective perspective. Henry Jenkins maintains that in order to develop a proper "digital theory," the knowledge gaps between practitioners, "vernacular theorists," and academic scholars need to be narrowed (1999). My position between dance music cultures and scholarly activity will be to my advantage in my analysis, allowing me to take on the role of the "vernacular theorist" put forth by Jenkins.

**Significance of the Study**

My study makes two significant contributions to scholarly research. The first is topical and theoretical: it provides new insight into the lived practices of a musical culture that can reveal much about how musicians or listeners engage with technology. It sheds light on a cultural phenomenon that has yet to be fully explored on the theoretical grounds of its position

within the debates surrounding digital technology and artistic expression. While my research is situated within a specific set of cultural phenomena and practices, on a broader scale it also alludes to questions of identity, humanity, authenticity, and art, and how the technological developments of the past decade are generating new or revised forms of each of these. In a society increasingly dominated by the proliferation of technology and digitization, must we be forced to choose between the poles of anxiety or acceptance? Is a more balanced approach to examining our cultural moment possible? These kinds of questions are certainly in heavy circulation as we are bombarded with technological novelty and innovation.

The second contribution is methodological. By combining a review of the existing debates and situating the lived cultural practices of dance music culture participants within those debates, I am putting forth a method for studying musical cultures that enables for practical and theoretical knowledge to converse and synthesize. The methods and interpretive frameworks I have employed work towards this integration of the "theoretical" and the "practical" are detailed in the next section.

**Methodology and Approaches**

My research provides a strategy that treats music as a contemporary cultural process rather than a historical object of study. The methodology employed in my study takes cues from the work of several contemporary music theorists who advocate for an examination of the cultural conditions and processes under whose influence music-making practices are shaped. Situating his discussion within typical debates surrounding music and authenticity, Steve Jones suggests that looking to the practices and processes existing beyond the music itself will shed light on how authenticity is actually determined, as the currently defined demand for it is based on a false assumption that music exists in some "pure" form—summoning up Frith's argument

that music is not the raw material, but the final product in a *process* of music making in which a complex set of influences (technology, capital, and aesthetics included) are inherently embedded (1997: 208). My own study of the rituals, processes, rules and values that circulate and flow between musical forms, particularly in the case of digital music production, provides a better understanding of the culture overall.

These processes will be assessed using Raymond Williams' model of *dominant*, *residual*, and *emergent* cultural or social formations, which I will explain in further detail shortly. The mode of cultural analysis presented by the dominant-residual-emergent framework presents culture as a contested space, within which various cultural processes or perspectives contend for their own meanings and values. This model enables a nuanced assessment of the complex and dynamic ways in which a culture operates. Much of the current literature tends to employ a subcultural approach to rave culture, which I find becomes overly concerned with the ability to project a political purpose or stance onto what I find to be a generally anti-political culture in its contemporary formations. In so doing, subcultural accounts tend to collapse the nuances or the heterogeneities that exist within rave culture in order to maintain a sense of homogeneous resistance against some hegemonic force.

By assessing rave culture as subordinate or resistant rather than *emergent*, subcultural approaches fail to allow the dialectic coexistence of a number of cultural practices. Thus, while Williams' model does allow for a hegemonic force (the "dominant"), it is inherently a *relational* model that attends more to issues of connection and continuity rather than conflict and struggle. The model's relational nature allows for a more subtle perspective on electronic music in conjunction with other standards of musicianship, and enables me to situate dance

music cultures within the more general debates concerning music and technology without having to pit various musical practices against one another.

The methodological framework I have employed for my case study involving dance music producers is Glaser and Strauss' *Grounded Theory*, its name resting on its "emphasis on the generation of *theory* and the *data* in which that theory is *grounded*" (Strauss 1987: 22). Grounded Theory is an approach to qualitative data which is not necessarily limited to one specific type of research or data. Strauss points out that it is less a specific "method" or technique as it is a "style" of qualitative analysis (1987: 5). Involving a systematic and simultaneous process of interviewing, comparing notes, encoding and memoing major themes and categories emerging from the data, grounded theory allows for both methodology and theory to emerge out of the research process and the data itself. It is employed in my case study since it aligns itself well with the exploration of a specific cultural situation in which various "threads" or themes can be examined at once. Since this study is exploratory and abductive in nature, interview transcripts will be analyzed to gain both familiarity and insight into the musical production practices of the participants, using grounded theory as a strategy and textual analysis as a method. The intention of the case study is to gain more insight into the culture of production and how authenticity and meaning are determined within dance music cultures overall.

**Preliminary Literature Review**

Considering its relatively recent inauguration into more mainstream vernacular and academic attention, there is a limited amount of literature examining the "rave" phenomenon. Furthermore, little has been written from this study's particular perspective in its consideration of the relationships that dance music cultures reveal regarding digital technologies and

authenticity. For the purposes of this review, I have organized the reviewed works into two main critical contexts, rave culture and music technology, though several of them might overlap.

***Dance Music Cultures***

The majority of studies on rave or club cultures are ethnographic in nature, attempting in some way to explain or describe the rave "experience." The origins of rave culture and its rapid ascent in the late 80s and early 90s were considered, by many, a phenomenon in and of itself. Much of the literature of this type is purely descriptive, particularly through the collection of "insider accounts" from participants themselves (Fritz 1999; McCall 2001; Silcott 1999). Those that move somewhat beyond the insider account seek to either distinguish rave culture from previous youth cultures, or identify the central motivations that drive rave culture—among them, opportunities to dance within a collective 'vibe' (McCall 2001; Reynolds 1999; Taylor 2000), a sense of religiosity or spirituality (Brewster and Broughton 2000; Hutson 1999; Hutson 2000), a training ground for creative cultural production and alternative subjectivities (Cunningham 1998; McRobbie 1994), a subcultural political or youth cultural movement (Aaronson 1999; Borneman and Senders 2000; Martin 1999; Redhead 1997), and a mode of cathartic release, escape or disappearance (Melechi 1993; Tomlinson 1998) that is potentially primarily centered around drug consumption (Reynolds 1999).

While each of these interpretations hold merit, many of them are informed by an isolated approach to rave and club cultures in their consideration of the culture as a discrete phenomenon as opposed to one which converses with the social and technological forces that frame it. A few theorists, however, do take into account the importance of how digital technologies are naturalized into the social practices of rave or club culture (Thornton 1996;

Cunningham 1998; Gilbert and Pearson 1999; Prendergast 2000; Sefton-Green 1998; Tomlinson 1998). These studies shall serve as a valuable starting point for my own research, as they recognize that no culture is a phenomenon in and of itself, but rather through influencing and being influenced by other social, economic, political, and technological forces.

***Music Technology***

The term "music technology" summons quite an abundance of literature—especially considering the fact that anything from a kazoo to a compact disc might ostensibly fall under this same umbrella. However, I am particularly interested in the technologies of production, performance, and consumption with regard to the digitally produced electronic music that forms the lifeblood of dance music cultures.

The emergence of digital media and music has compelled many to examine how the digital "bit" transforms traditional roles and conventions of music-making and music-meaning (Berk 2000; Frith 1998; Goodwin 1992; Lull 1992; Reynolds 1999; Shapiro 2000; Taylor 2000). Electronic music or "rave music" has drawn particular attention from popular music theorists interested in its radical departure from traditional sounds and methods, being an entirely synthetic or sampled form (Tagg 1994; Riddell 2001). Other discussions have noted that digital production methods (with the aid of Internet technologies and relatively inexpensive production software) are encouraging a more democratized, Do-it-Yourself (DiY) culture of music-making (Gilbert and Pearson 1999; Gibson 2001; Kelly 2002; Taylor 2001). The distinction between the roles of composer, performer, and consumer are becoming increasingly blurred as a result.

The obscurity of these distinctions is often represented in the literature by the rave or club DJ, who potentially plays the role of consumer, composer, and performer simultaneously

in the sense that he or she consumes pre-recorded material but also crafts or composes a musical piece through his or her performance (Brewster and Broughton 2000; Poschardt 1998; Taylor 2001). Other theorists have argued that practices of production and consumption in dance music cultures also confound the boundaries between these roles (Emmerson 2001; Théberge 1997; Toynbee 2000). As a result of these shifts in the conventions and technologies of music, conceptions of authenticity and expression are being modified by new practice (Berk 2000; Gibson 1999; Gilbert and Pearson 1999; Thornton 1996). These authors present a foundation for my own study, which focuses on the ways in which digital music technologies are enabling new practices as well as new ways of embracing or appropriating technology in such a way as to recuperate or maintain the presence of "authentic" experience and expression. This space of enculturation within dance music cultures, where the digital is absorbed into our conception of the "natural" or the "real,' is one I wish to explore in more detail, particularly with regards to the production of electronic dance music.

To my knowledge, no studies have focused specifically on the production practices of dance music cultures or positioned these practices within the broader debates surrounding music technology from the perspectives proposed by this study. My interest in the *how* and the *why* in addition to the *what* of dance music cultures requires a more in-depth consideration of the actualities of making digital music and an understanding of what language and knowledges are constructed around these practices. In order to achieve this, my interviews with electronic music producers and performers have been specifically geared towards learning how they engage with digital technology and how they determine authenticity or creativity through a primarily technological process of music-making. Perhaps by examining a culture in which digital technology is taken-for-granted, one can have a greater insight—in the moment of its

primacy—into the mutual interplay between technological tools and their users. My research looks to a culture spawned by our youth, a generation whose childhood saw the privileging of the electronic over the written, the digital over the analogue—and who now, perhaps, can uncover how the transition to a digital culture need not be constructed as a battle between "humanity" and "technology."

**Developing the Concepts**

Many of the terms and concepts that appear throughout my paper require some preliminary definition and elucidation. My area of study, which I have referred to above as "rave" or "club" cultures, requires some explanation. To equate the experience of a rave with that of a dance club is problematic, since it assumes that they attract the same crowds and cater to the same culture. However, both practices are based on a similar experience of dancing, electronic music performed by DJs, and drugs. Additionally, some consider the emergence of clubs to simply be an extension of rave culture in its original, underground condition—a more commercialized and licensed offshoot of the transgressions that galvanized the original movement. There is inevitably an overlap between the two cultures: many clubbers are ex-ravers, many ravers still attend clubs, and many DJs and producers cater to both crowds. For the purposes of this study, the terms "rave" and "club" may be used interchangeably but shall only refer to these overlapping characteristics, rather than the cultures as a whole. More generally, I will refer to this set of cultural practices as "dance music cultures"—a term which is intentionally broad and neutral, in order to acknowledge the differences that exist within and between "rave" and "club" cultures.

Additionally, I will use "electronic music" or "digital music" to refer to music that is created using computers along with various attendant software or hardware instruments

(sequencers, synthesizers or samplers) that is primarily intended for performance by DJs or consumption by participants of the dance music cultures in question. This type of music typically falls under the category of "electronica" or "dance music" but encompasses a wide variety of generic distinctions, among them house, techno, trance, breakbeat, jungle, ambient, drum n' bass, hardcore, and their numerous offshoots and sub-generic manifestations, each of which possess their own stylistic and cultural elements. Similarly, "music technology" or "digital technology," unless otherwise specified, pertains to those tools or instruments employed by electronic music producers that have only emerged since the 1980s and that are configured according to digital design principles. Among these are computers and attendant software programs or plug-ins as well as digital hardware or external instruments such as MIDI controllers, digital synthesizers, samplers, and sequencers.

The term "authenticity" is similarly a difficult term to pin down, considering the various ways it is constructed or determined in different artistic or musical traditions.[2] Within the confines of this study, the term will refer primarily to the ways in which audiences or practitioners of music determine a "genuine" musical experience. However, considering the technological and ideological shifts that I will be discussing, the definitions I use to describe authenticity will similarly be open to revision within and throughout this paper. In sum, I will present a number of different ways of envisioning or determining authenticity, each of which is constructed out of the interaction of a number of social, cultural, and technological influences.

It is crucial to specify that my use of the terms "digital" and "analogue" are conceptual tools in this study. Thus, they will be employed in reference to both the technologies associated with the terms and a mode of sociality that results from their presence or persistence. Though the technological and the social are hardly interchangeable, our subject

positions and social formations are inherently linked with the technologies embedded in our experience of everyday life. "Digital" and "analogue" each represent one side of a dialectic I am mapping out in this study. On a technical level, the digital is concerned with the principles of malleable, discontinuous, non-homogeneous "bits," whereas the analogue ascribes to the tenets of "similarity, congruence, and continuity" (Punt 2002: 119). Digital reproductions or artifacts are essentially configured bits of information and data which bear no resemblance to the original image or sound they represent, thus "discontinuous" and "non-homogeneous." Analogue reproductions, on the other hand, engender "congruence" or "continuity" because they bear the trace of the original, and are by nature reflective or related to the form and shape of the image or sound they reproduce. These technical properties of digital and analogue, however, have been extrapolated to the realm of the social or the ideological in this study in light of the discursive meanings and associations that have been constructed around them through practice.

In terms of the social, then, "digital" and "analogue" will also refer to a specific mode of expression and subjectivity that arises out of our relationship with such mechanisms and the meanings associated with them. "Digital" refers not only to its technologies but also to principles evidenced or signified by their use, including simulation, automation, artificiality, immateriality, malleability, fluidity, and the predominance of the copy—all of which have to do with the virtual- or hyper-reality that dominates much contemporary culture. Likewise, "analogue" describes both the devices that employ analogue technology as well as the relations that the analogue represents on a social level, such as reality, presence, materiality, tangibility, real-time, and the inscription of the original. These analogue principles are typically associated less with the artificiality of machines as with the presence of the real, the human, or

the authentic.[3] Accordingly, one should consider the deployment of the terms "the digital" and "the analogue" within my study as operative in both an assessment of technological artifact and process as well as a terminology to describe attendant dominant or residual social formations.

**Outlining the Framework: Dominant, Residual, Emergent**

Dance music cultures will be situated within contemporary musical culture using Raymond Williams' framework of dominant, residual, and emergent cultural formations as outlined in *Marxism and Literature* (1977). According to Williams, much cultural analysis tends to collapse into a historical, static account of dominant practices, ultimately ignoring the "internal dynamic relations" within a culture, which encompass both residual and emergent processes at the margins of (though always relational to) the hegemonic or the dominant (1977: 121). Williams believes that the identification and examination of all three types of practice are necessary, in the interest of understanding them both on their own as well as what they reveal of the dominant perspective, which he defines as those values embodied by the majority of society or the "ruling class."

The "residual," according to Williams, refers to those practices or elements within a culture that have been "effectively formed in the past," adhering to values "which cannot be expressed or substantially verified in terms of the dominant culture," but which are still active and effective within the lived practice of the culture (1977: 122). The "emergent" is a more slippery concept. In general terms, it refers to practices that are informed by new meanings, values and relationships as opposed to those borne out by the dominant cultural formation. However, as Williams points out, it is often difficult to distinguish between the truly emergent and the merely novel, since new versions or phases of the dominant cultural formation ("species-specific") would not necessarily be considered emergent. Due to their alternative or

oppositional nature, both residual and emergent practices are at constant risk of being appropriated by the dominant formation, and thus must work against such "pressures of incorporation" in order to sustain themselves in relation to the dominant (Williams 1977: 123).

Narrowing the context of my study to digitally produced music provides an interesting framework for considering music's ongoing struggle with technological change. Within this study, the "digital" is considered the dominant formation (considering its cultural predominance), while the "analogue" will be considered residual as its technologies and concepts were "formed in the past" but continue to persist at the margins of the dominant formation. Assuming we live in an age of digital dominance where traces of the residual analogue endure, I wish to present the practices of dance music cultures as representative of an *emergent* culture of the "postdigital analogue" due to their incorporation of both digital and analogue technologies and ideologies. Stated differently, I contend that dance music cultures present an emergent process in which the technologies of the "artificial" digital and the values of the "authentic" analogue are melded to form a type of *virtual authenticity*, their practices and values expressed through a new type of language and knowledge.

**Mapping the Terrain: Chapter Outline**

Chapter 1 provides a general description of dance music cultures in order to map out my area of study. In this section I introduce the origins, rituals, music, and practices of contemporary dance music cultures. This "snapshot" of dance music cultures presents their unique characteristics particularly as they pertain to technology and serves as the starting point of my analysis. The second chapter traces the tensions that exist between digital and analogue music technologies as they relate to concerns regarding presence (or lack thereof) of authenticity, humanity, or expression in music. I explore the various theoretical positions and

debates that have arisen in response to digital or technological forms of expression in order to establish the current dominance of digital expression and the residual position of analogue technologies.

Following my mapping of the digital as the dominant mode and the analogue as a residual formation, I begin to argue my case for dance music cultures as representative of an emergent *postdigital analogue* in Chapter 3. Here, analyzing the musical practices discussed in my overview of dance music cultures within the framework provided in Chapter 2, I provide evidence of how the analogue elements of humanity, originality, and authenticity are negotiated and determined within this highly technological culture. In particular, I point out that the practices employed in dance music cultures signify a new form of authorship, distinct from previous forms of "analogue authorship," which employs different strategies for determining authenticity or meaning in music. Digital authorship provides an explanation as to why previous means of determining the source of meaning or authenticity are rendered less functional when assessing digital music forms. Looking at dance music cultures in terms how their practices exhibit a mode of digital authorship (as opposed analogue authorship) enables me to re-frame digital music production as one part of a conversation of meaning making with other participants in the culture.

Chapter 4 narrows the discussion to an elaboration of the methods involved in digital music production itself. It explores in more detail the practices of digital authorship employed by dance music producers that signal a fundamental shift in the way originality, authenticity and meaning are determined, in large part due to the *reproductive* nature of these techniques that are attuned to the crafting of pre-existing sounds. Having described these traditions in more detail, I present the key findings from my case study of electronic music producers in

Chapter 5, which seeks to generate conclusions of a more grounded nature regarding the specific types of musicianship and (virtual) authenticity that distinguish dance music cultures.

## Chapter 1. An Introduction to Contemporary Dance Music Cultures

An ethnographic account of the rich and complex genealogy of dance music cultures could fill several chapters, especially considering the fact that music has always incorporated elements of participation and dance. This section can by no means provide an accurate rendition of the complex history out of which rave culture has developed. Instead I provide an overview, a "snapshot" of dance music culture as it stands today, in order to grant more insight into the cultural practices that accompany the music, with particular emphasis on its unique characteristics and its relationship to digital music technology and technology in general. I begin with a condensed explanation of how "rave" came to be.

### The Evolution of Rave

The roots of the dance music cultures of "raving" or "clubbing" can be traced back to several different traditions in music-making, each of which have had enormous stylistic influence over the techniques, the rituals, and the music encompassed by the rave. Among these are Jamaican dancehall and dub reggae, R&B, jazz-funk and rare groove, Afro-futurism, hip-hop, post-punk and new wave, 80s synth-pop, and disco (Shapiro 2000; Reynolds 1999). Rave cultures are indebted to North American disco in particular for a number of developments key to the formation of contemporary club cultures, including the rise of the DJ as artist, the enculturation of recorded music in clubs, the development of the continuous dance mix made possible by innovation in turntable and mixer technologies, and the promotion of a sonic and social environment geared towards hedonism and pleasure.

The birth of rave, by most accounts, is a tale of two countries. The music developed out of three of North America's bustling urban centers in the early 1980s, each responsible for a different genre of electronically produced dance music: Detroit Techno, Chicago House, and

New York Garage. Each of these genres revived the declining disco scene and took over the club circuits in each city as DJs and producers began to fiddle with cheap analogue gear and synthesizers to generate new sounds. However, the cross-pollination of music between the United States and Europe bred a different kind of scene in the U.K. The 80s U.K. club scene had been largely based in the obscure funk of rare-groove records, and the house and techno craze of American dance culture had never really taken off in London's clubs (Reynolds 1999; Silcott 1999). It was not until the late 80s that the sounds of Chicago's 303-based "Acid House" spawned the U.K.'s rave movement, particularly through the increasingly widespread consumption of Ecstasy (or MDMA) at Acid House parties and clubs, brought to the U.K. by a handful of London DJs who first experienced the drug during a 1987 vacation in the Balearic islands of Spain (namely, Ibiza). From there, the U.K. rave scene mutated into a new cultural form, generating its own (and arguably more "hardcore") style of music and rituals (Reynolds 1999: 58).

As Reynolds notes, British youth had imported the music from the U.S. but subsequently configured an entire culture around it, "an entire apparatus of clothes and rituals, dance moves and drug lore," as well as the invention of the one-shot warehouse parties that would in turn heavily influence American rave culture (1999: 72). The late 80s and early 90s saw the concurrent development of two different scenes in the U.K. and the U.S., each taking influences from the other but remaining unique in many respects. Out of each came the rapid proliferation of musical styles and forms as the underground rave network flourished. These early years of rave cultures (1988-1994) witnessed an unprecedented development of electronic dance music into several offshoots and subgenres (Toynbee 2000: 148). This period

is regarded as the heyday of both British and American rave culture as the rituals of dance, drugs, and electronic music took root and spread worldwide.

By the late 90s, however, the "death of rave" was widely declared. In the early stages of this project, the Toronto rave scene was officially declared "dead" by longtime scenester and TRIBEmagazine editor AlexD—a comment that reinvigorated a discussion of the scene's livelihood that has been surfacing sporadically since the mid-90s.[4] Most attribute this pronouncement to the eventual legal clampdown on mass-scale dance parties (a response to several ecstasy-related deaths) and the increasing commercialization of rave culture. The activities of dance music cultures have moved back into the more licensed spaces of the club; ravers are hard-pressed these days to find the type of large-scale party vibe that was common "back in the day." Many ex-ravers or "jaded ravers" lament the loss of the underground element and the cheapening of the music as it increasingly permeates mainstream popular culture.

However, the production of electronic dance music and the growing number of bedroom DJs has not declined in spite of this grave prognosis, and in most cities there is still an active and thriving dance music culture, even if its locale has changed from the abandoned warehouse to the night club. I maintain that rave and club cultures, despite undergoing radical change and evolution since their original inception(s), are still alive and well and worthy of further examination.

**Dance Music Culture Today**

> Rave is more than music plus drugs; it's a matrix of lifestyle, ritualized behaviour, and beliefs. To the participant, it feels like a religion; to the mainstream observer, it looks more like a sinister cult. (Reynolds 1999: 9)

Reynolds' observations signal that dance music cultures have come to encompass far more than a new or unique type of music. They represent an entire cultural formation

understood primarily only by their own members. To outsiders, today's "rave culture" may appear nothing more than a hedonistic youth culture that rallies around the synthetic pleasures of repetitive beats and designer drugs. However, I contend that there is indeed an element of transformation in the manner in which dance music cultures operate in comparison to other musically inclined practices or cultures. Through their rituals, music, and cultural values, dance music cultures inaugurate a break from long-established modes of thinking about music making, innovation, creativity, and reception.

There are a number of characteristics unique to dance music cultures. Chief among these is the modification of the auteur/performer hierarchy, in which performers and artists are granted privilege or status for their works (Toynbee 2000: 131). The producers of the music central to dance music cultures often remain invisible, their identities obscured or inapparent to most save a network of insiders usually comprised of record label junkies, DJs, and other producers (Taylor 2001: 140). Furthermore, many electronic music artists will use one moniker for their DJ name and a different one for their producer name, each of these subject to change if the producer releases tracks on separate labels or dabbles in different genres—thus making it difficult to determine the identity of the artist at all. This level of anonymity similarly extends to the DJ, whose performance of the prerecorded tracks constitutes their primary role in dance music culture. As rave and club culture become increasingly mainstream, major record labels have attempted to capitalize on the growing appeal of electronic dance music, launching certain DJs or producers to rock-star infamy in some cases. For the most part, the majority of DJs retain only local celebrity status amongst a fairly isolated network of ravers and clubbers who frequent the events. There is generally no parallel equivalent of the corporate star machine operating in the dance music culture world; the

identities of the DJ or the producer remain anonymous despite their enormous importance as architects of the communal "party vibe" so central to dance music cultures.

The methods employed to craft the music for this "vibe" constitute another unique characteristic of dance music cultures. Electronic dance music employs tactics of bricolage, assembling and layering sounds and recordings in order to make music or performances. These strategies operate on two levels. First, in the construction of the music, as producers use digital composition tools to sample and layer beats, rhythms, basslines and melodies in order to craft a track. Second, on a performance level, where the DJ puts the tracks into motion similarly layering and mixing recordings of these tracks to shape his or her performance at a party or club. The fact that both DJs and producers work with pre-recorded material disrupts typical ideas concerning the language of music, since the raw material of the music or the performance is constructed out of pre-constituted *sound* rather than notation. Furthermore, dance music's postmodern employment of bricolage and reassembly creates ambiguity regarding the distinctions between original and borrowed, thus violating the sanctity of the "original" text (Toynbee 2000: 131). What constitutes an "original" track or performance in dance music cultures could very well be composed entirely of unoriginal material. These production and performance practices open up questions regarding the nature of "originality" itself.

The modification of composer-performer relations and the emergence of digital bricolage techniques in dance music cultures are aligned with the cultivation of a new form of musical consumption and social organization, which is characterized by a "flat subcultural network of clubs and micro-genres" (Toynbee 2000: 132). This network operates under a non-traditional economic and distribution structure that encourages flexibility and innovation, well-

insulated from corporate influence and the "star" mechanics that dictate economies of popular music. The party environment, whether at a rave or at a club, acts as a vital node in the broader network of economic and cultural flows involving the dissemination of electronic music. The club or rave, in essence, provides a forum for showcasing tracks and DJ talent. Its autonomy ensures in one way that this production culture remains at a remove from corporate interests (Toynbee 2000: 133). Will Straw maintains that mainstream corporations have had trouble penetrating and capitalizing on club cultures specifically due to barriers presented by the fragmented network of attendees who are difficult to track and identify as well as the delay presented by corporate music's bureaucracy. Dance floors act as test markets for tracks; by the time they reach the shelves on corporate-label compilations, an enormous amount of potential sales have been lost as the track loses potency (Toynbee 2000: 152). As a result, electronic music artists are generally given free reign to innovate at will, encouraged by an underground Do-it-Yourself (DiY) culture that is kept at a general remove from corporate influence. This insulation has opened up a space for electronic music artists to explore innovative modes of music-making, free from the creative limitations often imposed by the mainstream music industry. Accordingly, I will briefly outline the general characteristics of electronic dance music itself.

**Creativity and the Structure of Electronic Music**

It would be irresponsible to lump all electronic music into one structural or formulaic category. Dance music cultures encompass a wide range of generic distinctions that fragment and divide the listening audience. To assume that all genres are alike would obscure their unique qualities and distinctions. However, there are some characteristics of electronic dance

music that generally can be applied to most genres in terms of the way they are structured, produced, and consumed.

As Philip Tagg observes, the structure of electronic dance music is so radically different from rock as to require a revision of the ways in which one considers music and its relationship with society or culture (1994: 209-10). In addition to frequently lacking a foregrounded lyrical element,[5] much electronic dance music adheres to a formulaic musical structure. Music is created with the intent that it is mixed in tandem with other tracks, the overall effect taking listeners or dancers on a journey that connects them through a collective "vibe." Taylor quotes a fan describing the structure of a typical house track, which is worth citing in its entirety:

> Intro, beat, beat and melody 1, breakdown, build, harder beat and melody 1, big breakdown introducing melody 2, build, build, build, hard beat maybe a breakbeat with melody 2, small break, beat with melody 1 and 2, start removing layers of the track, end of track. (2001: 194)

This type of overtly predetermined structure is accompanied by a unique mode of instrumentation constituted by technological devices such as samplers, sequencers, and MIDI controllers. What results is a musical form that is entirely synthetic or sampled, its substance moulded from digital soundbytes rather than the performance of traditional instruments.

It is important to note one thing in particular regarding the design choices and the specific sounds that electronic musicians strive for. With the help of digital composition tools and sample catalogues, dance music producers could easily produce a track that sounds virtually identical to a typical rock or pop song by seeking out perfect reproductions of acoustic instrumentation and splicing them together. However, electronic dance musicians instead seek to reproduce the "obviously synthetic sounds of otherwise obsolete analogue synthesizers from the 1970s and early 1980s" (Tagg 1994: 214). Producers of electronic music

value the sound of artificiality, created by and through a specific relationship to residual technological tools. These characteristics of the dance music aesthetic illustrate its radical departure from other popular forms of music in terms of their production.

It is also notable that the very lack of formal or conventional "expression" in electronic music production operates differently when put into action in the rave or club environment and interacted with by listeners. As Simon Reynolds remarks, "for the critic, [electronic dance music] requires a shift of emphasis, so that you no longer ask what the music 'means' but how it works" (1999: 9). In light of Reynolds' assertion, it appears that the source of meaning in electronic music seems less identifiable within the text of a track as it might be in the process of movement involved in its activation on the dance floor. The innovation present in electronic dance music production is indeed more concerned with how a track operates on its dancing audience rather than whether it is imbued with authorial expression. Whereas the traditions of rock or pop typically locate the artist or performer as the source of meaning and expression in the musical work, electronic music operates on a different mode of authorship, which I will discuss in more detail in Chapter 3.

The fact that the production of dance tracks is aimed at clubs poses a challenge to conventions of musical professionalism, requiring that an entirely new set of considerations come into play when producing music (Goodwin 1992: 93). Since the majority of electronic tracks will garner most airtime at clubs rather than on more traditional vehicles for promotion (radio, music video, etc.), producers create music with the specific club or rave environment in mind, making production choices based on how the music might be perceived by the dancing subject (keeping in mind as well the effects of drugs such as Ecstasy, commonly used to enhance the listening/dancing experience). These design choices are deliberate and

methodical. Toynbee observes the frequent appearance of a scientific discourse in electronic music, particularly in DJ and producer monikers or track titles (i.e. references to "droppin' science" or "breakbeat science," DJ names employing terms like "chemist" or "scientist," etc.). These discursive clues imply the existence of a research process pursued by electronic music artists which seeks to craft or manipulate how audiences are "subjected to music," noting that in such cases, "intuition and the constant recourse to musical pasts are integrated with systematic thought" (Toynbee 2000: 142). Further to this, the rationalization of musical process signals that electronic music artists are at the same time *technicians* in terms of the methodological approach they take when making music.

While in any traditional music-making scheme one might expect artists to take the audience's experience into account to a certain degree, this kind of rationalized intuition in the production process is unique to dance music cultures in its primary intention to tweak the sound technologically in order to elicit response from the dancer. The listener and the dancing environment have enormous influence over how music is produced, indicating a break from those cultural traditions that grant the artist authorial privilege. This scientific approach is made possible specifically by the qualities of digital music production and the liquidity of its sound, indicating that the process of making the dancer move is in some ways dependent on the technologies of production. This scientific relationship signifies an interesting characteristic of dance music cultures in terms of the greater relationship it connotes between humanity and technology: the science of beat-making is deliberately engineered in order to stimulate the bodily response of dance.

The creation of this corporal experience is not located in the musical text itself, nor is it necessarily imbued with an intended "meaning" by its composer. Rather, electronic music

provides the material with which meaning and experience are made through two levels of interaction with the work: on the performance level, as the DJ crafts a mix of tracks in order to create a "vibe," and on the consumptive level, where meaning resonates in the individual's experience of the "vibe" and of the music itself—on a dance floor, at a rave, or in a club. The producer, in this case, is not the sole source of meaning but part of a process of meaning-making and authentication that involves performance as well as reception. In the case of dance music cultures, the predetermined structure of the music is designed and intended to create a "vibe," to connect the crowd, and to take listeners or dancers on an emotional and physical "journey." This vibe is created through the interdependent relationship between dancers and the DJ, a "loop of nonverbal action" or "energy exchange" which emerges out of what Kai Fikentscher calls the "interactive performance" of the DJ (Taylor 2001: 172). It is through the participation in this "energy exchange" that the listener actively engages with the music. This communicative exchange, created and sustained in large part by this heavily engineered music, forms the "vibe" of the party, the *raison d'être* for dance music cultures.

**The New Dancing Subject**

> The necessity of emphasizing materiality, and the body, has been written into recorded dance musics, and the means by which they are experienced and reproduced from the outset. (Gilbert and Pearson 1999: 134)

What I have not yet discussed in much detail is the dancing subject. Toynbee posits that dance music constructs a new kind of subjectivity not only through its synthetic and repetitive musical structure, but through its deployment on the dance floor (2000: 131). The emphasis placed by dance music cultures on the physical pleasures of dancing and drugs signals a return to the *body*, an element of music that has arguably been long repressed in Western musical culture. For several centuries the act of contemplative, passive listening to "serious" forms of music required the disavowal of the body and the pleasures of dancing

(Emmerson 2001: 13-14; Smith 2000: 631). As I will discuss in Chapter 2, concerns regarding "distance" also appear in complaints lodged against digital production technologies or reproductive techniques. Music generated by machines such as synthesizers or computers, according to critics, signified the erasure of the body in musical experience, both in music's production and consumption.

However, other critics contend that "machine music" might have an opposite effect on the level of bodily presence. Simon Emmerson contends that contemporary electronic dance music, enabled by technologies of the MIDI and the sampler, signals a return of the body to music-making specifically through its repetitive, mechanized beat structure. Emmerson's argument is based on the assumption that the body responds intuitively to repetitive rhythmic structures. As sounds are repeated, our "focus changes, we become drawn inward, immersed, and perhaps even mesmerized" (Emmerson 2001: 14). The very structure of electronic music is an invitation on the body to dance, inaugurating a listening subjectivity considerably different from the traditions of classical music, which required contemplative distance, or even some types of rock, which demanded a certain level of passive interpretation from its audiences. As Toynbee observes, "the music itself becomes a vehicle for the reintegration of the cerebral and the corporal, of modes of listening and dancing, of restraint and abandonment" (2000: 131).

Toynbee elaborates upon this point in his discussion of electronic music and the aesthetics of dance. Traditional criticism of dance music has concerned itself with the dangers of its appeal to the body over the mind. However, the repetitive beat structure of electronic dance music in fact valorizes the provocation of movement and dance by this structure (Toynbee 2000: 143). Whereas previous genres or forms served a *representing* function in

their expression of an artist's 'true' self, Toynbee claims that electronic music "presents itself as an *absolute* music which has an immediate effect on mind and body... it hymns the very sense of being it produces, rather than referring to the world outside" (2000: 131). Characterized by a fairly standardized arrangement and put into play as a continuous mix of beats by a DJ, electronic dance music abandons traditional structures of time and narrative associated with music and the "sets" of singles typical of traditional live performances. Dance music is more concerned with "creating a pleasurable moment" than telling a story, thus placing the dancing subject in "an endless and undifferentiated present": as dancers "make their bodies appear," they indicate the emergence of what Toynbee calls the "new embodied subject" (2000: 144, 148).

Though the DJ is performing by providing the soundtrack for the club or rave experience, the role of performance is shared by the listening/dancing subject, whose movement provides another conduit of expression. This new embodied subject, according to Toynbee, is interpellated by repetitive beat structures, the technologies of drugs, and club environments that produce "trance-like states" and dissolve individual identities to make way for feelings of community and "vibe." However, this "inward orientation of dance towards immediate subjective experience" signals a shift in the production or performance of electronic music just as much as in its reception (Toynbee 2000: 131). Paradoxically, this subjective experience—which is primarily corporal, human, and sensuous—is created out of the producer or DJ's technological (and hence, mediated and disembodied) approach to sound. Considering this, I wish to turn briefly to a discussion of how producers and DJs generate the music on which the party "vibe" is based.

## DJs, Producers, and the "Technological Imagination"

> The artistic practices of collage, assemblage and montage used in popular music virtually destroy the organic integrity of 'the work'...these practices bear the mark of a 'technological imagination;' they are the result of the transformation of everyday life by the technologies of mass production and reproduction. (Théberge 1997: 206)

Electronic dance music is "made" on both the productive and the performative level, each practice engaging in the activities of "collage, assemblage, and montage" that suggest the presence of the "technological imagination" put forth by Théberge. While the producer constructs the tracks out of samples and sounds, the DJ translates the tracks to the experiential level and "performs" a collage of pre-recorded material. The cultural practices associated with both the production and performance of this type of music may reveal how the elusive concept of authenticity operates within a new form of authorship, guided by the technological imagination and the reincorporation of agency in conjunction with technology.

Responsible for crafting the very experience of rave or club culture, the DJ and the producer are two key figures whose roles are often conflated, in part due to the fact that many people tend to span both roles. The innovation that has developed in electronic music cultures has been driven almost entirely by either the producers, who explore the range of sound enabled by music technologies, or the DJs, who shape listening experiences by putting the producer's work into action. These roles are related on a broader level, however—in effect, DJs and producers mirror each other's processes, both relying on the construction or reassembly of pre-recorded sounds. While DJs garner their credibility through their ability to layer and sample different sounds and tracks, then, this process is directly related to the way in which the tracks are configured, a "reconstruction" of various sounds and samples (Gibson 2001: 380). Both practices of performance and production have developed out of an innovative drive to renegotiate or transform technological tools towards alternate ends.

Examples of this transformative agency are especially evident in dance music culture's use or abuse of "old" or "low" analogue devices such as the turntable and the Roland drum machines and bassline synthesizers. Both of these technologies were pivotal in the creation of the cultural and sonic aesthetic to which dance music culture is dedicated. Remarkably, the means by which such devices were incorporated grew largely out of economic necessity. Analogue devices were the cheapest equipment available to aspiring urban artists and musicians. As a result, there was a distinctly experimental approach to each of them. The artists who imposed their own transformative agency on these technologies were not particularly interested in what they were designed to do; rather, "old" technologies were reactivated by employing them in novel ways.

The reappropriation of the turntable by DJs is a classic example of this type of transformative agency. In its original capacity as a playback device, the turntable was largely responsible for transforming potential domestic musicians into consumers of its recorded form, detaching music-making from its roots as a domestic, social practice. No longer was music created or performed in the home so much as it was listened to. However, the rise of both hip-hop and underground dance cultures reinvented the device, as hip-hop and disco DJs in 70s and 80s transformed the turntable into a musical instrument and raised the DJ to the level of artist by developing the skills of layering, mixing, and cutting between different recorded materials (Gilbert and Pearson 1999: 126).

As a result of this reinvention, the turntable became an instrument for production rather than reproduction, and thereby was resocialized in a way that retrieved, in part, the domestic musical practices that had declined after its initial conception. This instance of agency "striking back" initiated a movement back to more personal, socially influenced ways of

producing music within dance music cultures, as opposed to the passive reception originally initiated by the record player (Taylor 2001: 204). By "switching on" the vinyl record and reactivating it as an instrument, DJs managed to overturn traditional ideas concerning originality and authorship as recordings and sound became the raw material for performance or composition (Shapiro 2000: 102). DJs were initiating an entirely different conception of musical ingenuity by re-envisioning what could be done with pre-recorded material and low-end technology.

Agency "struck back" in the realm of production as well as performance. The appropriation of the Roland TB-303 Bassline machine provides another example of the agency that characterizes practices of dance music cultures. The 303 was an analogue device intended to provide a mechanized series of basslines for pop production. Considered a general failure as a decent bassline generator, the 303 was discarded along with most other analogue devices once digital sequencers entered the market. However, the plummeting price of analogue devices made them affordable to struggling DJs and producers in the electronic music scene. Aspiring young musicians fiddling with the 303 discovered that by tweaking the resonance controls and filters of the machine, a "buzzy, squelchy" sound resulted which became the basic characteristic of the "Acid House" genre of dance music, inaugurating a host of generic variations that followed as electronic music gained in popularity (Gilbert and Pearson 1999: 125; Berk 2000: 193).[6]

My discussions thus far make evident the presence of the "technological imagination" across all the rituals and practices of dance music cultures, supporting Théberge's claim that they "tend to foster an intimate relationship between user and machine" (1997: 255). From the production or performance of its music to the manner in which dancing bodies are constructed,

these practices are inextricably tied to the technologies associated with them. What is unique about dance music cultures is that their "reliance on technology" requires both musicians and listeners or fans to be well acquainted with computers and technical literacy (Taylor 2001: 144). Most cultural exchange flows through less centralized channels than in magazines or on MTV (as with rock culture). Rather, it is in the chat rooms and message boards where dance music culture discourse resides and thrives. Furthermore, even in the rituals of dance and clubbing, a technological sense of being is exhibited in the "cyborg dancer," who is "spliced into a circuit whose other components are DJ, decks, speakers, lights and drugs... that intense sense of equality and mutuality [vibe]... is realized by, and through, technics" (Toynbee 2000: 150).

The naturalization of technology is thus implied within dance music cultures. As technology has developed to enable new and different modes of musical production, accompanying practices not only employ technology but are in many ways, driven and motivated by it. This enculturation process is occurring within dance music cultures, whereby the technological imagination has been absorbed into its cultures of production, reception, and communication. Recalling Théberge's statement above, it seems that the "organic integrity of the work" has not been destroyed so much as reappropriated or reinvested at the level of experience in lieu of the "text." This idea is one I will return to in Chapter 3, when I examine how meaning or experience are negotiated within this highly technological culture.

In this overview of dance music cultures, I have alluded on a few occasions to these qualities or characteristics used to describe digital or analogue technologies, as well as to "traditional" conceptions of authenticity and authorship that are disrupted by the practices of dance music cultures. Though my examination of dance music cultures is not complete, the

following chapter will refine these ideas regarding digital and analogue technologies and principles in order to draw out the various debates that surround musical authenticity and authorship in response to such technologies.

## Chapter 2. Music Technology and the Digital-Analogue Debates

Though I argue that dance music cultures represent new ways of engaging with technology through their musical practice, the presence of technology in music-making is nothing new. The industrialization of music and the emergence of studio recordings were preceded by several important technological innovations, each motivated or accompanied by technical, social, and cultural changes in the realm of musical practice. Simon Frith rightfully insists that technology is always-already embedded in musical practice (1986: 265). Most contemporary music scholars approach technology with this framework in mind, though there is a wide disparity concerning the value of technology's role in music in their assessments, which range from suspicious to optimistic. Generally, it is now conceded that "the aesthetics of artifice are both necessary and desirable" in popular music production (Toynbee 2000: 69).

While technology has always been a part of music, the past century has been characterized by a palpable anxiety with respect to the accelerating rate of change in musical practice due to new technologies. Timothy D. Taylor maintains that "these anxieties have at bottom serious questions about humans and humanity"—among them, "to what extent does today's technology diminish human agency?" (2001: 201). Linked to this concern regarding agency are apprehensions about where one can locate originality or authenticity in musical experience as its production or performance becomes increasingly automated and mechanized. In this chapter I wish to map out the development of the current range of positions on music technology, particularly those anxieties responding to digital and analogue technologies and the social or ideological values that have been constructed around them. This chapter is less a historical overview of music technology as an assessment of the technical differences between analogue and digital technologies, the consequences their development has presented for

musical practice, and the reactions and tensions that have arisen out of these consequences. By moving through this discursive terrain, I provide an explanation for how we have arrived at the current debates regarding digital and analogue. I have chosen to trace these suspicions regarding new technologies particularly as they pertain to the loss of "authentic," "real" experience in music making in order to identify the tensions that influence how "digital" and "analogue" are currently understood.

I will begin with a description of the technical qualities of the analogue, which are directly related to its perceived ideological relationship to the real or authentic. Analogue recording technologies operate on the basis of a continuous relationship between original and copy. Whether dealing with a photograph, typewritten manuscript, or vinyl record, each of these materials contains a mirror-image or inscription of the original event or performance being recorded. Edison's earliest gramophone recordings in 1877 were sound waves literally inscribed onto tinfoil cylinders through electronic vibrations, thus preserving the "original" sound and enabling its reproduction through playback (Prendergast 2000: 74).

The instrumentation of electrified analogue devices such as microphones, synthesizers, or drum machines is similarly concerned with originality. Analogue instruments operate by generating or processing electronic voltage signals, which form a continuous reflection of the sound waves produced. Both the recording and instrumentation of analogue devices thus rely upon the principles of continuity and reproduction of the real or the original. This technical relationship between the analogue copy and the original event supports the more contemporary argument that analogue sound is authentic and based in reality. However, the initial reactions to analogue technologies differed greatly from their current discursive construction as representative of authenticity.[7]

The advent of analogue technologies held numerous consequences for musical practice. The ability to immortalize the sound of a musical performance onto records usurped the transience of musical sound. The nature of the recording removed the necessity for both audience and performer/musician to be present in the same space and time. Once an affordable and lightweight medium in the form of the vinyl microgroove record was developed in 1948, the development of the recording industry accelerated. As the production of music increasingly moved from the live concert hall to the music recording studio, the preponderance of recorded music enabled listeners to enjoy music in the home, rather than attending a live performance. Following the development of analogue synthesizers and instruments in the 70s, the "sound" of music began to change as the increasing use of analogue instruments popularized the first "synthetic" sounds in mainstream music.

The criticisms garnered by analogue recording technologies tended to deal with this split between reception and performance. R.M. Schaefer coined the term "schizophonia" to describe his own suspicion and anxiety regarding the "dominance of machine-made sound" and the split that resulted from the recording of music: that is, performance and listening no longer occupied the same space and time (Tankel 1990: 34). I would align these tendencies towards schizophonia with those lamenting the loss of bodily or physical presence in recorded forms. As Bob Ostertag notes, the value of a work of art resides in the ability to "sense in it the presence of the artist's body... a sense of the corporal presence of the artist emanating from the work" (2002: 11). Similarly, the live performance of a musician has generally required that the audience can visibly affirm that what they hear is a direct result of the performer's bodily presence and gestures (Grossberg 1992: 208). However, the advent of recording and production technologies incited a fundamental upset of these traditional values by separating

sound from physical performance. As popular music began to employ analogue technologies more and more, it became increasingly difficult to locate the presence (bodily or otherwise) of the artist in musical works.

Contemporary music theorists have pointed out that proponents of this viewpoint abhorred the proliferation of analogue recording technologies such as records or tapes under the claim that they erased the presence of the body, creating a literal distance between performer and audience (Gilbert and Pearson 1999; Ostertag 2002). Audiences were no longer able to verify or witness the physical performance that generated the sound of the recording. As Micheal Chanan lamented in response to recording technologies, "music has become literally disembodied, and the whole of musical experience has been thrown into a chronic state of flux" (Gilbert and Pearson 1999: 115). The perceived "disembodiment" of recorded music brought with it suspicions regarding its authenticity, since the presence of the artist was no longer identifiable. Skeptics saw emergent recording technologies as indicative of a decline of organic, authentic musical interaction and experience (Toynbee 2000: 69). The reception of music had been significantly altered by the development of analogue recordings.

The reactions to the development of analogue synthesizers and gear in the late 70s were similar to criticisms of recording technologies, particularly pertaining to the actual production of music. The increasing use of technology in music-making generated a fear that technological instrumentation or tools were a threat to "real" or authentic practices or expressions. Those who employed synthesizers or samplers were considered by critics to be operators of machines rather than actual musicians, their music considered "cold" and artificial due to its mechanical origins. There was a prevalent concern that the physicalities of instrumental skill were threatened, as musicians could simply stand behind a synthesizer and

generate sounds comparable to those made by "real" instruments. Overall, critics considered the human and authentic element of musical experience to be jeopardized by the combination of analogue recording technologies, which had altered the performer-audience relations, and analogue instruments, which threatened the authenticity of the musician's skill itself.

The development of digital music technologies resulted in an intensification of these anxieties regarding technological threats to the "human," the "real," and the "authentic." Perhaps rightly so, since digital recording and production technologies do not operate within analogue's congruence to the real or original whatsoever. Digital technology has inaugurated "what may be the most fundamental change in the history of Western music since the invention of music notation" (Taylor, 2001: 3). This change is related to digital material's unique technical qualities as well as the production tools and practices that have been developed that take advantage of these qualities. While both the analogue and digital recordings enable easier storage, retrieval, and distribution of music, the nature of digitization brings about a crucial difference: sonic material is recorded as a combination of bits of data rather than whole sound waves.

As a result, recordings no longer act as analogue inscriptions of sound waves that must be stored physically on some piece of material and played back with the appropriate device. Digital sound is constituted by a sampled representation of the original sound wave rather than a mirror-image; it effectively quantizes the sound wave, only approximating its shape by mimicking it in discrete units. Because this representation is essentially a discontinuous and finite pattern of re-arrangeable and manipulable "bits" of data, digital material does not necessarily bear the continuous or congruent relationship to the "original" or the "real" that

characterizes an analogue reproduction. Digital sounds are simulations, not reflections or inscriptions, of some real event.

The digital transformation of music from sound into data initiates a number of fundamental changes to the nature of musical material. The reproductive qualities of digital music technologies undermine traditions of art even more so than the industrial age's ability to merely mass-produce image or sound, as they usurp the "very physicality of reproduction" and obscure the ability to examine music by any material or tangible means (McCullough 1996: 340). As a result, sound is no longer tied to the physicality of a live performance or the material artifact of its recording. The intangible nature of digital sound means that it can be manipulated and transmitted more easily than something like a vinyl record or a cassette tape. When uploaded onto the Internet and circulated via peer-to-peer software programs, the dissemination of sound-information is made much easier and faster due to its digital nature. Furthermore, the sound quality of a digital recording is not vulnerable to degradation often suffered by vinyl records or magnetic tape, as its playback mechanism simply reads information rather than inscriptions that are susceptible to damage or wearing out.

This intangibility renders digital music completely fluid. The result is what *WIRED* editor Kevin Kelly refers to as the "liquidity" of digital music, which he considers its most unique and important characteristic due to the creative possibilities it enables (2002: 30). This liquidity renders digital material re-arrangeable and malleable, and consequently open to distortion, layering with other sounds, sampling, and bending. These characteristics signify a drastic modification of the nature of the recording. The digital recording is no longer necessarily a form of documentation created to preserve an original event. Rather, it becomes a canvas for creativity, its flexibility inviting manipulation in order to generate new, original

material. Once a piece of music is transferred into digital material, conceivably, it becomes a building block of sound rather than an entity unto itself. Furthermore, the liquidity of digital recording technologies destabilizes conventional values concerning authorship, originality and authenticity in music as songs and sounds are translated into re-assemblable bits and samples. The ability to digitally sample and sequence programmed sounds has disrupted the relationship between copy and original preserved by analogue technologies, thus threatening the perceptions of authenticity accompanying a musical piece.

The development of digital synthesizers, sequencers, samplers, and MIDI controllers similarly transformed the ways in which musicians could compose and perform. The emergence of digital music-making tools has cast analogue devices into the residual, now considered limited by the "real-time" constraints they impose on recorded material. Paul Théberge remarks that digital instruments are radically different from "electrified," analogue devices such as the electric guitar or the microphone, which are still tied to some more or less direct relationship between the interface or design and the performer's physical gesture or utterance. The design principles of digital instruments "rely less on acoustics than on electronics and digital logic, and their sound-producing hardware is completely independent of the user 'interface'" (Théberge 1997: 2). What is even more unique about digital instruments, however, is what Théberge refers to as their "hybrid" nature. Playing a digital synthesizer or a drum machine involves not only the creation of sound, but also the *reproduction* of sound (Théberge 1997: 3). Digital instruments generate sound by triggering the pre-recorded or pre-fabricated sound, rather than physically producing it *then and there* like their analogue counterparts.

The emergence of digital music technologies has introduced important changes to musical practice itself.[8] With the increasing availability of compositional software programs, a new breed of musician is emerging. The opportunities afforded by the digitization of music are rapidly blurring the distinctions between composer, performer, and consumer. The creative musical process, in light of this turn, demands reassessment as the boundaries between these roles become obscured and our conceptions of musicianship are altered (Goodwin 1992; Lull 1992; Théberge 1997). Théberge asserts that we are witnessing the age of the "hyphenated musician" in which production technologies enable an individual to take on what was traditionally a collaborative studio process. As I hinted at in Chapter 1, knowledge and expertise in the music industry have increasingly become associated with technical know-how, initiating a new vocabulary of the artist as "technician," underpinned by computer literacy rather than musical virtuosity (Gibson 2001; Théberge 1997).

To master this new language of music is to develop technical literacy rather than the composer's notational wisdom or the performer's instrumental skill. Taylor affirms digital musicians direct their attention towards manipulating, employing, or developing specific 'sounds,' "not so much by moving notes around but by moving knobs and sliders," an activity for which there is no notational scheme (2001: 10). As a result, any aspiring musician with the proper tools can forego the prerequisites of learning how to play an instrument or developing knowledge of musical theory, rendering the musical process much more accessible overall. While typical reactions to any technological infiltration tend to foresee a pattern of fragmentation and isolation, digital music is having the opposite effect: it is restoring the practice of music-making to the general public and generating communities of music-making

online, rather than limiting it to professionals. The previously required skills, within this type of production practice, are supplanted by a different kind of expertise.

The use of digital technology to record and produce music has debatably placed the artist's presence at an even greater remove. Whereas complaints lodged against analogue recordings were concerned about the spatial and temporal split between the live performance and its reception, digital music production dissolves the "direct relationship between physical gesture and sound" that characterizes live performances (Théberge 1997: 199). When listening to digital music, audiences can no longer ascertain that it originated through the physical creation of sound by some musician playing an instrument. Andrew Goodwin contends that the most noteworthy outcome of the emergence of digital music technologies has been its "progressive removal of any immanent criteria for distinguishing between human and automated performance" (1988: 39). The continuity and congruence with the "real," as embodied in analogue recordings, are supplanted by relations of simulation and artifice in the digital form.

The negative response to digital music technologies has generally mirrored the earlier anxieties regarding analogue devices. Along with the emergence of digital technologies, however, came a curious shift as music created using analogue technologies came to represent the "real" or "authentic." From the mid-80s onwards, digital music technologies were seen as a threat to "real" music, just as DJs and producers of computer-based music did not garner the title or status of true musicians (Gilbert and Pearson 1999: 112). The highly touted accuracy of digital sound was considered by critics to be cold and disembodied in comparison to analogue recordings. The introduction of the first digital synthesizers and, consequently, the first digital

sounds, created a divide amongst music makers and lovers, relegating analogue recordings and technologies to an increasingly marginalized place in music.

As the "new" digital technology began to replace the "old," analogue devices took on an aura of the authentic and organic. Théberge notes that the notion of musical sound now refers less to issues of "groove" or the "feelingful participation" of the artist than to the technology employed to create the sound (1997: 193). Sounds have become increasingly associated with the type of technology used to create a musical piece, inaugurating a rift between digital and analogue forms and techniques. This split can be characterized as an aesthetic battle between analogue sound, which became associated with "warmth," "originality," "humanity," "authenticity," and digital sound, considered "inauthentic" to due its "artificiality," "coldness" and "disembodied" nature (Auner 2000). The emergence of digital technologies thus initiated a long-standing debate, the critics of digital music insisting that analogue represents the authentic, however automated or synthetic its sound (Goodwin 1988: 42).

Robert Walser maintains that these correlates binding the analogue with authenticity and digital with artifice are more than mere "markers of aesthetic appeal," claiming that they are bolstered by complex musical meanings which are "contingent, but never arbitrary" (Gilbert and Pearson 1999: 123). The current conceptions that exist pertaining to each type of technology or sound are thus related to concerns that exist beyond their aesthetic qualities. The perceptions of "warm," "human," and "organic" have perhaps less to do with the actual properties of analogue sound as with their relation to the "artificiality" and "inauthenticity" of digital sound. Under the surface of these sensibilities are perceived relations between authenticity and artifice or humans and machines, governing one's understanding of reality and

experience. The dependence of these terms and meanings of analogue or digital on the relationships between them leads me to establish Williams' relational model of dominant, residual, and emergent formations as a useful framework in which to consider these concepts in terms of musical practice, particularly as they pertain to the ideological connections made between the two.

**The Digital Dominant, the Analogue Residual**

In spite of the initial resistance to the digitization of music, it is fair to say that the dominant mode of musical meaning is now underpinned by the digital, which by now has become quite fully enculturated into popular musical practice on a technical and social level. Though critical responses to digital instrumentation and sound bemoan its "inhumanity" and "coldness," very little popular music is produced nowadays without the use of digital music technologies. So embedded are these technologies that a new generation of musicians and audiences has incorporated the "machine-like quality" of such sounds into their own experience of music, already predisposed to considering electronically produced or manipulated music as natural or taken-for-granted (Ostertag 2002: 11-12). A cursory assessment of contemporary pop music discourse (this paper included) detects an overt optimism surrounding digital music that typically hails its innumerable possibilities in the realm of music making.

Even more interesting are the marketing strategies employed by the digital recording industry (what I like to call the "digital hegemony") in order to recuperate traditional values of music. The hi-fi industry markets digital recordings by pledging to a peculiarly "auratic" promise, insisting that digital technologies will bring the subject closer to the "pure, unmediated reality" of the original performance, or capture the "free expressive bodily voice"

that analogue recordings tend to degrade in the reproductive process (Goodwin 1988: 46; Connor 2001: 469). The insistence upon restoring presence, voice and body to music makes clear the digital hegemony's attempt to imbricate its image in the musical market with a return to the traditional notion of "aura" and originality, all the while masking the fact that such reproductions are somewhat more disembodied and mechanized than analogue recordings since they function according to principles of simulation rather than congruence.

Other instances of this digital hegemony are evidenced by the proliferation of "remastered" classics, whereby digital technologies are employed to eliminate the "sonourous decay" of older albums released as analogue recordings. Steven Connor notes that the marketing pitch for the remastered album ensures listeners that "music is given back its present voice by being purged of the noise of time" (2001: 474). Note the emphasis that is placed on "voice" and presence, qualities that were supposedly stripped from musical experience with the development of analogue recording techniques. Similarly, the "noise of time" that digital techniques can erase is a quality attributed to the degradation suffered by analogue records or tapes. The digital employs strategies to maintain its dominance by invoking references to a time of authentic music experience that preceded the "noise" or disembodiment of analogue recordings.

However, it is this background "noise" and crackle of analogue recordings that implies to many listeners the authentic and the real, particularly in the face of digital perfection and accuracy. As John Corbett has claimed, "noise" now foregrounds the physicality of music, implying authorship and presence and the messiness of live performance (Gilbert and Pearson 1999: 134). These perceptions indicate the persistent nostalgia for analogue sound or its attendant technologies. The continued presence of analogue forms manifests in a number of

ways, from the resurgence of vinyl records (appealing to a growing ensemble of avid collectors) to the fetishization of "old" technologies such as Roland 808 drum machines and analogue synthesizers. A particularly interesting case is the elevated status of the vinyl turntable in electronic dance music cultures, which I discussed in Chapter 1. The devotion to the principles associated with the analogue is consistently exhibited through various practices and discourses, in spite of the digital's attempt to promote itself as the "ruling definition of the social," to use Williams' term (1977: 125).

The marginal but persistent position of analogue devices and values in the technoculture of musical practice indicates its status as a *residual* process, anchored in its prominence in the past but still active in the creation of meaning in the present. The digital often defines itself against or in relation to the analogue in order to promote or market its self-proclaimed attributes, particularly in the arena of sonic fidelity and accuracy-- markers that the digital hegemony has managed to transform into indicators of the authentic or the real. Furthermore, the dominant digital industry has made several attempts to incorporate and appropriate properties of residual analogue forms.

Many digital instruments are now designed to mimic the sound of these analogue devices, resulting in a preponderance of "virtual analogue" synthesizers and sound generators. As Gilbert and Pearson declare, digital music production has entered into the "hyperreal," where "the artifacts associated with now 'authentic' analogue technologies such as records and tape can be created digitally" by way of software plug-ins that can simulate the warmth or crackle of analogue forms (1999: 134). These devices attempt to reintegrate the nuances of human error and "feel" that digital technology supposedly stripped from musical sound. Therefore, while digital MIDI and sequencer technology were originally valued for enabling

sonic precision and accuracy beyond human means, the mid-80s witnessed the development of "push-button feel" functions, intended to re-integrate the warmth, groove, and discrepancy of the live, human performance associated with analogue technologies (Théberge 1997: 224). These attempts to recuperate those aesthetic markers of "feel" and "humanity" represented by the analogue into digitally engineered music are, by extension, efforts to incorporate the body into music through the digital reapplication of a "human touch."

The digital hegemony's endeavours to appropriate the meanings and values of the residual analogue are achieved by the imposition of digital principles of simulation and artificiality. The very ways in which digital technologies simulate analogue "humanity" or "authenticity" are just that: simulated. The methods underlying these attempts are driven more by technical design than any incorporation of reality or humanity into the music or sound. Théberge contends that the "randomization" or "quantization" processes and algorithms painstakingly applied to computerized rhythm in order to make it sound more "human" has more to do with the culture of technology and software design than with the conventions of actual human performance it attempts to fake: the "groove" valued in live performance has little to do with "random" error (1997: 226). Paradoxically, therefore, the logic applied to generate the "natural" sonic qualities associated with analogue technologies is premised entirely on a mathematical process. In spite of various attempts to re-incorporate the body into machine-enhanced music (by way of more machines), there still remains a fundamental problem in this approach: the mechanical may simulate the "human" or "organic," but cannot replace it.

Although much of the incentive by the *digital dominant* to appropriate the *residual analogue* has been economic or hegemonic, one can also see that on a broader scale, these

attempts acknowledge the threat that digital technologies appear to pose to humanity and authenticity in musical experience. However, the strategies employed by the digital hegemony in order to overcome perceptions of this threat are still based in simulating analogue sound, rather than somehow incorporating the "real" or the "human" in any organic way. Perhaps the stumbling block for the digital dominant is its consideration of this tension as an obstacle to overcome. Ostertag insists that the tension between human and machine (or analogue and digital) cannot be "solved," only "experienced" in different ways—thus granting artists and musicians fertile terrain to explore in questioning technology and its relationship to humanity (2002: 14). Within these observations is the intimation of a potentially *emergent* set of practices, in which participants can situate themselves somewhere between the divide between the poles of digital and analogue, artifice and authenticity, machine and human.

## Chapter 3. Dance Music Cultures As Emergent: The Postdigital Analogue

I believe that the practices of contemporary dance music cultures are manifestations of Ostertag's hope for an *emergent* culture. As Gilbert and Pearson observe, dance music cultures have been constituted largely through the "enculturation of a whole range of technologies—from vinyl discs to digital sequencers to MDMA, LSD and amphetamines" (1999: 140). Recalling Ostertag's rule of bodily presence or meaning as a measure of art, one might induce that dance music's absorption of technology displaces the presence of "humanness" or "authenticity" even more so than the dominant popular music forms discussed in the previous chapter.

However, dance music cultures resolve the alleged erasure of analogue principles by incorporating a range of organic practices that revive elements of materiality, bodily presence, and transformative agency with respect to the re-purposing of technological tools (Gilbert and Pearson 1999: 134). While the music that underpins dance music cultures may be inherently synthetic and artificial, the interest in humanity or authenticity is not abolished so much as relocated to other elements of cultural practice and to the explorations of the relationship between human and machine. Kraftwerk's Ralf Hütter sums up this connection well as he relates his influential attitudes toward music-making, claiming, "we are playing the machines, the machines are playing us; it really is the exchange and friendship we have with the musical machines that makes us build a new music" (Gilbert and Pearson 1999: 121).

What may be surfacing out of dance music cultures is what Michael Punt has dubbed the "postdigital analogue," a condition that is signified by the resurgence of analogue principles of continuity and congruence within the dominance of the digital realm. Describing this condition, Punt notes:

> The apparent persistence of the analogue invites us to consider that the morphological resemblance between modes of expression pre- and post-digital... could be significant symptoms of the hesitance of users to abandon felt experience in favor of the éclat of seductive technologies of description. (2002: 119)

The condition of the postdigital analogue as described here allows the incorporation of the residual, expressed through a certain anxiety regarding the potential loss of "humanity" or "felt experience" by way of the progressive enculturation of the digital. However, as Punt acknowledges, the postdigital analogue aspires to more than the recovery of a the sense of embodiment or reality that many believe has been removed by digital technology. Rather, it points to an emergent malleability of consciousness and subjectivity that inhabits the terrain between the "discontinuity" of the digital and the "continuity" of the analogue. Punt believes that one can negotiate between these variations of the subject—between human and machine, analogue and digital—in order to find stabilization in a "whole identity" in which both formations can reside (2002: 120). This emerging set of values is marked by the embrace of the "human" and the "technological" together as mutually constitutive, rather than mutually exclusive, notions.

Encompassed within the practices of dance music cultures is a curious combination of the technologies and values of the digital dominant and the analogue residual. In terms of technologies, they mix and match both "high" and "low" (or dominant and residual) technologies. Dance music cultures rely on digital technology for the creation of their music and the cultivation of their communities on the Internet. However, they are also distinguished by their employment of anachronistic analogue devices such as turntables, vinyl records, and synthesizers.

This strategic mix of analogue and digital also presents itself in the values embedded in the practices ritualized by dance music cultures. On the one hand, dance music cultures appear

to have naturalized the values and technologies of the digital, especially when one considers the synthetic form of electronic dance music and the "technological imagination" that motivates its production. While much industrialized, digitally enhanced pop music makes the effort to mask the automated nature of its construction, electronic dance music consciously reveals and revels in its own artificiality. The "cyborg" aesthetic inherent in much electronic dance music indicates a high level of comfort with the dominance of digital hyperreality. The manner in which this music is synthesized will warrant closer attention in the following chapters, where I focus specifically on electronic music producers and the practices that evolve out of their acceptance of digital technology and simulated sound.

On the other hand, the vitality of dance music cultures is premised, as I have illustrated, on the creation of the "vibe," a collective and social connection experienced through dancing and socializing to electronic music performed by a DJ. The distinctly *human* and communicative principles of "vibe" that shape the authentic experience in dance music cultures appear more concerned with analogue principles of authenticity and humanity, incongruous to the digital principles of its music. The listening practices described in my summary of dance music cultures exhibit the reinscription of meaning into music through the act of dance and the communal vibe. This vibe is structured by both the production and performance of electronic dance music, each of which sustains a legacy of transformative agency in conjunction with technology. The unique strategies employed by producers, performers, and listeners in dance music cultures all exhibit ways in which authenticity and agency are maintained in relation to its otherwise high-tech, digital attributes.

These paradoxical relationships signal what I would consider to be a distinctly emergent culture within the broader dominance of digital musical production, moving beyond

concerns that pit the human against the machine, or the analogue against the digital. I believe dance music cultures illuminate a way of reframing this tension so that it is no longer posed under the rubric of "struggle," as Toop's words suggested at the beginning of this paper. If one changes their language and discards the argument that one must "give up" their humanity in order to "accept" the machines, one might reconsider the tendency to construct the human and the machine as antagonistic principles. The cultural formation of dance music cultures has managed to accept the machines without struggle, and continued to generate meaningful, felt experience through the way they have developed their own unified process of expression, thus providing an example of how human and machine might be re-envisioned through this notion of the postdigital analogue.

**Re-framing the "Authentic:" Analogue and Digital Modes of Authorship**

In my identification of dance music cultures as an emergent formation characterized by the postdigital analogue, it might appear as if I am invoking a contradiction in terms, especially after having positioned analogue and digital as inherently incongruous principles and technologies. This begs the question of how such a culture can build meaning and authenticity around a form of expression that is so synthetic and artificial. Such a query indicates that the paradoxical nature of dance music cultures has much to do with qualities of electronic dance music itself and the threat they pose to typical conceptions of authenticity. Dance music's reliance on the principles and methods of digital simulation appear incongruous with the search for a sense of reality and authenticity in music.

This paradox exists in large part due to conventional understandings of authenticity in musical creation. Though definitions of authenticity vary greatly across musical practices and traditions, I wish to discuss those which are primarily concerned with the issues of authorship

and originality. These conventions are based in an understanding of cultural expression as bearing an analogue relationship to this author: the music must act as a direct and continuous conduit for the meaning intended by the artist. However, one can conceptually navigate this contradiction more easily by altering their frame. This perceptual shift involves discarding the urge to impose codes of *analogue authorship* onto forms of expression that adhere to principles of digital relationships.

I contend that this change in perspective can be achieved by first recognizing that the key difference between these dominant models of authorship and those emerging out of digital music production is grounded in the distinction Mark Poster makes between *digital* and *analogue* authorship. Poster employs Foucault's concept of the *author function* to describe the analogue author, whose expression operates as an analogue inscription of his or her creative genius. The author function refers to the "discursive figure and institutional practice of modern society that inscribes the author as the source of meaning" (Poster 2001: 66). Whether via image or sound, the relationship between the original and the recording is one of analogy: the analogue copy in some way provides an inscriptive, mirrored reflection of its original. It is based on a relation of resemblance, or recalling Punt's terms, on "similarity, continuity, and congruence." Thus, analogue authorship is the framework by which audiences determine musical authenticity, since it produces the relationship between the expression and its meaning.

The emergence of digitally produced forms of expression renders notions of authorship and authenticity based on the analogue problematic, calling for a new vision of how meaning or authenticity are defined in such expressions (Poster 2001: 65). This vision has been hinted at by Foucault himself, for contained in Foucault's critique of the author function is the foreshadowing of some "future, utopian, non-author" which Poster believes has appeared in the

form of the digital author. The following passage from Foucault's "What is an Author?" serves as the motivation for this assertion:

> I think that, as our society changes, at the very moment when it is in the process of changing, the author function will disappear, and in such a manner that function and its polysemous texts will once again function according to another mode, but still with a system of constraint—one which will no longer be the author, but which will have to be determined or, perhaps, experienced. (Foucault 1984: 119)

The "post-author" hinted at in this passage, according to Poster, is manifested in models of digital authorship (whether through the electronic word, sound, or image). Digital authorship, as opposed to analogue, does not rely upon the same corresponding relation between the original and the copy; rather, it "maps" the original event through sampling its original form and storing the information as bits of data. The resulting data, unlike analogue copies, does not provide an isomorphic representation of the original but rather a sampled simulation of it. As a result, digital authors represent "both a technological inscription of the author and a term to designate a new historical constellation of authorship, one that is emergent, but seemingly more and more predominant" (Poster 2001: 69).

The new figure of the digital author is not bound by the same rules and conditions as its analogue counterpart. The author's expressive voice might no longer be etched into the text itself, re-located to the level of interpretation or experience. Poster asserts that within models of digital authorship, the new cultural object "eviscerates the author's presence from the text, shifting interpretive focus on the relation of the reader to a discourse understood in its exteriority, without resort to a founding creator, without reference to the patriarchal insemination of text with meaning" (2001: 67).

Signs of this authorial disappearance and the existence of another mode of authorship are also proclaimed by literary theorist Roland Barthes, whose work introduces the distinctions

between *readerly* and *writerly* texts. Though Poster's analysis does not mention Barthes, his work on the author provides a fitting supplement to the notion of a digital authors. Barthes maintains that the modern text was no longer an original expression of the author, but rather a "multi-dimensional space in which a variety of writings, none of them original, blend and clash" (1977: 146). At the expense of the death of the author, he claims, was the birth of the reader as the figure who grants a text its unity and meaning in spite of its multiplicitous origins and borrowings. Modern texts are *readerly,* thus enabling the act of explaining or interpreting a text from the reader's own perspective rather than imposing a singular authorial meaning. As he notes, "to give a text an Author is to impose a limit on that text, to furnish it with a final signified, to close the writing" (1977: 147). In Barthes' model, the writing process remains open as texts may be written and re-written as they are circulated within the realm of readership, thus challenging the author function laid out by Foucault. Though Foucault's reference is more subtle than Barthes', both theorists allude to an emergent "post-author" figure whose texts invite and necessitate their own re-writing through their experience or consumption.

It is worth noting that Barthes extends his ideas concerning readerly activity to the realm of music. He distinguishes between two kinds of musics: those that are played ("practical music") and those that are listened to. Arguing that the historical professionalization of musicianship rendered all music "passive, receptive music," Barthes contends that the act of playing, of *doing* in music has been eradicated (1977: 150). Using the example of Beethoven, he points out that the music is, like the literary text, a terrain with which the listener (or *operator*) can revise and remaster in order to generate new meanings. Re-envisioning music as a readerly text, Barthes claims, requires that one adopts the "activity

of the operator, who knows how to displace, assemble, combine, fit together" meanings and structures of music (1977: 153). By taking up the readerly role, the "practical music" which he claims has been lost can be restored. What Barthes' analysis provides is not only a way to map literary ideas of authorship onto music, but also a way of looking at the roles and functions of "author" and "reader" as more fluid and open to revision than those defined by analogue models of authorship. Interestingly, this description of the operator's role could just as easily refer to the productive processes of digital music composition, or the performative activity of the DJ, both of whom work to recombine and layer pre-recorded material to "re-write" sound.

While skeptics might maintain that the use of digital technology disembodies music or displaces the value of compositional or instrumental skill, their abhorrence likely stems from the value they place on the analogue authorship schema. That is, they are consumed by a search for a voice and the inscription of meaning within the text itself. My employment of digital and analogue modes of authorship provides a way of envisioning how meaning might be negotiated or interpreted in the digital textual experience, which works towards resolving the contradictions inherent in the postdigital analogue. One is not required to abandon concerns of creativity, originality, meaning or expression, which are still important concepts in the determination of the authentic. Rather, one is invited to consider revising the terms upon which we locate or define these values in light of these new conditions of authorship and musical practice. New technologies in musical practice, remarks Sarah Thornton, "make new concepts of authenticity possible" (1996: 29).

Particularly in the case of dance music cultures, a musical paradigm is emerging that subscribes more to modes of digital authorship than analogue authorship, whereby the author's original meaning might not be clearly inscribed in the text itself. The standards of

composition, performance, and consumption within dance music cultures certainly align themselves more closely with the concepts deployed by the digital author, signaling a move away from the "traditional" or analogue model of music making. In digitally produced music, "the cultural object becomes open to the user for reproduction, distribution, and even transformation" (Poster 2001: 97). As discussed in Chapter 2, the liquid nature of digital musical texts not only allow, but *invite* manipulation, polysemy, and revision as listeners can just as easily become authors.

The prominence of digital technology in the production of popular music signals a shift in the way music-making has conventionally been perceived. These new perceptions have challenged and, in many ways, supplanted those that were prized in previously discussed models of musical creativity or authenticity. The lack of a traditional score or standardized notational language in digital music-making mystifies the typical understanding of how "meaning" or "truth" might be imbued in a musical work: the voice of the requisite "analogue author" fails to find words in this model. Furthermore, with electronic dance music, one cannot typically identify the presence of any authorial voice in the track itself, signaling that "meaning" is produced elsewhere or otherwise.

To recall Reynolds' observation, the experience of electronic music is less concerned with identifying its underlying meaning as to considering how it operates in the rave or club environment. This re-location of meaning-making perhaps occurs through the "experience" that Foucault suggests, whether it be via the performance of the DJ who "authors" a musical vibe, or through the dancers who fashion their own physical expression through their relationship to the music. In dance music cultures, the music is not an analogue reflection of

the producer's originality, but part of a sonic ecology in which meaning can be read in the language of sound and technological process, which motivates dancers to *move*.

The unique structural characteristics of electronic dance music and their intent to generate the physical response of dance point to ways in which digital authorship operates on the level of reception. Poster's contention that digital authorship no longer requires the reader to interpret meaning, but instead to develop or revise meaning on their own terms in a "discourse understood in its exteriority," seems an apt way to describe the manner in which dancers forge their own meanings by using the music to express themselves on the dance floor. This depiction of dancer as author demonstrates the fluidity of authorship and meaning-making in the rituals of dance music cultures. The source of expression eludes the specificity of roles: in terms of this discussion, the dancer can be both a performer and an author rather than simply a reader. Their bodily movements grant dancers their own expressive privilege in the dialogue of meaning-making that occurs on the dance floor between producer, DJ, and dancer.

The fluidity of the roles of composer, performer, and listener echo Barthes' sentiments that "to compose, at least by propensity, is *to give to do*, not to give to hear but to give to write" (1977: 153). One might then ask how musical experience within dance music cultures rearticulates the relationships between its producers, DJs and dancers, each of whom participate in the meaning-making process and take on various writerly and readerly roles at different times. For the remainder of this study, I wish to narrow this question as it relates to the field of production in dance music cultures. The ability to discern meaning or authenticity in digitally produced dance music is particularly complicated by the nature of its production. Considering this, how might one transfer or make relevant the values of analogue authorship (concerned with originality, meaning, and truth expressed in notation) in the face of

a new technological language of music, which does not adhere to the notational schema or the authorial privilege inherent in the analogue model? How might the values espoused by analogue authorship be discarded or sustained within the mode of digital authorship exhibited in the production of electronic dance music? To return to my naming of terms, how do the processes and knowledges valued by dance music producers exhibit tendencies of the postdigital analogue?

**Narrowing the Field: Producers and Digital Craft**

In *Abstracting Craft: The Practiced Digital Hand* (1996), Malcolm McCullough asserts that a form of "digital craft" is emerging, despite the apparent conflict between traditional notions of artistry and craft and one's understanding of digital technology. He devotes much attention to the definition of craft, which he deems as "skilled work applied toward practical ends," noting that craft was originally associated with skill in the manual arts—the skilled "hand" employed tools to achieve its craft (1996: 21). However, McCullough posits that the advent of digital production has privileged the visual over the tactile as the craft involving the *hand* becomes increasingly outmoded.[9]

Though this may sound like a familiar lament (considering those previously lodged in terms of the removal or distancing of the body), McCullough continues on to advocate for a more inclusive definition of technology as a tool, which would enable one to consider technology in conjunction with, rather than opposed to, craft. Observing that "a tool is a moving entity whose use is initiated and actively guided by a human being, for whom it acts as an extension, toward a specific purpose," McCullough insists that tools are always "subject to our intent" as humans (1996: 68). Thus, while admitting that digital artistry has abstracted the physical element of traditional craft, he maintains that a more "measured position" on

technological tools be taken considering the prevalence of human agency in digital authorship and craft. Such a position recognizes that computers need not be seen as tools designed to automate human skill; rather, they might be considered as an abstracted medium that can still be employed to engage in meaningful expression, guided by human intent.

This very notion of "craft" brings into focus the practices of producers in dance music cultures, and the questions they raise regarding authenticity in music. While I have attempted to lay out a broad overview of dance music culture and position it as emergent, I will now turn my attention to the agents that comprise the most important element in the network of dance music culture: producers. Certainly, as I have argued, the way rave "works" depends upon a number of important factors, among them the dancers, the setting, and the overall "vibe" of the environment. However, the "vibe" begins with the work of the producer, who creates the music for the DJ's soundtrack around which the entire experience is based. The following chapters cover the role of producers in more detail in order to see how the music that drives dance music cultures is generated.

Thus, my study really pertains to the expert knowledge and culture encompassed by dance music producers as they exhibit elements of both the dominant digital and the residual analogue discussed in Chapter 2. Though much more can be said about the performers and listeners in dance music cultures, Will Straw has pointed out that many theoretical accounts of rave or club culture have failed to acknowledge that "one of the persistent dilemmas of dance culture grows from the recognition that popular enthusiasm on the dance floor may bear no necessary relation to the DJ's level of cultivated knowingness" (1995: 250). This expert knowledge is even more entrenched in the often unexamined, behind-the-scenes practices of the producer.[10]

Therefore, while audiences are certainly key in the development of dance music cultures overall, there exists a tension between the "open display of physical movement" that occurs on the dance floor and the "cautious unveiling of secret knowledges" unleashed by producers and DJs, indicating that the productive or performative end of dance music cultures rests upon a certain "expert culture" to which many participants or listeners are not privy (Straw 1995: 250). The remainder of this study will be devoted to an in-depth examination of this expert culture of electronic music production in an attempt to draw out the ways in which electronic music artists might be redefining craft and charting new terrain of musical creativity and authenticity through digital authorship.

## Chapter 4. Producers, Digital Authorship and the (Re)Production of Sound

> The industrialization of music hasn't stopped people from using it to express private joys or public griefs; it has given us new means to do so... new ideas of what music can be. (Frith 1992: 74)

Crucial to my analysis of contemporary dance music cultures, which embody "new ideas of what music can be," is recognition of their intimate relationship with the digital technologies that have come to dominate music-making. In a passage evocative of the notion of naturalization articulated earlier, Thornton remarks that "technologies are *naturalized* by enculturation. At first, new technologies seem foreign, artificial, inauthentic. Once absorbed into culture, they seem indigenous and organic" (1996: 29). An understanding of the complexities of dance music cultures requires starting out with the assumption that digital technologies of production have been enculturated and absorbed into their practices and discourse. The presence of technology is a taken-for-granted and necessary part of the creative process itself. Compositional strategies employed by dance music producers indeed imply the presence of Théberge's "technological imagination" (discussed in Chapter 1), which he defines as a subjectivity borne out of everyday interaction with technology (1997: 205).

Whereas critics have been quick to point out the dehumanizing, inauthentic, and contrived nature of digital music technologies, Craig H. Roell has aptly noted that "the digitization of music is a story of values, not inventions"—indicating that the traditional debates surrounding authenticity that tend to overemphasize the technology itself and what it is "doing" to music demand rethinking (Théberge 1997: 215; Jones 1992: 207). This chapter (as well as the case study that follows) is guided by a desire to discover what "story of values" is being told by the emergence of digital authorship in dance music production. Moreover, I consider the possibility that this "story" is expressed in a different type of musical language, considering digital music's break from traditions of notation and analogue authorship.

As I have established, the emergence of digital authorship has resulted in a realignment of the dominant relations between the composer, the performer, the listener, and the very material of musical expression. The ability to create music solely on one's computer has decentralized the music-making process, rendering the composition and distribution of music more accessible to non-professionals. The proliferation of increasingly affordable music-making or editing software and equipment has enabled the emergence of the home studio and a grassroots, Do-it-Yourself (DiY) culture of musical production, facilitating the distribution of music outside of mainstream entertainment monopolies (Gibson 2001: 371). Digital editing and production technologies have incited a whole world of people who dabble in music-making, just as web authoring tools spawned the creation of over 3 billion web pages on the Internet. As *WIRED*'s Kevin Kelly declares, "music has gone from being a noun, to a verb again" (2002: 31).

Kelly's observation is illustrative of some of the themes I have attempted to pull out of this discussion in previous chapters. The relationship between "noun" and "verb" is predicated on action: a noun is passive, static, and sedentary, while a verb signals movement, engagement, or activity. This distinction between active and passive is similarly conveyed by the correlated relations between the shifting roles of the reader (or reader-as-writer) as the modern text or musical piece, as Barthes notes, invites the active participation of its readers rather than their passive reception. This new and fluid set of relationships are perhaps best described in Christopher Small's definition of the verb, "to music," or "to take part, in any capacity, in a musical performance, whether by listening, by rehearsing or practicing, by providing material for performance (what is called composition), or by dancing" (Taylor 2001: 173). In the context of digital music production in particular, this renewed activity allows the means of

production to return to the control of the individual, who is encouraged to participate in the activity of "musicking" as Small describes it.

This chapter illuminates more clearly these production practices that have surfaced in response to the mode of authorship encouraged by digitization, in order to set the stage for my case study findings in the next chapter. What surfaces out of dance music production is the primacy of the *reproduction* of sound in musical production. The electronic musician is now faced with an increasingly diverse collection of pre-recorded fragments and samples to work with, "invited to adopt the position of the musical flâneur" (Théberge 1997: 203). Immersed in this realm of electronic reproducibility, dance music producers are examining new ways of making music, using modes of assembly and re-assembly to tap into the broad range of sonic possibilities enabled by music technologies. My discussion of how digital tools and devices are employed in this reproductive process of dance music production will demonstrate that dance music cultures adhere to an aesthetic based in a new language of *sound* itself.

I am obliged to acknowledge that the (re)productive practices discussed in this chapter are by no means solely employed to create electronic dance music. Théberge's assessment that contemporary musical production is *reproductive* is intended to describe all popular music production that utilizes digital composition software or instruments (constituting most popular music today). However, I maintain that while other popular musical production might dabble in the reproductive possibilities of the sampler or sequencer, treating them as tools to augment the vocals or instruments already recorded, electronic dance music relies upon reproduction as its chief compositional strategy. The majority of electronic dance music is made without instrumentation other than the computer and/or other digital tools, using either sampled sounds or sounds generated through software programs as its raw material. Furthermore, the nature of

digital technology and its tendency to invite reproductive processes are not the sole reason for their prevalence in dance music production. The interest in recombining or layering pre-constituted material in fact has a history in dance music cultures that precedes the emergence of digital composition tools. The examples that follow trace this legacy of reproduction back to earlier practices developed within dance music cultures. [11]

**(Re)production in Dance Music Cultures: Earlier Examples**

Notions of a reproductive compositional process are evident particularly in the historical examples of the DJ performance and the dance remix, each of which demonstrate an innovative mode of engagement with sound and technology in dance music cultures. The birth of the DJ as artist constituted a new musical practice, originating in a fundamental shift in the conditions of reception. The emergence of the record hop in the 50s and 60s, followed by the disco in the 70s generated the practice of listening to prerecorded music outside domestic consumption (Thornton 1996: 28). Following this and inherently linked to the increasing use of recorded music for entertainment, was the transformation of the turntable into a musical instrument, discussed in Chapter 1. As DJs began to use mixers, learning to layer, beat-match, and program entire 'sets' of continuous dance music, followed by the manipulation of records through the scratching and cutting techniques created by turntablists, the entire realm of musical meaning began to destabilize (Gilbert and Pearson 1999: 126). The record and the turntable, once intended for mere playback in the home, had been reappropriated by DJs through their activation of vinyl, using the turntable as an expressive musical instrument. What resulted was Kodwo Eshun hailed as "a whole new conceptual attitude toward sound: the idea that every record is open to misuse and can be combined with a second record" (Shapiro 2000: 102).

This new conceptualization of recorded sound was also evidenced by the emergence of the club remix, borne out of the disco era and the "continuous dance mix" performed by the DJ. Remixing artists were some of the first to appreciate what Jonathan David Tankel calls the "plasticity" of recorded sound while many artists were still decrying the implications of recording technologies themselves (1990: 36). Inspired by the ability to physically manipulate sound, remixers were not only recordists who aimed for clarity or fidelity (what Tankel refers to as the sonic aspect of the "recording code"), but artists who were interested in reconfiguring the sonic texture, or "grain," of the recording (Tankel 1990: 35). The remix, as a result, became a craft in its own right, rather than a post-productive stage in the overall recording process. Remixers began to "code" tracks for specific environments, applying various kinds of "grain" to generate a creative process that worked entirely with pre-recorded material. This emphasis on gearing design choices towards specific listening environments (namely, clubs) likely formed the basis for its ongoing dominance in electronic dance music production today, as discussed in Chapter 3.

The processes of recombining, manipulating, or rearranging recorded sounds as described in the practice of the remix or the DJ performance provide examples of earlier practices that parallel how digital music is made. The reassembly or reproduction of pre-recorded material has become nearly effortless in the era of digital instrumentation and software tools, however, as sound is no longer bound to any physical artifact (such as a record or magnetic tape). The digitization of music has in many ways revolutionized the way music is made, and has also paved the way for both the persistence and cultivation of these earlier (re)productive processes in contemporary dance music cultures.

**(Re)production in the Digital Age: Languages of Sound and Process**

The reproductive possibilities enabled by digital technology, as I have noted, have inaugurated the emergence of a Do-it-Yourself culture of (re)production, forging new ways of approaching sound and musical creativity altogether. Of fundamental importance are the ways in which the employment of technological devices such as sequencers, samplers, and MIDI controllers has altered the very *sound* of music itself, enabling it to become a phenomenon separate from instrumentation or typical notions of performance altogether. For Paul Théberge, the implications of technology's embedded place in contemporary popular music signals the ability for the musician to "engage with the micro-phenomena of sound itself," requiring a "reassessment of the role of more traditional categories of musical practice" (1997: 186). Arguing that the concept of musical "sound" typically refers to a musician's "intuitive sense of style" or manner of playing an instrument, Théberge insists that the advent of digital music technologies renders "sound" an entity unto itself, representing a "peculiar material characteristic" related less to style or skill than to technologies of production (1997: 191, 193).

The notion that sound may be categorically isolated is an interesting one. Prior to digital music technologies, sound was usually tied to performance and the physical gesture of playing instruments. Whereas a performance of any instrument-based musical form garnered an expectation from audiences to connect the visual exhibition of skill or gesture with the sound they were hearing, electronically produced music makes such expectations unavailable. Discussions of musicians having a particular "style" of playing their instrument or performing were transformed into debates regarding the unique "sound" of an artist, genre, or label. Artists who employ digital music technologies no longer examine how to develop a personal "style," but instead seek out how to generate or tweak pre-existing material technically in order

to create a particular or interesting "sound" (Théberge 1997: 186). As a result, the pre-recorded sound and the attendant technologies used to produce and manipulate it have altered both the production and perception of music. Electronic musicians' sensibilities are now more attuned to the technologies employed to create a sonic aesthetic rather than a style of instrumental skill or knowledge.

The isolation of sound is intrinsically linked to the liquidity of digital material. As Théberge notes, technological devices such as the MIDI sequencer and production software now enable a "cut and paste" approach to music-making, enabling unlimited possibilities for remixing and rearranging sounds and samples. Since the 80s, there has been a virtual explosion of the number of pre-constituted sounds available to musicians using samplers and sequencers, leaving in its wake a vast catalogue of pre-fabricated raw material. The focus on the reproduction of pre-recorded material throws into question where the originality of the text might be located in relation to a copy. In extreme cases, musical pieces can conceivably be crafted entirely by sampling any number of digitally sampled, pre-consituted sounds and rhythms, thus further complicating the questions of originality or authenticity. This new aesthetic undermines the fundamental notion of "the song as an authoritative statement," since with digitally produced popular music, one is no longer certain where performance ends and manipulation takes over (Théberge 1997: 229).

The emergence of sound as an independent material entity now refers to an entire "'system' of production involving the organization of musical, social and technical means" that dominates the use and development of music technologies in the late 20th century (Théberge 1997: 193). As a result, musicians are invited to experiment with sonic breadth that was impractical by analogue means. The technology of sound recording and the mode of

"layering" strands of previously recorded sound have enabled "impossible musics" which are neither achievable through instrumental or vocal performance nor translatable through notation (Théberge 1997: 216).

In the construction of these impossible musics, producers are not only invited to sample or reproduce typical elements of a song (i.e. chords, riffs, rhythm, etc), but are free to incorporate into their compositions alternative, non-musical "noise" or "sound" choices (examples I have heard range from sirens and animal noises to the ambient whirring of dental or medical devices). Thus, in spite of the typical complaints that the digital tools such as the sampler encourage theft and threaten originality, I contend that such devices enable more originality and creativity as the musician is summoned to move beyond the narrow confines of sounds acceptable in most genres. As Tagg declares:

> the sampler allows the composition to interact with the world outside of its own discourse... by incorporating not-necessarily musical sounds into the musical discourse, thus broadening the concept of what music can and cannot be. (1994: 214)

Through their exploration of the new soundscapes made available by the tools of their trade, electronic music artists are more aligned theoretically with principles introduced by avant-garde artists such as John Cage, whose work paved the way for the concept that all sound, essentially, is music.[12]

This new "system of production" referred to by Théberge is characterized by musical practices in which production processes are simultaneously *reproductive* processes. Reproduction works on multiple levels within this mode of musical construction. The first refers to the pre-constituted nature of the sounds that form the raw material of digital composition. Théberge contends that as musicians employ technologies to make music, they adhere to the principle that the search for the "right" pre-recorded sound or effect is as

important as "making" the music itself (1997: 200). A common criticism of such devices is directed against their "push-button" aesthetic, considering them to be tools that merely reproduce sounds that can be spliced together to make "computer music" and eliminating the need for musical or creative skill. However, Brian Eno argues otherwise, stating that the logic of the multi-track model of composing (which forms the basis for digital composition platforms) has enacted an "additive" mode of composition (Théberge 1997: 216). This leads me to the second way in which digital production is reproductive: musical creation becomes a dual process of both production and reproduction, in which technological tools are "made over" into instruments by the musician's choices and employment of them (Théberge 1997: 216). Such an observation brings to mind my previous discussion of how dance music cultures employ transformative agency in order to revise their musical tools.

Within these cultures of reproduction, fluency in the languages of *process* and *sound* is becoming increasingly necessary in creative practice. Technology is never "fully constituted" in and of itself. Rather, meaning is made and created through how musicians interact with or "complete" the machines they engage with (Théberge 1997: 160). Similarly, pre-existing sonic fabric can now be woven in with other sound material, meaning that no sound is necessarily ever complete nor authoritative. Sound now presents itself as a new form of extra-musical notation, in the sense that soundbytes form the words that constitute the "pre-language" of composition or performance. The manipulation or construction of sound through the digital reproductive process, which is necessarily a technological process, is what grants the resultant sonic mélange its ontology. As a result, both the tools and the sounds are completed, constituted, or made real through the technological process by which they are engaged.[13]

In order to situate cultures of (re)production

within other traditions of music-making, Toynbee posits the concept of the "technosphere," envisioned as a continuum between "musician-audience co-presence" and various modes of technological "distantiation and manipulation of sound" (2000: 69). The ways in which musical practices have incorporated (or rejected) the use of technology can be mapped out along this continuum according to degrees of technological acceptance or technophobic anxiety. One's position along the technosphere delineates a position between these two extremes. Toynbee traces the technosphere's various fluctuations throughout the past century, plotting the points of prominent musical values along the continuum that begin with the "documentary" phase (which aimed at achieving organic "truth" in live performance) and progressing towards the contemporary phase, oriented towards the opposite end of the spectrum, where technology has become embedded and enculturated into practice. This final phase, distinguished by its construction of a "sonic environment," is characterized by the aspiration to create a virtual array of sound or music that never existed "originally"—seen in much popular music to date but particularly obvious in electronic dance music (Toynbee 2000: 70).

The "sonic environment" of dance music producers is thus set apart from those "documentary" traditions which are based in analogue authorship, concerned with principles of the real and authentic. Conceivably, the digital authorship exemplified in electronic music production subscribes to the affectation for simulated or virtual authenticity, which is based more in the technicalities of production processes and how sound has been arranged. The processes by which this virtual authenticity might be achieved or configured in relation to technological sound and knowledge are the focus of the next chapter, in which I present my findings from my case study of electronic music producers. The major themes that developed

from this study further elaborate how authenticity in electronic music is determined within the "sonic environment" of dance music cultures on the basis of the new language of digital authorship.

## Chapter 5. Dance Music Producers: Sound, Process, and Virtual Authenticity

> We *can* write about how performers experience their work.... One of the challenges for a critical cultural approach to musical performance must be able to unlock these style rules; to understand what performers think and feel; to have a sense of what they are trying to express, of what the emotional relations of performance mean in human terms. A second challenge is to consider how these 'rules' work in relation to the wider social and political contexts that generated them. (Smith, 2000: 632)

In this passage, Smith is hinting at a phenomenological approach (which she calls the "soundworld") that uncovers the implicit rules, whether discursive or practical, of musical expression. Employing such a perspective involves altering the way in which one frames music, shifting one's lens (or perhaps, adjusting one's hearing aid) in order to account for those practices and processes that define and constitute musical experience. To use Smith's terms, one should look at music not as an object to be interpreted, but as a medium through which cultural knowledge and meaning can be conveyed and *heard* rather than seen (2000: 161). The soundworld perspective recognizes above all that music, if engaged with through its active "doings" rather than focusing retrospectively on its static products, can reveal much about ways of *knowing* on a broader cultural level. In terms of this study's greater ideological questions, the interpretation of dance music cultures as a "soundworld" might unearth alternative ways of considering one's position in an increasingly digital culture.

The next chapter is a case study devoted to the concept of the "soundworld" in dance music cultures in my endeavour to address how electronic music producers and performers "experience their work," and how the rules of production are necessarily set within the context of technological practice. I have tried to uncover the shared knowledge, ideals, and nuances of these participants' engagement with technology in their musical expression. The producers interviewed for this study (each of whom are also DJs) have been chosen for two specific reasons. The first is due to the centrality of their position in dance music cultures as active

creators of the music and the "vibe" that is vital to the rave or club experience. The second pertains to their possession of a different sort of knowledge than the average dance music culture participant: they are members of an "expert culture," to use Straw's term, who define and dictate distinctions of taste and coolness within the broader culture but who are also privy to the technical expertise that is vital to the production of its music, its lifeblood. Consequently, it is appropriate to start with these figures in order to begin mapping out the "soundworld" of dance music cultures.

Whereas the soundworld provides a useful conceptual foundation for understanding musical practice or culture, it does not provide a specific methodological framework for studying these cultures. The interview data culled from my case study has been analysed using Glaser and Strauss' *Grounded Theory*, a qualitative research strategy that I believe best suits this project due to its underlying philosophy of *grounding* the theoretical conclusions in the close examination of the phenomena at hand, and its commitment to understanding the phenomena through the experience of the actors themselves. The importance of experiential data is paramount in Grounded Theory, as is the soundworld's goal of "understanding what performers think and feel" (noted by Smith above). The common concern with taking such a phenomenological approach makes Grounded Theory an appropriate methodological accomplice to the soundworld framework.

**Grounded Theory: The Methodology**

Initially developed by Barney Glaser and Anselm L. Strauss, Grounded Theory is founded on principles of Chicago School of Sociology (particularly those dealing with symbolic interactionism). It assumes that understanding cultural practice or process begins with insight into the actors' viewpoints, interactions, and experience. It is organized around

the basic premise that theoretical concepts within an area of study must emerge from data—they must be *grounded* in real events, interactions, or consequences. Grounded Theory is considered to be most useful when "the phenomena of a particular subject area cannot be sufficiently and satisfactorily explained with existing theories or models" (Titscher et al. 2000: 84). Considering my discussion regarding the various studies of dance music cultures, it is apparent that a different type of approach is warranted which may shed light on how new or emergent practices are being forged.

As I pointed out in the introduction, Grounded Theory is less a specific method as a strategic approach to research. Consequently, it might employ a number of actual research methods in order to be carried out effectively. However, one of the more common methods used to apply Grounded Theory is that of textual analysis (whether it be of transcribed interviews, field notes, or other documentation or written communication). In this study, I have chosen to collect data via interviews (face-to-face as well as through e-mail communication) and use textual analysis of the transcripts as my method within the strategy laid out by Grounded Theory. A central process in Grounded Theory is that of *coding*, which consists of a close analysis of the text in order to produce categories (at first, "sensitizing" or provisional concepts that can be indicated by the data: a *concept-indicator* model), which are then refined after much comparison between and across data and the development of categorical properties and connections. Through the "constant comparison" of these concepts, which are grounded in the data, *core categories* are developed and from the core categories and their relationships to other concepts, a theory gradually emerges (Strauss 1987).

Grounded Theory, particularly through textual analysis, enables an exploratory approach, marked by both inductive and deductive reasoning. That is, the researcher is

required to move back and forth between data and contextual knowledge. As Strauss and Corbin have noted:

> A grounded theory is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. One does not begin with a theory and then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge. (Titscher et al. 2000: 76)

The area of study of my project pertains to the production practices of electronic music artists (DJs and producers). Examining the "soundworld" of dance music cultures from the viewpoint of this specific group of actors reflects and/or challenges hypotheses about the broader questions of this study. Since the sample of participants is relatively small, I do not wish to make overly broad generalizations to all manifestations of electronic music practice. Rather, I hope to provide a platform for further investigation of how musical expression, creativity, and authenticity are negotiated within the minds of a few who are actively engaged in the production of electronic music. Consider this case study as an attempt to generate a rupture in previous approaches to musical analysis and allow different conceptions of music-making to emerge. The data is presented in terms of the major categories that emerged from the analysis, leading to the *core categories* that surfaced as the key phenomena in the study. Accompanying my conclusions are references to other literature that has similarly foreshadowed the existence of a new or emergent artistic practice in the age of digital authorship in order to ground my study within relevant contemporary theory.

**Introducing the Case Study: The Participants**

The data collected in this study is comprised of six interview transcripts: four of them derived from face-to-face interviews that were recorded and transcribed, two of them conducted over e-mail. The in-person interviews took place over the course of May and June

2003 primarily either in local coffee shops or in the homes of the participants. The e-mail interviewees were sent a list of questions in May 2003. Their responses were e-mailed back to me in early June 2003. Each participant signed a consent agreement (or indicated their consent to its contents in their email) and was granted full confidentiality. Some of the names that appear in the pages to follow are pseudonyms of the participants' choosing.

The interviews were conversational and semi-structured—that is, specific and targeted questions were posed, but the interview was carried out in such a manner as to encourage digressions and tangents from the responses given.[14] I found that establishing a conversational tone to the interviews promoted these sorts of digressions, through which the subject frequently provided rich and unanticipated conversational terrain that my original set of questions might not have foreseen, thus allowing for the element of "surprise" important to unlocking the discursive knowledge of the participants.

The subjects were selected on the basis of their mode of participation in Toronto's rave/club scene: that is, all of them actively engage in some form of electronic musical production (usually in conjunction with performance as a DJ). Most of them identify themselves as DJs who produce their own music. These participants place emphasis on the crafting of a performance, which is constituted (in part or in full) by playing and mixing one's own musical creations. However, some place more emphasis on the production side of things or consider themselves in a transitional mode between the two roles of producer and DJ. Diversity within the sample is not of particular concern in this research design, but it is noteworthy that the subjects I interviewed span a variety of ages and occupations, exhibit interest or involvement in a range of musical genres (in terms of what they play or produce), and enjoy differing degrees of success in dance music culture (i.e. record deals, recognition,

mainstream commercial success, etc.). In keeping with the project of a phenomenological approach, the data has been analyzed in order to reveal the embedded, taken-for-granted modes of knowledge and meaning shared and negotiated by the participants. The conclusions or connections that will follow in the next chapter have primarily *emerged* from the participants themselves, in keeping with Grounded Theory's approach.

**Findings: The Key Categories**

These findings are organized into what I consider to be the overarching themes and concepts that emerged out of my analysis of the interviews. The themes are ordered in such a way as to lead the reader to what I identify as the *core category* through which all other concepts can be understood, which will weave together the various thematic threads that developed out of the data.

Note that while individuals are quoted here, their words are employed as illustrations of broader themes that were present in the commentary of all six interview participants. That is, they appear as instances or examples of an opinions or values that presented themselves across the participants' commentary, rather than representative of an individual point of view. As Strauss notes, the writing of the case study should build the theory, and illustrative data should be selected "according to the salience of your requirements" and chosen in order to supplement the core categories around which the theory has been built (1987: 219). The strategy of grounded theory aims to draw general conclusions about the phenomenon being studied rather than present specificities of the cases. For this reason, I chose to quote the subjects in order to provide illustrative examples of my conclusions rather than identify them or elaborate on them as specific subjects.

The core category, which I determined simply as *sound*, will be better understood if the reader will indulge and follow these thematic threads in order to arrive at this conclusion. Titscher et al. observe in their chapter on Grounded Theory that developing the core category is akin to examining the data as if it were a story; one asks, "what is the central theme or phenomenon represented in this story?" (2000: 80). Considering Roell's parallel observation that the digitization of music is a "story of values," I have chosen to present the emergent categories in terms of the stories they tell about the participants' musical practice in order to allow the core category of *sound* to present itself. It seems fitting to begin this section with the participants' own stories of how they became involved in dance music cultures.

***Stories of Origin***

Present in each subject's "story of origin" is an element of fascination, specifically a fascination with a novel quality of electronically produced sound. While the subjects present different situations in which they first encountered dance music cultures, each story pertains to a novel and unique sonic experience involving an engagement with the music itself. In turn, this experience inspired them to become active participants in dance music cultures through either performance, production, or a mix of the two. The language used to describe this "first time" experience, usually in a live concert setting or their first "rave" experience, is marked by two broader themes. One, the sound signaled to each participant "newness," novelty, uniqueness, something they'd never heard before. As Prasad put it regarding the first time he heard Afrika Bambaataa's *Planet Rock*, "it was the sound of the future."

This "futuristic" element leads me to the second theme: the "sound" of technology. Though the question was posed in a general way ("How did you become involved in the electronic music scene?"), most responses primarily gravitated towards the experience with the

technological nature of the music or sound. Dancing, drugs, or other more socially oriented encounters were generally presented as secondary to the sonic experience. Participants observed that the appeal of the novelty of electronic music was based specifically in its synthetic nature and its use of "non-traditional" instrumentation such as samplers, sequencers, and synthesizers. This experience of technological sound was often described as a "shock," a starting point where "life just takes off" and each participant knew they wanted to be a part of it. This revelation is expressed in an almost urgent fashion, evidenced by the Phat Conductor's recollection of his first FrontLine Assembly concert:

> I got all dosed out on acid with my friend Brandon and danced all night and it was my first experience getting like, a psychedelic brain massage from lots of samplers and synthesizers, and I was just totally blown away. And I knew I had to start making music.

The recollection of a "psychedelic brain massage" brings to mind my earlier observation that electronic dance music "works" on the body, generating a bodily response through its repetitive rhythmic structures. It is interesting to note that participants were acutely aware of the aesthetic qualities typically attached to digitally produced dance music, but deployed these terms as if they were taken-for-granted qualities. While the interview questions did not garner any explicit descriptions of electronic dance music, many participants pointed out its "mathematical" nature, its dependence on "accuracy" and its variant qualities which included descriptors such as "repetitive," "cold" and "droning." Each of these characteristics pertains to electronic music's allegedly mechanical and "disembodied" qualities. However, these terms were typically assigned in a neutral fashion. These descriptors were given as a matter-of-fact, rather than a negative assessment of dance music's machine aesthetic. It is precisely this type of aesthetic that drew the participants into electronic music in the first place.

The attraction to electronic music's technological nature is based in a tension between human and machine. Rob describes this appeal by relating a story he'd read about a performance by New Order, which began with dark stage and a buildup starting with 20 minutes of a lone, synthesized drum beat. As he notes:

> That tension would never be able to be induced if you had a typical drummer who was someone you could watch—there's that monotonous, droning beat that kind of got people into this trance-y type of idea that kind of grabbed ahold of them and whatever it was, it opened them up to what you were about to give them. And I think that is the kind of idea that spawned electronic music: the whole getting people into this idea of being one with the music instead of just observing it from an outside point of view.

Rob's story identifies a conflict between what is possible technologically and conversely, what is impossible to achieve by human means. Much of the fascination with electronic music, at least on the part of the subjects, is in this tension between human and machine. On a more general level, electronic music draws audiences in on the basis of this tension—it invites them into "being one with the music" rather than "just observing it." I wish to emphasize here the *active* nature of electronic dance music and its propensity to involve its listeners rather than position them as passive observers.

The attitudes demonstrated by the participants towards electronic music bolster claims I have made earlier regarding electronic dance music and its cultural activation in dance music cultures as a departure from analogue models of authorship, as it invites performers (or "readers") to participate in a meaning-making dialogue. The idea presented by the subjects that the experience of electronic music provokes a sense of "being one with the music" heralds a sense of participation on the part of the listener that is both writerly, in a sense, as well as bodily. The music is "felt" on a physical level. However, becoming "one" with the music is experiential, inviting the listener to write his or her own meanings through their response to the music. The recurrent tension between human and machine and the supposed tendency for

electronic music to subdue elements of the physical appear somewhat resolved by the way in which the music engages the listener. For the subjects of this study, this tension and involvement compelled them to further engage with the technology directly, indicated by their professed desire to learn and master the tools of music-making. The following story will reveal how the participants think about the digital technologies they employ in their music-making.

### *Stories of Technology*

> As for the future of electronic music, it seems quite obvious that its unique resources guarantee its use, because it has shifted the boundaries of music away from the limitations of the acoustical instrument or the performer's coordinating capacities, to the almost infinite limitations of the electronic instrument. The new limitations are the human ones of perception.
> -*Milton Babbitt* (Frith 1998)

> Technology will probably change the sound of music in just the way we perceive it, not necessarily in the way we hear it anymore. Just in the perception of how we're given it, how we're getting it. Through computers.
> -*Kyomi* (interview subject)

Milton Babbitt's remarks on the possibilities enabled by electronic instruments were particularly prescient, uttered well before digital technology was readily available. Babbitt was discussing the elimination of boundaries posed by traditional modes of instrumentation, made possible by electric instruments. In essence, he was pointing out that machines liberate musicality from the necessity to generate one sound with one instrument, or to even learn how to play that instrument physically. Music has been stripped bare of limitations, save those of "human perception." A more contemporary version of a utopian reaction to technology appears in Kyomi's response, which depicts his personal vision of the future of music technology, involving being able to write music for specific sound environments or systems. Kyomi's words similarly deal with perception in terms of the general acceptance of technology through our listening practices. He believes that we have reached a point where all sound is

digital sound, and what remains open to change is the way sound is designed and delivered to audiences. The conviction that underlies both statements, ultimately, indicates a rather utopian response to the imagined future of music technologies.

I found that this "anything is possible" attitude was present in the rhetoric of each participant in this study. Feelings about the unbounded potential of digital technology are particularly apparent in Rob's response to the question of why people are compelled to make music with computers:

> If you think about it, the guitar is a technological tool. The piano is a technology that allows you to translate musical notes that are in your head, sounds that are in your head that you're projecting in front of you, into actual sound. The computer is something universal that anyone can use and it really breaks down the barrier of motor skills, and the whole monopoly that motor skills had over music. If you don't have good motor skills you could still produce music, you could still prove that you're musical and that you have musical ideas in your head... I'm sure if Stephen Hawking got into a friggin' sequencer he could pump out some really good tunage, if he knew how to operate the equipment properly or if he knew things about sound design and sound theory—that's where the art form is based.

This quotation leaves us with much to unpack, revealing Rob's definition of technological tools and how they function in music, as well as how he equates artistic knowledge with technical expertise and operational skill. One of the underlying assumptions in this statement takes for granted the possibility that people can possess some kind of pure, raw, innate musicality that merely requires an outlet in order to be "translated" into sound. This assumption is a departure from other traditions of music. A traditional instrument requires the "physical capacity" referred to by Babbitt or the "physical gesture" discussed by Théberge; the development and honing of applied skill is required to produce sound from that instrument.

The shift in musical practice described here removes physically manipulated instruments from the generation of musicality into sound. Instead, the "musical ideas in your head" (as Rob puts it) can be "translated" through the operation of a computer. I contend that

this transformation of the means of musical expression exemplifies Théberge's observations that digital production technologies have initiated a rift between the physical gesture of performance and its resultant sound. No longer are would-be musicians limited by their physical capacities or "motor skills," as they are now free to dabble with tools that allow them to create music without learning the skills formerly required to generate music.

Despite the apparent removal of physical skill from the sound of music, the musical deployment of the "universal" instrumentation of the computer still requires skill and knowledge. Technical knowledge is the new musical literacy—a literacy flaunted by the subjects I interviewed. Their words abounded with technical jargon and name-dropping, insider lingo pertaining to software programs and plug-ins, samplers and sequencers, bits and bytes. Out of their comfort and everyday interaction with technology, these subjects and their vision of musical practice espouse the "technological imagination" I have referred to. Wading through their technical language, one can identify aspects of digital music technologies that are seen to be crucial to conceptions of its unlimited potential.

First and foremost among these imperatives is the notion of the *control* enabled by digital technologies. Digital provides control over everything with respect to the compositional process, from how basslines are tweaked to the amount of "warmth" you want to "apply" to a track. The advantage of control was often posed in opposition to the limitations of analogue devices. Though participants were questioned on their position regarding the common perception of the aesthetic differences between analogue and digital production or recording techniques, these aesthetic debates were of less interest to the interview subjects than the properties of the technologies in terms of their limitations (or lack thereof).

Rob's account of the differences between digital and analogue follows, which provides not only an enlightening perspective on the technical differences, but also an indication that control over tools is a vital factor:

> Analogue audio stems from analogue technology and a fundamental part of analogue technology are things called filters. Filters are embedded in analogue technology to adjust the sound appropriately so that it sounds pleasing to the human ear automatically. So that if the sound sounds kinda tweaky and it's got this high-pitched sort of edge to it, they implement a filter so that you don't hear that high edge anymore, but this filter actually cuts off enough so that it makes things sound bassier and sort of natural and grand, and kind of organic. Digital audio is based on the perfection of the technology that analogue audio was trying to achieve, so there's no need for filters, *you now have all the control.*

This explanation's description of analogue as being "automated" rather than controllable collapses the perception that analogue is more "authentic" than digital. Analogue's supposedly warm, organic aura is dimmed by the unveiling that it, too, relies upon manipulation and artifice. In the context of Rob's explanation, analogue is presented as the true fraud: it relies on filters that are "automatically there for you," rather than on settings one could control on their own. These subjects present digital technologies as superior to analogue precisely because of their ability to perfect the analogue process of automation. This perfection is based in the *control* that digital tools and instruments provide over sound and process. Concerns once devoted to tracking sound back to its technological origins are circumvented by concerns over the simple concept of choice: the aura of analogue becomes merely another preset on the dial of digital control.

The perceived importance of the control of digital music technologies is particularly prevalent when participants discuss software capabilities and the *process* they employ to make music. According to their accounts, the worth of a piece of software rests in the level of control it provides over sound. Their responses to questions of which tools they employ and why were consistently marked by comments focusing on the control enabled by various

software programs or plug-ins (most subjects used a variety of programs rather than just one), as well as the "ease" of use and the "conceptualization" these tools allowed. Control is considered central to the issue of process, or what the software allows you to do in terms of manipulation or composition. The increasing availability and accessibility of software programs and plug-ins is making process itself a commodity. Among such plug-ins are VSTs (virtual studio technologies), which are inexpensive software plug-ins that act as a sampler or synthesizer but within the confines of a computer program. The Phat Conductor describes one VST by Australian company Vellocet, called DFragment, as follows:

> It's a loop chopper... and you can load a drum loop or a sample in it, and then it chops it up however you want—you can set how many slices you want, and then it maps them across the keyboard... and then when it runs out of keys it starts mapping them backwards and stuff and you can get it to glitch out and mangle things, and it's got like, 40 kinds of filters that are amazing, and it's a synthesizer and it's so easy to control and you can fix the interfaces and the filters sound better than my hardware filters... so, I'm pretty stoked on that.

As I was informed, VSTs such as DFragment allow you to "swap software" with others, an activity which he later refers to as being analogous to "swapping gear." In this culture of production, software has replaced physical studio "gear." The tools of both generating and recording sound are localized within the computer and whatever external digital instruments one might employ.

However, what is "swappable" is not only instrumentation, but *process*. The variance of a producer's sound will depend on the limitations and control afforded by the program of choice. Furthermore, these levels of control and process capabilities can circulate and proliferate since software composition programs and plug-ins are readily available and affordable. The result of this circulation and ubiquity means that often, the resulting sound can become a marker of what software program was employed to make a piece of music, particularly if the program's recognizable "pre-sets" are heavily employed. Participants

pointed out this drawback to software programs, exhibiting tendencies to devalue a track if one could tell from its sound what program it was made on.

One consequence of the availability of software composition programs, then, might be a tendency to flatten innovation in music, to dull the possibilities for unique sound. Complaints against this kind of effect have certainly been lodged against much popular music production, which has a tendency to recycle software pre-sets that have proven successful in other hits. The result, as common opinion has it, is pop music that all tends to sound the same. [15] Subjects certainly lamented this trend in electronic music production, frequently bringing up examples of tracks where they could discern from listening to it that it was "made in 24 hours on some crap program," or that "no thought was put into it."

This complaint was less a concern with respect to the effects of digital technology, however, than a tactic by which each subject distinguished his own practice or use of technology in music-making. Based on their commentary, I observed that control works in multiple ways: it can allow the use of pre-generated settings as much as it allows the generation and manipulation of one's own sounds and processes. All participants placed themselves in the latter camp, portraying their own practices as innovative and exploratory with the technology they used. Frequently appearing in our dialogue was the admission on their part that, in the end, technology is instrumental. As the Phat Conductor claims, "any tool will affect your music—it's still just a tool." What becomes more important for the participants is *how the tools are employed.* Producers resolve concerns over the potential for "regurgitated" sound by finding one's own unique process of engaging with the tools. In discussing his production practice, Kyomi observes:

> You're always trying to understand and uncover new ways to portray your music so it's always fresh to you... I want to hear a bit more thought going into it than just using all the presets and all their sounds... so it's a tool, use it,

> use what they've given you, but take your own influences and put it in there... I just don't want to record a track that'll just be lost in the other hundred tracks that sound the same. But whenever everyone's using the same program, it's gonna happen. So it's interesting to see how you can get the technology, see what it does, and see where it's applicable to your sound and see what parts of it you're going to use in relation to other programs.

In addition to conveying the disdain for the use of pre-sets and the importance of process, this passage revisits the concept of some raw, unmediated musicality that can be translated through one's tools. Recalling Rob's "Stephen Hawking" example, one can see a direct connection now between innate personal sound or musicality and technical expertise. What is buried in Rob's example becomes more apparent in Kyomi's account: the ability to "translate" musical knowledge may no longer require the presence of "motor skills" or the physical mastery of instrumental skill, but it does necessitate mastery of technological skill. Further indicated by Kyomi's words is the importance of how you use the program, what *process* is employed to generate "your sound."

An extreme case of this type of innovative use might be the creation of one's own musical tools. Jonathan remarks that a key element of a digital production studio (all contained within one's computer) was the capability to build one's own instruments. Discussing his preference for control-heavy programs, he states:

> I am a junkie for capabilities, sounds, and options. Modular synthesis is exciting—to construct instruments from the (virtual) circuit level is the rawest form of original creativity. You can make your own music with your own sounds on your own instruments.

While only a few participants engage in developing their own tools, to do so represents the "ultimate control" afforded by digital software tools: the ability to essentially craft one's own process and sound.

Emerging out of the participants' commentary on the topics of tools and process is McCullough's notion of a digital craft. The emphasis that subjects placed on the process rather

than the tools themselves is closely aligned with McCullough's project of redefining one's conception of "tools" to consider them as complementary to the idea of "craft" rather than a destructive force of the manual skill traditionally involved. As McCullough notes, a more flexible and balanced definition of what constitutes a tool in conjunction with craft and artistry "reflects that condition that tools may suggest new uses for themselves, but unlike some other technologies, they remain subject to our intent" (1996: 68). The participants in this study exhibited a similar attitude towards the tools of their trade, usually framing them as most importantly "subject to [their] intent." This observation brings me to another prominent theme in the story of electronic music production. I have discussed how control and process are considered important aspects of the technology, but underlying this process is the value placed on the creative or agential engagement with technology.

***Stories of Engagement: "Pushing the Limits"***

Many of the interviewees presented their thoughts on what constituted creativity, authenticity or artistry in musical practice. On one occasion during the interviews, participants were asked directly how they determined "good" or "bad" performances or productions, but considerations of musical legitimacy (or illegitimacy) also emerged in less explicit terms. Overall, the range of musical ideals can be divided into two overarching themes. The first can be positioned within more conventional musical paradigms, in that participants wanted to see "unique" or "personal" style or mark on the music. This virtue is aligned with the more analogue-based notions of authorship in which the presence of the author should be detectable in the work. Participants also want to hear something that "sounds alive," involves "edginess" and "labour" and "involvement" on the part of the artist. For them, a piece of work is considered good as long as it breaks the rules, adheres to principles of "freedom and

creativity," and "generates thought or dialogue" on the basis of it having "content." As Kyomi declares, "if music is music, it doesn't matter how it's put together, *it should move you.*" The musical ideals represented by these characteristics, could conceivably underpin notions of creativity in any type of music. On the basis of this first category, it might appear that the musical ideals of this culture of production are nothing particularly new.

The second set of ideals, however, is more specific to embedded nature of technology in the practices they were considering. Any mention of the first category was often qualified or accompanied by a descriptor of the second categorical premise of *technical expertise* or *knowledge.* To put this more clearly, subjects claimed that to be creative, one must be adept at the tools of their trade. Musical works must exhibit evidence of "research" or "understanding" of the technologies employed, signaling the know-how to produce "intricate" employment of sounds and samples. Further articulating this category were descriptions of what constitutes a poorly executed track. A bad musical piece is evidenced by a "regurgitated" aesthetic, the use of "drag n' drop" programs or presets, or the "gleaning off the novelty" of a newly popularized sound (i.e. co-opting a sound in order to "get your hit in" while the sound is still hot). Technical know-how emerges as the new standard of musical literacy – and, as evidenced here, the new standard of creativity and artistry as well. To acquire authenticity, cultural expression must contain markers of technical competency in addition to more "traditional" indicators of innovation.

If we conceptually conflate the two categories of innovation and technical expertise, what remains is the key to being a creative electronic music artist: the innovative employment of technology. More specifically, the sound produced not only exhibits "labour" or "involvement," but indicates that this labour was applied technologically. The necessity to

demonstrate an *active engagement with technology* is represented again and again in the interviews across all participants, indicative of my earlier claim that dance music practices are devoted to strategies involving transformative agency over tools and technologies. Frequent in the discursive strategies of each subject are references to "fooling around," "delving into" or "messing about" with software or equipment, "exploring" its limitations and possibilities. Much of this language alludes to a notion of play—technology is terrain for recreation, exploring, and learning. These concepts are certainly present in the Phat Conductor's explanation of the early phases in his own process of making a track:

> Usually I'll just start with a piece of something that I like that I just wanna start mangling right? Then I make my drums and stuff and my synthesizers or use other samples and gradually layer them up till you have a new drum kit that just doesn't sound like its component parts, ya know? It's got a feel to it and a change in groove and you screw around with how the hits go, where the samples go, till you have a beat, like a drum kit, and then where you go from there is up to you. You've got an infinity of possible directions you could go in.

In addition to the requisite "exploration" of the limitations of your tools, subjects also emphasized the importance of "pushing" these limits once they are "sussed out." Perhaps Rob's comments best illustrate this obligation:

> I think traditional music will always have its place, but there's always that element of pushing the boundaries in the creation part of it, and I find that part of [electronic] music exciting... the edginess of it, where it's going, how far its going to go, and the possibilities that the technology allows you to have.

Rob later returns to this train of thought when discussing sampling practices specifically, which have incited debates regarding its threat to originality and its encouragement of theft. He claims that employing samples is acceptable if one first takes the time to learn "what's involved" in making the sound present in the sample. The necessity to develop technical expertise in order to "push the limits" of technology is revealed in Rob's discussion of his own attempts to achieve this standard. He concedes:

> There's some parts of my production that sound uniform and traditional, a 'this-is-the-way-it's-supposed-to-sound' type of thing, there's lots of my stuff that involves that. But I feel the need to conquer those sorts of thresholds before I can destroy them, and I'm still in the process of doing that. I don't think I'm approaching anything even close to being on a leading edge where I can push a different boundary yet, and I know people that automatically strive for that boundary right off the bat and ignore every other type of technique, and you can't do that. You're not paying your dues, you don't have the merit, you don't know what's involved, you don't know the depth of your instruments.

"Paying your dues" and developing the proper technical expertise is presented as a prerequisite for being able to "push boundaries" of technology. A rite of passage in digital music production is to learn the "depth of your instruments," or as Kyomi put it, "to be conscious of your tools."

What this mode of engagement entails is the application of one's own agency onto technological tools, regardless of what they might be designed to achieve. Prasad points out that the evolution of rave culture and electronic music owes much to the "critique of technology," citing as examples the "accidents" of the invention of the scratch, or the evolution of the Roland 303. He observes that the reappropriation of turntables and the notion of playing records in tandem (when they were originally meant for playback on their own) demonstrates an engagement with technology "from a position of critique rather than passive reception." In the act of playing two records in order to "throw them into dialogue," he notes, "you're defying the original intent... you're critiquing the technology, but you're also recreating the technology. It's a creative act." Prasad's account parallels my own discussion of agency and technology within dance music cultures. The agency involved in the retooling of the turntable or the 303 are stories frequently reappearing in this paper due to their potency within dance music cultures. Their employment within Prasad's own story provides an effective chronicle of the importance dance music producers place on actively critiquing and engaging with technological tools, subjecting them to our intent as humans.

Granted, the idea of "fiddling" with technology and finding alternate uses for it is certainly not a novel concept in musical expression. However, the centrality of the importance placed on this "critique" within a culture of production certainly warrants attention. Prasad himself put it best, insisting that:

> at the end of the day, it's about the user. If the user is critical with that equipment. Critical in the sense that they're trying it out, they're adventurous with it, they're as interested in its ability to perform perfectly well as they are in its accidents.

The employment of the word "user," which implies a rather utilitarian relationship between the producer and his tools, is curious here. However, in this case the "user" is really more of a critic, to use Prasad's terminology. His commentary bears less on the user-machine relationship as on the re-creative possibilities that surface once one adopts a position of critique—once one becomes interested in exploring *what else* is there, what other sounds are possible, what other processes can be forged.

The status these subjects grant to process in the final result of electronic music production is reminiscent of Théberge's contention that technology in musical production (as well as in other practices) is increasingly about "participatory consumption"—technology is seen less as a pre-constituted tool, and more as an instrument to be "made over" by the artists that employ it (1997: 160). What is made apparent by the subjects' own "participatory consumption" is the idea that the very way in which music is made becoming an aesthetic consideration in itself; the end product, at times, secondary. Alistair Riddell asserts that the current technological conditions of music-making have "cast music into data," rendering the element of data a "cultural object" all its own, indicating that *process* is coming to the surface as an aesthetic statement in and of itself (2001: 337). In particular, he notes, the demands of the "automatic music" central to dance music cultures are imposing a mode of music-making

based in process, which heralds a "new sonic aesthetic." The concept of process as aesthetic makes it "possible to concentrate, without distraction, on *sound* and let the context determine the musicality or lack thereof" (Riddell, 2001: 342) [italics mine].

The mode and technique of production, as envisioned by Riddell, has become a stylistic cue as important as the end result of a musical track itself. Considering musical practice in this manner complements the importance placed by the interview subjects on the engagement with one's tools and how they are employed. Furthermore, what Riddell suggests is the way in which production choices become embedded in sound. The "context" of the sound and the technical choices inherent within it signal the presence of musicality or legitimacy. Considering this, we might recall again Rob's vision of a raw, innate musicality being translated through one's engagement with technology. Musicality can now be made *audible* in sound, indicative of process. That which is made audible, then, brings me to the core or central category emerging out of the data: the entity of *sound.*

***Stories of Sound: Audible Technology***

The phenomenon of *sound* represents the *core category* to which all other emergent themes can be linked. Paul Théberge's observation that the reliance of music making upon technological tools has enabled us to "engage with the micro-phenomena of sound itself" certainly rings true in light of the analysis at hand. As Rob comments, when considering what constitutes a "good" track:

> sound is the biggest thing. If it sounds cool, I'm gonna say it sounds cool, and if you're doing something unique, I'm gonna appreciate it for that. But if I can automatically hear that you're trying to hit a group of people specifically that you can get to buy your records, and there's sort of a monetary motive there, I can hear it. I can hear it from point A, and that bugs me a lot.

The importance these producers place on possessing the *knowledge* necessary to *push the limits* of the technologies employed, to take advantage of the *control* permitted by digital

composition software, is unequivocally tied to the *sound* that results from whatever process one chooses to apply.

Sound, according to the participants of this study, has several dimensions. It is first and foremost subject to control and choice, enabled by the digital technologies of musical production. It is also individual. Kyomi's earlier comment stresses the importance of pushing the technology in such a way that it adapts to "your sound" or portrays a personal vision is a necessary and desirable goal in electronic music production. This process is made possible by sound's reproducibility and the properties of digital materiality in conjunction with the preponderance of software programs, each with its own limitations and settings. Consequently, sound is also vulnerable to cooptation: it can lose its uniqueness once it is commodified and circulated within more mainstream channels. Several participants expressed frustration at developing a certain sound, hearing it on a Top 40 track, and feeling the need to eliminate it completely from their repertoire whenever, as Rob put it, "elements of the underground have been taken and turned into this mélange of shit."

The constant need to reinvent ways to generate unique or personal sonic styles marks a fundamental element in production process. The determination of one's creativity as an electronic music producer, then, is embedded and identifiable within the sound that he or she is capable of achieving through their own process. Each of these elements and dimensions can be related to previously identified themes of technical knowledge and engagement, process, and control. However, what is of particular interest about this core category of *sound* pertains to how participants described its relationship to authenticity.

### *Sound and Virtual Authenticity*

> People want clarity—even if it's artificial clarity.
> -*DJ Spooky* (Shapiro 2000)

Up until this point, it could be argued that the values espoused by electronic music producers are not so different from those prominent in other musical traditions. After all, "pushing the limits" of software tools is akin to conceptions of innovation in other types of musical practice. Take jazz, for example, which constitutes a form that encourages its musicians to innovate stylistically and push the limits of their instruments. The musical ideals expressed by my interview subjects might similarly appear to be an extension, rather than a break, from such artistic aspirations or avant-gardism. They are still concerned with notions of translating creativity into sound, generating a unique expression, and exploring boundaries—goals which might apply to any type of musical practice. Indeed, to my own surprise, more than half of the subjects claim they ultimately strive to generate "organic" or "natural" sounds, articulating the need for music to return to "a more acoustic manner." Considering this, it appears that analogue aesthetic values still hold considerable influence even within this highly digital culture of production.

However, I contend that electronic music production is radically different from previous cultures of music specifically in light of how sound and process influence how these electronic music artists determine authenticity. While the goal for some subjects was to generate sounds that didn't *sound* like they were created with computers, their concern is less with the actual origins of the sonic quality as with the ability to control it. In response to whether or not he tries to mask or make apparent the use of technology in his music, the Phat Conductor responded, "depends on what feel you're going for with the track. I kind of let each track call itself—I make all kinds of different music. Sometimes I go for a more funky feel, sometimes I go for more of a tech-y feel." The notion of how a track "feels" was more

important than where it actually came from: "feel," rather than "real," becomes the central concern.

These observations bring into relief Théberge's assertion that sound has become an entity all its own. I would add, however, that sound is not only the chief concern when creating music through digital means, but has also acquired an aura based on hyperreality. The very "hyperreal" quality of digital production discussed in Chapter 2 has become a pre-given factor in electronic dance music. Electronically generated sound is conceivably a simulacrum of the real, a representation of origins that exist only in the form of digital data, rather than bearing any continuous, analogous relation to its presumed source. No longer might we hear a guitar riff in an electronic music track and have any guarantee or knowledge whether it was actually generated by the instrument, sampled and distorted, or crafted entirely by digital means. Futurist Alvin Toffler has remarked that "the technologies of deception are developing more rapidly than the technologies of verification," claiming that a whole host of technological tools can now be used to "falsify reality so perfectly that nobody can tell the difference" (Shapiro, 2000: 213). This sonic environment of deception seems on the verge of taking over the way we conceive music, at least within dance music cultures. Rob's observation certainly echoes Toffler's, as he claims, "I think people have to get used to being tricked."

What emerges out of this type of production practice is a shift in the ways of determining the authentic. Electronic music production breaks from other musical traditions because its *virtual authenticity* is based in another type of language or knowledge, whose values are constructed around the "technologies of deception" that Toffler mentions. It is constructed from different material, digital bits of information that are moulded into sound by artists-turned-technicians. Furthermore, digital sonic material is amenable to perfect

reproducibility and circulation: it is ubiquitous, it becomes what Prasad calls "collective sound property." Sounds and samples become the canvas for digital craft; new terms of authorship and ownership can be painted on with brushes provided by software programs and plug-ins. Digital music technologies invite electronic musicians to forge their own sound and (re)productive process by dabbling with its "practically manageable sonic building blocks of aesthetic and ideological potential" (Tagg 1994: 214). What is required to do so is technical literacy, rather than compositional or instrumental skill.

As a result, sound becomes a design or production choice, rather than something that must maintain a homologous relation to what might have produced it in the real, instrumental world. A more compelling example is in Kyomi's response, which brings in the importance of technical knowledge and process in creating electronic music:

> I think, whenever I hear a really good track, 'how the hell did he put that together?' If I can't hear the computers in the track, that makes it a really good track. My favourite electronic group ever to listen to would be Leftfield, that would be my biggest influence, is their sound. Because it's just so wholesome and so *not*-technological sounding, but it is so intricately programmed that is *so* is.

From Kyomi's viewpoint, the authenticity of Leftfield's sound is based in its mastery of the technology, in its capacity to confound the listener's ability to perceive the process, in the knowledge it employs to mask the music's technological origins.

Such a conception of authenticity, I contend, indicates that a fundamental shift in how authenticity is perceived in electronic dance music production. The ontological status of the "real" espoused by analogue authorship is supplanted by that of the virtual: *authenticity is premised on artifice.* Moreover, authenticity is based on the producer's ability to digitally and artificially emulate the sounds of the real so intricately as to obscure the fact of their construction. While the desirable resultant sound might still adhere to analogue values of the

natural or organic, to "earthiness" or "wholesomeness," to use Kyomi's terms, the digital process by which such sounds are attained is valued on the basis of its transparency. McCullough suggests that this necessity is central to the practice of digital craft. He states that in order to reconcile the presence of technology in craft, one must "master the technology to the point where it becomes transparent... we must find ways to cultivate vision and play amid the transparency of ubiquitous technology" (1996: 55).

Virtual authenticity is inherently connected to sound because its presence is *audible*. Entrenched in the participants' commentary was the unspoken assumption that embedded in sound are indicators of what program was used, how much expertise was applied, how much "effort" or "work" was put into it, how "intricate" the process of making it was. As Kyomi's words reveal, the ultimate track is the one whose sound mystifies the listener, rendering all of these markers of process inaudible. What can be perceived (or hidden) within sound that you produce is the foundation of authenticity in electronic music. For electronic dance music producers, sound bears the signs of legitimacy or creativity, providing clues as to the intricacy of the process and the technical knowledge implicit in its construction.

The technical contours of this virtual authenticity can also be identified through examples provided by subjects of genres or styles they considered "inauthentic" or "gimmicky." Inauthenticity was distinguishable by the specific stylistic elements contained in their sound. Rob's disdain for the electro genre, which is in many ways a throwback to the tech-y, squelchy sounds of 80s-based synth-pop bands such as Kraftwerk and New Order, indicates how fraudulent musicality or lack of technical knowledge or innovation is perceptible in sound:

> I kind of laugh at the whole electro scene right now—the whole idea of it is based on the regression of sound, and I find that gimmicky. Electro sounds like my production from 1999 when I didn't know fuck-all. And I think a lot

> of the electro scene is based on that—based on people who don't really know as much as far as musical pleasure goes, wanting to get their hit in. And I think that's cool---but don't base it on gimmicky sounds, ya know? Push it forward. It's just a very infantile kind of sound, based on a lack of knowledge of the way stuff works.

Rob's response to electro in many ways ties together the key themes I have pulled out of my interview data. Though electro is produced in the same manner as other forms of electronic dance music, Rob sees it as inauthentic and "gimmicky" because the regressive qualities of its sound fail to meet the standards of virtual authenticity. The sound of inauthenticity lacks evidence of the technical knowledge and the creative engagement with one's tools required to "push it forward" and generate the intricacies of the virtually authentic.

Notably, the components of process and sound that determine (virtual) authenticity in digital dance music production are generally contained within the "expert culture" of digital authorship that I have examined in this study. The knowledge and values prized by this mode of digital musicianship, however, negotiate with other practices of dance music cultures in order to generate the overall authentic "rave" experience. Prasad makes an interesting point in his discussion of authenticity, which he envisions is dependent purely on the response provoked by music, its impact on the audience, and the discourse it constructs. As he insists:

> The dance floor has a body language, just as the DJ has record language or vinyl language, the musician has sonic language. So the question is of how many words you can generate.

Prasad's statement infers a dialogue between the producer, the performer (the DJ), and the dancing audience. Through this communicative loop of dance music cultures, authenticity and meaning are negotiated and forged. While my study has primarily been devoted to the production practices of dance music cultures and the way they exhibit a "technological imagination," Prasad's observation makes clear the necessity for further research to broaden its

scope and consider how music is put into action on the dance floor by the DJ, or how it is perceived by the audience.

The "sonic language" of electronic music, as depicted in this chapter, has its own set of rules, its own discursive strategies, its own ways of constructing knowledge and legitimacy. However, most producers will verify that they make music to be heard on the dance floor, to be played by a DJ, meaning that electronic music must ultimately derive its meaning within the rituals of party, through its contribution to the "vibe." The meaning of sonic language, in the case of electronic dance music, must ultimately find some common ground with its sister languages of dancing bodies and revolving records.

**Dance Music Production and the Postdigital Analogue**

My case study has drawn out and made evident a number of underlying shifts in how musical creativity, authorship, and authenticity are perceived in light of digital music technologies. The key categories that I have presented here, which emerged out of the participants' own experience of their work and their engagement with technology and sound, help to tie together several of the themes I have attempted to identify as unique to dance music cultures throughout this paper. The production practices described in this chapter signify a musical practice that is in many ways borne out of the technological imagination introduced by Théberge, particularly in the ways that the participants attach importance to their own agency through their engagement with digital music technologies and the technical knowledge that goes into the production process. These values of technological agency and knowledge, notably, are fundamental in the development of a valuable compositional process, which itself has become an important aesthetic. Furthermore, each of these markers of authenticity

(engagement, knowledge, process) are audible in a piece of music, leading to the predominance of aesthetics and *sound* as the fundamental issue in determining the worth of a musical piece.

The ideals espoused by these participants indicate a radical shift in the conventional ways in which musical practice and authenticity have been considered. The means of defining the authentic as presented in this chapter is founded on an intriguing reconfiguration of dominant digital and residual analogue values. One the one hand, in terms of authorship, the digital dominates—the model of analogue authorship which designated the author as the sole source of meaning fails to hold within electronic dance music—as we have noted, meaning is inscribed elsewhere and otherwise through the cultural rituals specific to dance music cultures. Similarly, the digital retains value in terms of its technical provisions: producers speak highly of the "control" of the digital, thus enabling the simulation and manipulation of any sound imaginable. Thus the analogue concern with tying the authentic to the real is unseated by the digital's logic of simulation and hyperreality. It is concerned with the sound of the real rather than the real itself, and furthermore with the ability to master the technological tools so effectively as to mask their presence.

However, analogue principles retain their influence in other ways. On a broader level, the technologies of turntables and vinyl records and the aura associated with them remains, as do the aesthetic legacies of analogue technologies such as the Roland drum machines. In terms of production choices and musical ideals, however, analogue principles persist as indicated by the retention of concerns over humanity, the body, and the *sound* of the real within electronic dance music. The twist is that each of these is deployed in rather different ways through electronic dance music. To use McCullough's terms, computer-based music "abstracts" the physical from the craft.

However, the body is recuperated through dance or through the performance of the DJ who physically manipulates his records, rather than in the act of crafting the sound itself. The aspiration to maintain sounds that are "organic" or "natural," however, remain only on the basis of their artifice. The "real" of the organic is more acceptable if achieved effectively through digital simulation and through the innovative agency imposed on digital tools. While the analogue is concerned with congruence or continuity, humanity and warmth, so too are the compositional or consumptive goals of dance music cultures. The key difference: dance music cultures accept *virtual* renditions of these values as artifice is enculturated into musical sound and authenticity.

Revisiting Williams, who defines the *emergent* as a practice or formation in which new relationships between dominant or residual values are forged, one can see its applicability to the traditions of dance music cultures. Their modification of the traditional relationship between humans and machines suggests that dance music cultures are an emergent culture, which consolidates elements of the dominance of digital hyperreality in musical production with the residual analogue concerns over expression, connection, and human agency. Its rules and rituals of composition, performance, and consumption point to its potential manifestation of Punt's condition of the "postdigital analogue," the coalescence of the analogue concerns with "felt experience" with the digital's "technologies of description." What dance music cultures reveal on a broader level is a way of embracing both sides of the battle, so to speak. Technological dominance and the felt experience of humanity and expression need not be mutually exclusive elements in music, artistic practice, or culture in general. Thus, while anxiety abounds in an increasingly technological age, dance music cultures turn the battle

between human and machine into a conversation, waging peace through a dialogic relationship by which meaning and expression are forged in new ways.

## Conclusion: The Return of the *Jongleurs*

> Music should be a reminder to others that... each instrument, each tool, theoretical or concrete, implies a sound field, a field of knowledge, an imaginable and explorable universe. Today, a new music is on the rise, one that can neither be expressed nor understood using the old tools, a music produced elsewhere and otherwise. It is not that music or the world have become incomprehensible: the concept of comprehension itself has changed; there has been a shift in the locus of the perception of things. (Attali 1977: 133)

This passage from Jacques Attali's *Noise: The Political Economy of Music* (1977), demonstrates his remarkably prescient perception of the direction of music. Attali posits that historically, music can be marked out in stages that are both reflective and prophetic of the social and political order. He identifies three historical periods in music and power, each marked by a different "strategic use" of music by political structures and each heralding or foreshadowing the superstructure to follow.

The earliest period is what he calls Sacrifice, whereby music served a religious or ideological purpose; it was collective, functioning as ritual sacrifice in order to make people *forget* the violence of the world. The second he refers to as Representation, which is attendant with a "primitive form of capitalism" whereby music becomes an autonomous art, a spectacle that reinforced the representing power of the social order. The representative took over the sacrificial during the professionalization of music during the 19th century. The third stage, Repetition, owes much of its existence to the invention of recordings, and is the phase we are still primarily entrenched in now. The enormous impact of recording technologies ushered in the act of "stockpiling representations," whereby music becomes pure commodity. Labour is transferred to the "molders" who create the models that allow for the mass reproduction of consumption, which necessitate that "meaning" be somehow generated within the mold in order to justify its constant repetition. Certainly this overtly capitalistic version is one that persists in today's corporate pop music industry. Nonetheless, Attali's model insists that these

stages are both reflective and predictive: each is an indication not only of *what is*, but of *what is to come*. There are temporal and practical overlaps between these phases of music-making. Though debatable, we may already be seeing many signs of the fourth stage in contemporary practices.

The passage quoted above refers to this impending mode of music-making, which Attali calls Composition. At the time of writing, Attali believed that elements of the Compositional era were surfacing in forms such as free jazz, heralding the emergence of this fourth phase in musical practice. Characterized by the destruction of the exchange-value of music, the compositional stage renders the act of musical creation "free" again, made by breaking out of older codes and "inventing new codes, inventing the message at the same time as the language" (Attali 1977: 134).

This stage of musicianship hails the return of the *jongleur*, the nomadic and independent musician who was a "free craftsman at one with the people" who not only makes his/her own music, but makes his/her own instrument as well (Attali 1977: 16; Gilbert and Pearson 1999: 119). The new *jongleur* returns music from an individualized, consumptive act based in the exchange of capital to a collective act of communication. As Susan McClary notes, Attali's "composition" highlights the desire to liberate music-making from "the rigid institutions of specialized music training in order to return it to all members of society" (1985: 156).

Looking back on my examination of electronic music production, it is striking how Attali's prophecy rings true in many ways that even he may not have envisioned. The questions raised by the emergence of digital music production have reinvigorated Attali's thought on the direction of music. With electronic music production, we are indeed witnessing

the exploration of new sonic "fields of knowledge" as even tools and process become as malleable and re-workable as musical data. Electronic musicians are particularly concerned with the nature of process and the ability to push the limits of their tools rather than abide by its proposed intent. They may be the contemporary manifestation of Attali's *jongleurs*, who are "the only worthwhile researchers: the undisciplined ones. The ones who refuse to answer new questions using only pregiven tools" (Attali 1977: 133). As Leonard Meyer contends, digital technology's influence over music-making means we have become increasingly concerned not only with change, but with "the nature of change itself" (Riddell 2000: 338). In this assertion we hear reverberations of Attali's declaration above that "music and the world have not become incomprehensible: the concept of comprehension itself has changed." The ways in which we experience music and negotiate meaning through it are certainly in a state of flux: the question remains as to how we might uncover the nature of the perceptual change brought on by digital music and the "technologies of deception" that they entail. That is, how does the way we experience *sound* signify or bring about new forms of knowledge and creativity?

My study has been devoted to two concurrent projects. The first is to situate an examination of lived production practices within the broader context of the literature of dance music cultures and the influences of music technology on both the practice and perception of music. In this way, I have attempted to position this culture of production as an emergent cultural practice that encompasses and re-envisions the relations between both dominant and residual formations in music-making. The emergent practices revealed by the participants in this study find ways to explore new ground by incorporating the possibilities provided by

digital technology with the aesthetic or practical imagery associated with residual, analogue technologies.

On a more subjective level, however, participants of this culture are driven by the tension between their humanity and their interaction with technology: thus, while the dominance of digital technology persists, dance music cultures are still devoted to finding ways of incorporating human agency and residual notions of "feel" into musical experience. These attempts to recuperate the human element or the presence of the body can be further located in the practices of performance and reception that are inextricably linked to musical composition. Recalling my contention that the dance music culture experience is constituted by a dialogue between the languages of sound, vinyl, and dance, it becomes clear that uncovering the common discursive or experiential ground between these languages requires further study of the practices of performance and reception. In light of this, the rules or discursive strategies of the performer or the dancer (which I have only discussed briefly) would provide rich terrain for future research of dance music cultures.

Second, this study suggests a new strategy for examining musical practice on a conceptual level, looking at how music's meaning might be audible in experience rather than legible in the text. To use one participant's terms, understanding dance music cultures involves deciphering how the "sonic language" of music works in tandem with other types of "language" (performance, reception) that determine experiential meaning. What dance music cultures constitute is not necessarily "new music" but rather a new way of approaching musicality and skill, authenticity and artifice. So too, then, should one's means of understanding these concepts be revised.

Attali maintained that the Compositional stage "does not constitute, therefore, a new form of popular music, but rather a new practice of music among the people. Music becomes superfluous, the unfinished, the relational" (1977: 141). This "new practice" embedded in dance music cultures encompasses far more than the production practices examined in this study. My research has only scratched the surface in its attempt to unlock the rules of sonic creativity and authenticity in electronic music production. The project of discovering the ways in which the sonic language introduced in this study is made "relational" to these other languages of dance or performance deserves further attention. Then, perhaps, the emergent world of dance music cultures and the new mode of Composition that they envisage can be further elucidated. Recalling David Toop's quote in my introduction, we might revise our terms so that the relationship between our "virtual selves" and machines is no longer a "struggle": the question is no longer one of *giving up* our humanity to the machines. Dance music cultures demonstrate a way in which often conflicting forces of human agency and technological progress might find a common "language," or to recall Attali's suggestion, a way to make "music or the world" once again comprehensible.

## Notes

[1] The methodology for this case study involved human subjects and received proper approval from the Ryerson Research Ethics Board for Research. Please refer to Appendix 1 for a copy of this approval letter.

[2] These varying definitions of authenticity include concerns regarding the status of music with respect to threats of commercialization and appropriation, fakery and imitation pertaining to a musical tradition's cultural or racial origins which are at constant risk of co-optation or exploitation by mainstream capitalist culture. These ideas concerning authenticity certainly present themselves in the discourse of dance music cultures, particularly at a time when many electronic dance music artists are being condemned by fans for "selling out" to corporate influence as their music increasingly becomes the new soundtrack for commercial ads and media (think "Moby," or any of the new Mitsubishi commercials). Such criticisms are similarly lodged against the predominance of corporate sponsorship of club events and parties, which many claim has killed the "underground" element that once characterized dance music culture. However, this study limits its discussions of authenticity to those more confined within the practices and texts of dance music cultures that respond specifically to the technologies I discuss: namely, corporal or artistic presence, originality, and authorship as signifiers or the "real" or the "authentic."

[3] As I will point out in Chapter 2, these associations only came to accompany analogue technologies in the presence of the digital. Analogue is still a technology, and with its emergence came similar complaints regarding mechanization or disembodiment that are now used to describe digital technologies. This study is interested in the current and contemporary meanings ascribed to digital and analogue, though the histories of these ascriptions to analogue and digital are acknowledged.

[4] This declaration was publicly posted on AlexD's own TRIBEmagazine messageboard, an online community devoted to Canadian rave and club cultures. AlexD's comments incited a long-winded debate within the TRIBE community over the tenacity of his claim. For further reading, see the message board discussion at <http://www.tribemagazine.com/board/showthread.php?s=&threadid=13922&highlight=rave+scene+dead>.

[5] Though many electronic dance music tracks contain lyrics, they are not foregrounded, nor do they typically contain a narrative or story as do most pop or rock songs. Usually, vocals are sampled and integrated with the track to act as one of its many sonic layers, receding into the polyphonic fabric of the song. Lyrical accompaniment also occurs during the live MC performances which accompany jungle, ragga or drum n'bass sets, which are not usually included in the original productions of the tracks. Other genres such as deep house or "vocal house," whose origins are heavily based in the gay and black culture of disco, tend to be more the exception than the rule, often recruiting the talents of live singers to generate the foregrounded vocals in the track.

[6] A more recent example of this type of agency is the conception of FinalScratch, an innovation that allows the DJ to play digital sound files while maintaining the nuances of playing on vinyl and keeping the traditional turntable-mixer-system integrated. FinalScratch provides a "dummy" record that encodes digital time-code into its grooves and allows the needle to match the time-code to the mp3 or .wav file on one's computer. As a result, the DJ is able to play, manipulate, and scratch a digital sound file exactly like a vinyl record. Since FinalScratch preserves the turntable-mixer setup, the DJ is not forced to abandon vinyl altogether and can combine the two types of tracks seamlessly. Whereas CD-turntables can play and mix digital files, FinalScratch is ground-breaking in its ability to circumvent concerns over the loss of the "feel" or "touch" of vinyl and effectively incorporating the digital into a culture that has generally balked at using digital formats (despite having no objection to playing vinyl recordings of digitally produced music). On a broader cultural level, however, it is indicative of dance music cultures' continued commitment to revising or shifting traditional boundaries between digital and analogue technologies and principles.

[7] The tendency to conflate originality with authenticity owes much to Walter Benjamin's work concerning the "Work of Art in the Age of Mechanical Reproduction" (1973) in which he presents a cultural dominant that configured authenticity based on the existence of the original, whose unique aura was threatened by the proliferation of the copy, enabled by reproduction technologies. Despite the fact that Benjamin was primarily referring to techniques involving the visual arts, much recent cultural criticism has reinvigorated a flattened version of Benjamin's analysis in order to either decry the threats posed by recording technologies, or to discuss their emancipatory potential. The typical response to the ability to record and recirculate (as well as manipulate) the sound of the "original" performance, in this sense, echoes Benjaminian concerns with questions of originality, authorship, and uniqueness. As the recording of an original performance circulates on a mass scale, one might be concerned that the "aura" associated with the live performance is lost due to the mere presence of the copy itself.

However, as virtually infinite catalogues of pre-fabricated sounds have become readily available for use in popular music production, the distinctions between "original" and "copy" tend to blur even more. Furthermore, the nature of digital music adheres to no sense of the "original: it lends itself perfectly and intentionally to reproduction, begging the question of where the "aura" might be located to begin with. As Benjamin himself does not particularly address music or the implications of these other "forms" it can take, one might question the appropriateness of his constant galvanization in pop music discussions. Nonetheless, his emphasis on examining the relationship between original and copy has been instrumental in shaping contemporary concerns over the ability to detect the author's unique, authentic truth within the mode of musical expression.

[8] Though I primarily discuss the effects of digital music technologies from the point of view of the audiences and producers (particularly later on, where I posit that digital music technologies have ushered in a form of "digital authorship" that is distinct in many ways from the "analogue authorship" prevalent in other musical traditions), these technologies have certainly had effects that resonate beyond the scope of the practices discussed in my study. While I do wax a optimistic regarding the possibilities digitization has provided for musical practice in the context of dance music cultures in particular, there have certainly been reactions and consequences outside of these practices—negative or otherwise—that I do not address within the scope of my research.

[9] Notably, dance music cultures have not completely abstracted the practiced hand from the craft that drives them. On the one hand, they fit with McCullough's framework in that debatably, electronic music producers are still in essence employing tools (samplers, software, sequencers, etc.) which abstract the physical component of music making—but still with the element of human intention and artistry. However, while the physical act of performing and recording music appears to have been abstracted by the prevalence of making music on computers, the skilled hand makes a re-appearance in the DJ's performance. The physical is still restored in the performance gestures involved in mixing records. This may be yet another example of how dance music cultures exhibit the tension between the human and machine, driven by the desire restore those human, corporal experiences that may be threatened by their reliance on technology.

[10] The roles of producers and DJs are often spanned by one person; many DJs move into the arena of production and vice-versa. The majority of the participants in this case study consider themselves to be both producers and DJs, many of them producing music in order to perform it live during DJ gigs.

[11] It would be prudent to point out that the interest in reproductive processes is not a novel concept. Previous artistic endeavours have experimented compositionally by recombining or layering pre-recorded material. Most notable among these is the *musique concrète* developed by Pierre Henry and Pierre Schaefer in the 1940s, which explored the possibilities of splicing and recombining magnetic tape recordings to render new compositional forms. These artists have certainly inspired many of the reproductive production practices that followed.

[12] The title of this thesis is in part an homage to John Cage and his "Imaginary Landscapes" series in which he experimented with electronic instrumentation and sound (and notably, using turntables and the "noise" of radio frequencies). My own modification of his title to name my own investigation of "Imaginary Soundscapes" has much to do with the burgeoning sonic terrain of "impossible musics" being charted by electronic musicians with the aid of digital music technologies.

[13] This kind of 'tinkering' with sound or process is not limited to musicians. Théberge employs Toru Mitsui's term, "participatory consumption," to describe the general practices that are developing, from hip-hop and dance music cultures to "songware" programs and karaoke, each of which render the traditional notions of originality, authorship and authenticity problematic as listeners or performers are also increasingly invited to engineer and manipulate pre-existing tools and material (1997: 252). All of these musical practices are symbolic of the "technological imagination" that appears requisite to engaging innovatively with the technological tools available.

[14] Please refer to Appendix 2 for a list of these preliminary questions.

[15] At the time of writing, Spanish company Polyphonic HMI in fact released details of a software program it had developed entitled "Hit Song Science" that could aid recording companies in predicting the potential chart success of a pop song. This would supposedly be achieved through analyzing the track based on a number of "trait clusters" associated with previous chart-toppers. The software works due to the fact that, according to Polyphonic's CEO, "there are a limited number of mathematical formulas for hit songs." The original article is available at <http://www.abc.net.au/news/newsitems/s805711.htm>.

Appendix 1

RYERSON UNIVERSITY

# Research Ethics Board

To: Ms. Sara Chan
Joint Graduate Programme in Communication and Culture

From: Alexander Karabanow on behalf of Robert Rinkoff, Ph.D.
Chair, Research Ethics Board
c/o Early Childhood Education

Re: REB 2003 – 021: ONTechnology: Music technology, rave culture, and emerging technocultural practice

Date: June 17, 2003

Dear Mc. Chan,

The review of your protocol REB File #2003-021 is now complete.

The project has been approved for a one year period, subject to full REB ratification at the REB's next scheduled meeting. The study may proceed.

The approval may be extended after one year upon request.

Please note that REB approval policies require that you adhere strictly to the protocol as last reviewed by the REB and that any modifications must be approved by the Board before they can be implemented. Adverse or unexpected events must be reported to the REB as soon as possible with an indication from the Principal Investigator how these events affect, in the view of the Principal Investigator, the continuation of the protocol.

Finally, if research subjects are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

Please quote your REB file number (REB-2003-021) on future correspondence.

Congratulations and best of luck in conducting your research.

Alexander Karabanow

for Robert F. Rinkoff, Ph.D.
Chair, Research Ethics Board

## Imaginary Soundscapes: Electronic Music Culture and the Aesthetics of the Virtual
## Case study interview questions

### Basic questions

Age
Gender
Occupation
Role/mode of participation in club or rave culture scene
Do you wish to be referred to by a pseudonym?
Do you want a transcript of the interview?

### Interview questions

1. How did you become involved in the rave/club scene? When was it?

1. How did you become interested in (DJing/producing/appropriate use of technology here)?

2. If both—do you consider yourself more one than the other? Why do you make this distinction?

3. What kinds of instruments or technological devices do you use? How do you use them?

4. What role do you think technology, in general, plays in rave or club culture? Do you think there are any ways in which rave or club cultures use technology that are different from typical cultures or scenes?

    a. DJs: how do you interact with a crowd? How much does it affect the way you perform?
    b. Producers: what do people like about sitting in front of a computer and making music? Is it different from songwriting for instruments, and how? What satisfaction is gained from it? Is the technology just a means to an end, or is there another factor involved (ie. Experimental, exploratory)?

5. What do you think of the common argument that electronic music is cold, disembodied, overly programmed, distancing? Do you think it removes us from our bodies? How do you think people interact with electronic music? Is there a possibility for "groove" or "feel" in electronically produced dance music?

6. What do you see as the difference between digital and analog? How do people generally talk about these two things? Why do you think there is a fetishization or glorification of one form or technique over the other?
7. What do you think of technologies that incorporate both ideas, such as FinalScratch? Can you think of other examples that attempt to use both ideas?

Do you try to use both ideas in your own work? Might such devices change the way people talk about digital vs. analog or deconstruct the binary or opposition a bit?

8. How do you see yourself in relation to the tools or technologies you use in your practice? Could you do what you do without them? If not, how ingrained or transparent are they in what you do or how you use them? How much do you seek to make apparent or disguise the use of technology in what you produce? How much do you care if it is apparent or hidden in your experience of music (whether listening, creating, mixing or dancing?)

    a. Do you try to make the sounds "natural" or mechanical sounding? What motivates the concepts you try to highlight, whether natural or artificial?

9. What do you try to accomplish with your performance or compositions? Do you have any kind of "vision" that guides you?

10. What qualities do you think a "good" or "talented" DJ or producer possesses? How would you distinguish between good and bad music, well or poorly produced music, or authentic or inauthentic music? What defines these categories for you?

11. What is your position on sampling? Do you think the use of prerecorded sounds demeans a piece of music? Is there room for originality or creativity in sampling?

## Bibliography


Aaronson, Beatrice. 1999. Dancing our way out of class through funk, techno or rave. *Peace Review* 1 (2): 231-37.

*Article about raves being dead... and iDance* 2003. [online discussion board]. In General Forum TRIBEmagazine 2002 [cited June 10 2003]. Available from http://www.tribemagazine.com/board/showthread.php?s=&threadid=13922&highlight=rave+scene+dead.

Attali, Jacques. 1985. *Noise: The Political Economy of Music.* Translated by B. Massumi. Minneapolis: University of Minnesota Press.

Auner, Joseph. 2000. Making Old Machines Speak: Images of Technology in Recent Music. *ECHO* 2 (2).

Barthes, Roland. 1977. *Image-Music-Text.* Translated by S. Heath. New York: Hill and Wang.

Benjamin, Walter. 1973. The Work of Art in the Age of Mechanical Reproduction. In *Illuminations*, edited by H. Arendt. Glasgow: Fontana

Berk, Mike. 2000. Analog Fetishes and Digital Futures. In *Modulations: A History of Electronic Music -- Throbbing Words on Sound*, edited by P. Shapiro. New York: Caipirinha Productions.189-201.

Borneman, John, and Stefan Senders. 2000. Politics Without a Head: Is the 'Love parade' a new form of political identification? *Cultural Anthropology* 15 (2): 294-317.

Brewster, Bill, and Frank Broughton. 2000. *Last Night a DJ Saved My Life: The History of the Disc Jockey.* New York: Grove Press.

Connor, Steven. 2001. The Decomposing Voice of Postmodern Music. *New Literary History* 32: 467-483.

Cunningham, Helen. 1998. Digital Culture-- the View from the Dance Floor. In *Youth Culture in the Age of Multimedia*, edited by J. Sefton-Green. London: UCL Press.128-48.

Emmerson, Simon. 2001. From *Dance!* to "Dance": Distance and Digits. *Computer Music Journal* 25 (1): 13-20.

Foucault, Michel. 1984. What is an author? In *The Foucault Reader*, edited by P. Rabinow. New York: Pantheon.101-120.

Frith, Simon. 1986. Art versus technology: The strange case of popular music. *Media, Culture & Society* 8: 263-79.

———. 1992. The Industrialization of Popular Music. In *Popular Music and Communication*, edited by J. Lull. London: Sage. 53-79.

———. 1998. *Performing Rites: Evaluating Popular Music.* Oxford: Oxford UP.

Fritz, Jimi. 1999. *Rave Culture: An Insider's Overview.* Toronto: SmallFry Press.

Gibson, Chris. 2001. Appropriating the Means of Production: Dance Music Industries and Contested Digital Space. In *FreeNRG: Notes from the Edge of the Dance Floor*, edited by G. S. John. [e-book] [cited 14 Mar 2001]. Available from www.ozauthors.com.au.

Gilbert, Jeremy, and Ewan Pearson. 1999. *Discographies: Dance Music, Culture and the Politics of Sound.* London: Routledge.

Goodwin, Andrew. 1988. Sample and hold: pop music in the digital age of reproduction. *Critical Quarterly* 30 (3): 34-49.

———. 1992. Rationalization and Democratization in the New Technologies of Popular Music. In *Popular Music and Communication*, edited by J. Lull. London: Sage.75-100.

Grossberg, Lawrence. 1992. *We Gotta Get Out of This Place: Popular Conservatism and Postmodern Culture.* New York: Routledge.

Hutson, Scott R. 1999. Technoshamanism: Spiritual Healing in the Rave Subculture. *Popular Music and Society* 23 (3): 53-77.

———. 2000. The Rave: Spiritual Healing in Modern Western Subcultures. *Anthropological Quarterly* 73 (1): 35-50.

Jenkins, Henry. 2002. *The Work of Theory in the Age of Digital Transformation* [online article] 1999 [cited 12 May 2002]. Available from http://web.mit.edu/21fms/www/faculty/henry3/pub/digitaltheory.htm.

Jones, Steve. 1992. *Rock Formation: Music, Technology, and Mass Communication.* Newbury Park: Sage.

Kelly, Kevin. 2002. Where Music Will Be Coming From. *The New York Times Magazine*, 17 March, 29-31.

Lull, James. 1992. Popular Music and Communication: An Introduction. In *Popular Music and Communication*, edited by J. Lull. London: Sage.1-32.

Martin, Daniel. 1999. Power Play and Party Politics: The Significance of Raving. *Journal of Popular Culture* 32 (4):77-100.
McCall, Tara. 2001. *This is Not a Rave: In the Shadow of a Subculture*. Toronto: Insomniac Press.
McClary, Susan. 1985. The Politics of Silence and Sound. Afterword to *Noise: the Political Economy of Music* by Jacques Attali. Minneapolis: University of Minnesota Press.
McCullough, Malcolm. 1996. *Abstracting Craft: The Practiced Digital Hand*. Cambridge: MIT Press.
McRobbie, Angela. 1994. *Postmodernism and Popular Culture*. London: Routledge.
Melechi, Antonio. 1993. The Ecstasy of Disappearance. In *Rave Off: Politics and Deviance in Contemporary Youth Culture*, edited by S. Redhead. Aldershot: Avebury
*Music robot set to predict chart hits* 2003. [news article]. ABC News Online 2003 [cited July 25 2003]. Available from http://www.abc.net.au/news/newsitems/s805711.htm.
Ostertag, Bob. 2002. Human Bodies, Computer Music. *Leonardo Music Journal*.
Poschardt, Ulf. 1998. *DJ Culture*. Translated by S. Whiteside. London: Quartet Books.
Poster, Mark. 2001. *What's the Matter with the Internet?* Vol. 3, *Electronic Mediations*. Minneapolis: University of Minnesota Press.
Prendergast, Mark. 2000. *The Ambient Century: from Mahler to Trance-- the Evolution of Sound in the Electronic Age*. New York: Bloomsbury.
Punt, Michael. 2002. Human Consciousness and the Postdigital Analogue. *Leonardo* 35 (2): 119-20.
Redhead, Steve. 1997. *Subculture to Clubcultures: An Introduction to Popular Cultural Studies*. Oxford: Blackwell.
Reynolds, Simon. 1999. *Generation Ecstasy: Into the World of Techno and Rave Culture*. New York: Routledge.
Riddell, Alistair. 2001. Data Culture Generation: After Content, Process as Aesthetic. *Leonardo* 34 (4):337-43.
Sefton-Green, Julian. 1998. Introduction: Being Young in the Digital Age. In *Digital Diversions: Youth Culture in the Age of Multimedia*, edited by J. Sefton-Green. London: UCL Press
Shapiro, Peter, ed. 2000. *Modulations: A History of Electronic Music-- Throbbing Words on Sound*. New York: Caipirinha Productions Inc.
Silcott, Mireille. 1999. *Rave America: New School Dancescapes*. Toronto: ECW Press.
Smith, Susan J. 2000. Performing the (sound)world. *Environment and Planning D: Society and Space* 18 (5): 615-37.
Strauss, Anselm L. 1987. *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge UP.
Straw, Will. 1995. The Booth, the Floor and the Wall: Dance Music and the Fear of Falling. In *Popular Music: Style and Identity*, edited by W. Straw et al. Montreal: Dufferin Press.249-254.
Tagg, Philip. 1994. From Refrain to Rave: the decline of figure and rise of ground. *Popular Music* 13 (2): 209-22.
Tankel, Jonathan David. 1990. The Practice of Recording Music: Remixing as Recoding. *Journal of Communication* 40 (3): 34-46.
Taylor, Timothy D. 2001. *Strange Sounds: Music, Technology and Culture*. London: Routledge.
Theberge, Paul. 1997. *Any Sound You Can Imagine: Making Music/Consuming Technology*. Hanover: UP of New England.
Thornton, Sarah. 1996. *Club Cultures: Music, Media and Subcultural Capital*. Hanover: UP of New England.
Titscher, Stefan, and et al. 2000. *Methods of Text and Discourse Analysis*. Translated by B. Jenner. London: Sage.
Tomlinson, Lori. 1998. 'This Ain't No Disco'... Or is it? Youth Culture and the Rave Phenomenon. In *Youth Culture: Identity in a Postmodern World*, edited by J. S. Epstein. Oxford: Blackwell.195-211.
Toynbee, Jason. 2000. *Making Popular Music: Musicians, Creativity, and Institutions*. London: Oxford UP.
Williams, Raymond. 1977. *Marxism and Literature*. Oxford: Oxford UP.